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Aims and Scope

Turkish Journal of Colorectal Disease is an official journal of the Turkish Society of Colon and Rectal Surgery to provide epidemiologic, pathologic, diagnostic and therapeutic studies relevant to the management of small intestine, colon, rectum, anus and pelvic floor diseases. It was launched in 1991. Although there were temporary interruptions in the publication of the journal due to various challenges, the Turkish Journal of Colorectal Disease has been published continually from 2007 to the present. It is published quarterly (March, June, September and December) as hardcopy and an electronic journal at http://www.turkishjcrd.com/

The target audience of Turkish Journal of Colorectal Disease includes surgeons, pathologists, oncologists, gastroenterologists and health professionals caring for patients with a disease of the colon and rectum.

The Turkish name of the journal was formerly Kolon ve Rektum Hastalıkları Dergisi and the English name of the journal was formerly Journal of Diseases of the Colon and Rectum.

Turkish Journal of Colorectal Disease is indexed in **TÜBİTAK/ULAKBİM, Directory of Open Access Journals (DOAJ), CINAHL Ultimate, British Library, Root Indexing, Academic Keys, Idealonline, Gale/Cengage Learning, Index Copernicus, Turkish Citation Index, Hinari, GOALI, ARDI, OARE** and **TurkMedline.**

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Amaç ve Kapsam

Türk Kolon ve Rektum Hastalıkları Dergisi, Türk Kolon ve Rektum Cerrahi Derneği'nin resmi dergisidir. Bu dernek; ince barsak, kolon, rektum, anüs ve pelvik taban hastalıkları gibi hastalıkların yönetimi ile ilişkili epidemiyoloijk patolojik, tanısal ve tedavi edici çalışmalar yapar. Derneğimiz 1991'de kurulmuştur. Çeşitli zorluklar nedeniyle geçici aksaklıklar olsa da Türk Kolon ve Rektum Hastalıkları Dergisi 2007'den bu yana aralıksız olarak basılmaktadır ve 3 ayda bir olmak üzere (Mart, Haziran, Eylül, Aralık) basılı dergi ve elektronik olarak (http://www.turkishjcrd.com/) yayımlanır.

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Derginin Türkçe eski adı; Kolon ve Rektum Hastalıkları Dergisi ve İngilizce eski adı; Journal of Diseases of the Colon and Rectum'dur.

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All manuscripts will be evaluated by the scientific board for their scientific contribution, originality and content. Authors are responsible for the accuracy of the data. The journal retains the right to make appropriate changes on the grammar and language of the manuscript. When suitable the manuscript will be sent to the corresponding author for revision. The manuscript, when published, will become the property of the journal and copyright will be taken out in the name of the journal

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The ORCID (Open Researcher and Contributor ID) number of the correspondence author should be provided while sending the manuscript. A free registration can create at http://orcid.org.

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Turkish Journal of Colorectal Disease follows the "Uniform Requirements for Manuscripts Submitted to Biomedical Journals" (International Committee of Medical Journal Editors: Br Med J 1988;296:401-5).

Upon submission of the manuscript, authors are to indicate the type of trial/research and statistical applications following "Guidelines for statistical reporting in articles for medical journals: amplifications and explanations" (Bailar JC III, Mosteller F. Ann Intern Med 1988;108:266-73).

Preparation of research articles, systematic reviews and meta-analyses must comply with study design guidelines:

CONSORT statement for randomized controlled trials (Moher D, Schultz KF, Altman D, for the CONSORT Group. The CONSORT statement revised recommendations for improving the quality of reports of parallel group randomized trials. JAMA 2001; 285:1987-91) (http://www.consort-statement.org/);

PRISMA statement of preferred reporting items for systematic reviews and meta-analyses (Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group. Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 2009; 6(7): e1000097.) (http://www.prisma-statement.org/);

STARD checklist for the reporting of studies of diagnostic accuracy (Bossuyt PM, Reitsma JB, Bruns DE, Gatsonis CA,

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Glasziou PP, Irwig LM, et al., for the STARD Group. Towards complete and accurate reporting of studies of diagnostic accuracy: the STARD initiative. Ann Intern Med 2003;138:40-4.) (http://www.stard-statement.org/);

STROBE statement, a checklist of items that should be included in reports of observational studies (http://www.strobe-statement.org/);

MOOSE guidelines for meta-analysis and systemic reviews of observational studies (Stroup DF, Berlin JA, Morton SC, et al. Meta-analysis of observational studies in epidemiology: a proposal for reporting Meta-analysis of observational Studies in Epidemiology (MOOSE) group. JAMA 2000; 283: 2008-12).

Text Formatting

Manuscripts should be submitted in Word.

Use a normal, plain font (e.g., 10-point Times Roman) for text.

Use the automatic page numbering function to number the pages.

Do not use field functions.

Use tab stops or other commands for indents, not the space bar.

Use the table function, not spreadsheets, to make tables.

Save your file in docx format (Word 2007 or higher) or doc format (older Word versions).

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All manuscripts, regardless of article type, should start with a title page, containing:

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The short title of the article

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The main appointment of each author;

The name(s) of the institution(s) of each author;

The name and email address of the corresponding author;

Full disclosures of potential conflicts of interest on the part of any named author, or a statement confirming that there are no conflicts of interest;

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Aim: What was the purpose of the study?

Method: A brief description of the materials - patients or subjects (i.e. healthy volunteers) or materials (animals) - and methods used.

Results: What were the main findings?

Conclusion: What are the main conclusions or implications of the study?

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Results: Present the detailed findings supported with statistical methods. Figures and tables should supplement, not duplicate the text; presentation of data in either one or the other will suffice. Emphasize only your important observations; do not compare your observations with those of others. Such comparisons and comments are reserved for the discussion section.

Discussion: State the importance and significance of your findings but do not repeat the details given in the Results section. Limit your opinions to those strictly indicated by the facts in your report. Compare your finding with those of others. No new data are to be presented in this section.

Acknowledgments: Only acknowledge persons who have made substantive contributions to the study. Authors are responsible for obtaining written permission from everyone acknowledged by name because readers may infer their endorsement of the data and conclusions. Begin your text of the acknowledgment with, "The authors thank…".

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Final approval of the version to be published; and

Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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Example: 1. Dilaveris P, Batchvarov V, Gialafos J, Malik M. Comparison of different methods for manual P wave duration measurement in 12-lead electrocardiograms. Pacing Clin Electrophysiol 1999;22:1532-1538.

Book chapter; Last name(s) of the author(s) and initials, chapter title, book editors, book title, edition, place of publication, date of publication and inclusive page numbers of the extract cited.

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Example: 1. Schwartz PJ, Priori SG, Napolitano C. The Long QT Syndrome. In: Zipes DP, Jalife J, eds. Cardiac Electrophysiology. From Cell to Bedside. Philadelphia; WB Saunders Co. 2000:597-615.

Tables: All tables are to be numbered using Arabic numerals. Tables should always be cited in text in consecutive numerical order. For each table, please supply a table caption (title) explaining the components of the table. Identify any previously published material by giving the original source in the form of a reference at the end of the table caption. Footnotes to tables should be indicated by superscript lower-case letters (or asterisks for significance values and other statistical data) and included beneath the table body.

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Abstract length: Not to exceed 250 words.

Article length: Not to exceed 4000 words.

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Reviews should include a conclusion, in which a new hypothesis or study about the subject may be posited. Do not publish methods for literature search or level of evidence. Authors who will prepare review articles should already have published research articles on the relevant subject. The study's new and important findings should be highlighted and interpreted in the Conclusion section. There should be a maximum of two authors for review articles.

Case Reports

Abstract length: Not to exceed 100 words.

Article length: Not to exceed 1000 words.

Reference Number: Not to exceed 15 references.

Case Reports should be structured as follows:

Abstract: An unstructured abstract that summarizes the case.

Introduction: A brief introduction (recommended length: 1-2 paragraphs).

Case Report: This section describes the case in detail, including the initial diagnosis and outcome.

Discussion: This section should include a brief review of the relevant literature and how the presented case furthers our understanding to the disease process.

References: See under 'References' above.

Acknowledgments.

Tables and figures.

Technical Notes

Abstract length: Not to exceed 250 words.

Article length: Not to exceed 1200 words.

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Technical Notes include description of a new surgical technique and its application on a small number of cases. In case of a technique representing a major breakthrough one case will suffice. Follow-up and outcome need to be clearly stated.

Technical Notes should be organized as follows:

Abstract: Structured "as above mentioned".

Indications

Method

Comparison with other methods: advantages and disadvantages, difficulties and complications.

References, in Vancouver style (see under 'References' above).

Acknowledgments.

Tables and figures: Including legends.

Letters to the Editor

Article length: Not to exceed 500 words.

Reference Number: Not to exceed 10 references

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Video Article

Article length: Not to exceed 500 words.

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Briefly summarize the case describing diagnosis, applied surgery technique and outcome. Represent all important aspects, i.e. novel surgery technique, with properly labelled and referred video materials. A standalone video vignette, describing a surgical technique or interesting case encountered by the authors.

Requirements: The data must be uploaded during submission with other files. The video should be no longer than 10 minutes in duration with a maximum file size of 350Mb and 'MOV, MPEG4, AVI, WMV, MPEGPS, FLV, 3GPP, WebM' format should be used. Documents that do not exceed 100 MB can be uploaded within the system. For larger video documents, please contact iletisim@galenos.com.tr All videos must include a narration in English. Reference must be used as it would be for a Figure or a Table. Example: ".....To accomplish this, we developed a novel surgical technique (Video 1)." All names and institutions should be removed from all video materials. Video materials of accepted manuscripts will be published online.

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A single study is not split up into several parts to increase the quantity of submissions and submitted to various journals or to one journal over time (e.g. "salami-publishing").

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Yazarlara Bilgi

GENEL BİLGİ

Türk Kolon ve Rektum Hastalıkları Dergisi, Türk Kolon ve Rektum Cerrahisi Derneği'nin dergisidir. Derginin misyonu; ince bağırsak, kolon, rektum, anüs ve pelvik taban bozuklukları hakkındaki bilgiye katkı sağlamaktır. Dergi daha önce başka bir yerde yayınlanmamış olması koşuluyla, derginin kapsamı ile ilgili ve talep üzerine yazılan derleme makaleleri, araştırma makaleleri, kısa raporlar ve editöre mektuplar ve olgu sunumlarını yayınlamaktadır. Randomize, kohort, kesitsel ve vaka kontrol çalışmaları gibi temel bilim yazılarına öncelik verilir. Alanında bilinen uzmanlarca talep üzerine yazılan derlemeler dikkate alınacaktır.

Yazılar ICMJE yönergelerine göre (http://www.icmje.org/) hazırlanmalıdır. Tüm yazılar dergi tarafından benimsenen stile uygunluk sağlamak için editöryal kontrol ve düzeltmelere tabi tutulmaktadır. Derginin çift kör bir değerlendirme sistemi vardır. Değerlendirilen ve kabul edilen yayınlar Türkçeden İngilizceye veya İngilizceden Türkçeye derginin profesyonel çeviri hizmeti aracılığıyla tercüme edilir. Yayınlanmadan önce, çeviriler onay veya düzeltme istekleri için yazarlara gönderilir ve 7 gün içinde geri dönüş talep edilir. Bu süre içinde yanıt alınamazsa, çeviri kontrol ve yayın kurulu tarafından onaylanır.

Kabul edilen yayınlar hem Türkçe hem de İngilizce olarak yayınlanır.

Türk Kolon ve Rektum Hastalıkları Dergisi'ne gönderilen tüm yayınlar 'iThenticate' yazılımı kullanılarak intihal açısından taranır. İntihal saptanan durumlarda yayın iade veya reddedilir.

Türk Kolon ve Rektum Hastalıkları Dergisi, makale gönderme veya işlem ücreti adı altında herhangi bir ücret talep etmemektedir.

Türk Kolon ve Rektum Hastalıkları Dergisi'nin kısaltması "TJCD"dir, ancak, refere edildiğinde "Turk J Colorectal Dis" olarak kullanılmalıdır.

YAYIN POLİTİKASI

Tüm makaleler bilimsel katkıları, özgünlük ve içerikleri açısından bilimsel komite tarafından değerlendirilecektir. Yazarlar verilerinin doğruluğundan sorumludurlar. Dergi gerekli gördüğü yerlerde dil ve uygun değişiklik yapma hakkını saklı tutar. Gereğinde makale revizyon için yazara gönderilir. Dergide basılan yayın derginin malı haline gelir ve telif hakkı "Türk Kolon ve Rektum Hastalıkları Dergisi" adına alınmış olur. Daha önce herhangi bir dilde yayınlanmış makaleler dergide yayınlanmak üzere kabul edilmeyecektir. Yazarlar bir başka dergide yayınlanmak üzere olan makaleyi teslim edemez. Tüm değişiklikler, yazar ve yayıncının yazılı izin alındıktan sonra yapılacaktır. Tüm makalelerin tam metinleri derginin www.journalagent.com/krhd web sitesinden indirilebilir.

YAZAR KILAVUZU

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Makale Gönderilirken Sunulması Gereken Formlar:

Telif Hakkı Devir Bildirimi

Yayınların bilimsel ve etik sorumluluğu yazarlarına aittir. Yazıların telif hakkı ise Türk Kolon ve Rektum Hastalıkları Dergisi'ne aittir. Yazarlar yayınların doğruluk ve içeriğinden ve kaynakların doğruluğundan sorumludur. Yayınlanmak üzere gönderilen tüm yayınlara Telif Hakkı Devir Formu (telif hakkı transferi) eşlik etmelidir. Tüm yazarlar tarafından imzalanarak gönderilen bu form ile yazarlar, ilgili yayının ve içerdiği datanın başka bir yayın organına gönderilmediğini veya başka bir dergide yayınlanmadığını beyan ederler. Ayrıca bu belge yazarların bilimsel katkı ve tüm sorumluluklarının ifadesidir.

Açıklama Bildirimi

Çıkar çatışmaları: Yazarlar, finansal, kurumsal, danışmanlık şeklinde ya da herhangi bir çıkar çatışmasına yol açabilecek başka ilişkiler de dahil olmak üzere yayındaki ilgili tüm olası çıkar çatışmalarını belirtilmelidir. Herhangi bir çıkar çatışması yoksa da bu da açıkça belirtilmelidir. Tüm finansman kaynakları yazının içinde belirtilmelidir. Finansman kaynakları ve ilgili tüm çıkar çatışmaları yazının başlık sayfasında "Finansman ve Kaynak Çatışmaları:" başlığı ile yer almalıdır.

Üst Yazı

Yazarlar, yazının içinde malzemenin elektronik ortam da dahil olmak üzere herhangi bir başka bir yerde yayımlanmak üzere gönderilmediğini veya planlanmadığını üst yazıda belirtmelidir. Yine "Kurumsal Değerlendirme Kurulu" (KDK) onayı alınıp alınmadığı ve 2013 yılı Helsinki Bildirgesi'ne eşdeğer kılavuzların izlenip izlenmediği belirtilmelidir. Aksi takdirde, bir açıklama temin edilmelidir. Üst yazı; adres, telefon, faks ve ilgili yazarın e-posta adresini içermelidir.

Makale Yazım Kuralları

Tüm makaleler online başvuru sistemi üzerinden teslim edilmelidir. Yazarlar web sitesi www.journalagent.com/krhd adresinde oturum açtıktan sonra internet üzerinden yazılarını sunmalıdır.

Makale gönderimi yapılırken sorumlu yazarın ORCID (Open Researcher ve Contributor ID) numarası belirtilmelidir. http://orcid.org adresinden ücretsiz olarak kayıt oluşturabilir.

Online Başvuru

Gecikmeyi önlemek ve hızlı hakemlik için sadece çevrim içi gönderimler kabul edilir. Yazılar word belgesi (*.doc) veya zengin metin biçimi (*.rtf) olarak hazırlanmalıdır. www.journalagent.com/krhd adresinde web oturumu açtıktan sonra "Makale gönder" ikonuna tıklayın. Tüm yazarlar, gerekli bilgileri sisteme girdikten sonra bir şifre ve bir kullanıcı adı alır. Kendi şifre ve kullanıcı adınız ile makale gönderme sistemine kayıt olduktan sonra yazının işleme alınmasında bir gecikme olmaması için gerekli tüm bilgileri sağlamak için sistemin yönergelerini dikkatlice okuyunuz. Makaleyi ve tüm şekil, tablo ve ek dökümanları ekleyiniz. Ayrıca üst yazı ve "Telif Hakkı ve Finansal Durum" formunu ve yazının tipine göre aşağıda belirtilen kılavuzların kontrol listesini ekleyiniz.

Makale Hazırlama Kuralları

Türk Kolon ve Rektum Hastalıkları Dergisi "Biyomedikal Dergilere Gönderilen Makaleler için Gerekli Standartları" izler. (International Committee of Medical Journal Editors: Br Med J 1988; 296: 401-5).

Yazarlar yayınlarını gönderirken, çalışmalarının türünü ve uygulanan istatistik yöntemlerini "Tıbbi Dergilere Gönderilen Makaleler için İstatistiksel Raporlama Rehberi"ne uygun olarak belirtmelidir (Bailar JC III, Mosteller F. Ann Intern Med 1988;108:266-73).

Araştırma makalesi, sistematik değerlendirme ve meta-analizin hazırlanması aşağıdaki çalışma tasarımı kurallarına uymak zorundadır; (CONSORT statement for randomized controlled trials (Moher D, Schultz KF, Altman D, for the CONSORT Group.

The CONSORT statement revised recommendations for improving the quality of reports of parallel group randomized trials. JAMA 2001; 285:1987-91) (http://www.consort-statement.org/);

PRISMA statement of preferred reporting items for systematic reviews and meta-analyses (Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group. Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 2009; 6(7): e1000097.) (http://www.prisma-statement.org/);

STARD checklist for the reporting of studies of diagnostic accuracy (Bossuyt PM, Reitsma JB, Bruns DE, Gatsonis CA, Glasziou PP, Irwig LM, et al., for the STARD Group. Towards complete and accurate reporting of studies of diagnostic accuracy: the STARD initiative. Ann Intern Med 2003;138:40-4) (http://www.stard-statement.org/);

STROBE statement, a checklist of items that should be included in reports of observational studies (http://www.strobe-statement.org/);

MOOSE guidelines for meta-analysis and systemic reviews of observational studies (Stroup DF, Berlin JA, Morton SC, et al. Meta-analysis of observational studies in epidemiology: a proposal for reporting Meta-analysis of observational Studies in Epidemiology (MOOSE) group. JAMA 2000; 283: 2008-12).

Metin Biçimlendirme

Yazılar Word programı ile hazırlanarak teslim edilmelidir.

- Metin için normal, düz yazı tipi kullanın (örneğin, 10 punto Times Roman).

- Sayfa numarası için otomatik sayfa numaralandırma işlevini kullanın.

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- Alan fonksiyonları kullanmayın.

- Girintiler için sekme durakları (Tab) kullanın, ara çubuğu ve diğer komutlar kullanmayın.

- Tablo yapmak için diğer işlevleri değil, elektronik tablo fonksiyonunu kullanın.

- Dosyanızı .docx formatında (Word 2007 veya üstü) ya da .doc formatında (eski Word sürüm) kaydedin.

Giriş sayfası

Tüm yazılar, makale türü ne olursa olsun, aşağıdakileri içeren bir başlık sayfası ile başlamalıdır:

- Makalenin başlığı;

- Makalenin kısa başlığı;

- Yazarların isimleri, isimlerinin baş harfleri ve her yazarın akademik ünvanı;

- Her yazarın görevi;

- Her yazarın kurumu;

- Yazarın adı ve e-posta adresi;

- Herhangi bir yazarın olası bir çıkar çatışması olduğunu teyit eden bir ifade, aksi takdirde çatışma olmadığını belirtir bir açıklama;

- Özet, kaynaklar, tablo ve şekiller hariç kelime sayısı;

- Varsa yayının yayınlanmış olduğu bilimsel toplantının tarihi, yeri ve varsa kongre özet kitabındaki özeti.

Makale Tipleri

Orijinal Makaleler

Bu kategori, klinik ve temel bilimde orijinal araştırmaları içerir. Yayın orijinal olmalı ve başka bir dergide yayınlanmış/gönderilmiş ya da kabul edilmiş olmamalıdır. Yazarlar, herhangi biri tarafından bir dergiye gönderilmiş, baskıda veya basılmış ilgili herhangi bir çalışmaya atıfta bulunmak istiyorlarsa açıkça atıfta bulunulmalı ve kaynak gösterilmelidir.

Tüm klinik çalışmalar, Uluslararası Tıp Dergisi Editörler Komitesince (ICMJE) kabul gören bir kayıt sistemine kayıtlı olmalıdır. Bunun için http://www.icmje.org/faq.html adresine müracaat edin. Randomize kontrollü çalışmaların yazarları da, www.consort-statement.org adresinden başvurulabilen CONSORT kılavuzuna uymalıdır ve yayınlarıyla birlikte CONSORT kontrol listesi ve akış diyagramı tebliğ edilmelidir. Akış şeması olarak www.consort-statement.org adresinde bulunan MS Word şablonunun kullanılması ve bunun yayının içinde bir alıntı veya bir figür olarak yerleştirilmesi gereklidir. Buna ek olarak, sunulan yayınlar her yayına spesifik verilen özel kayıt numarasını içermelidir.

Tüm yazarların, insan üzerindeki çalışmalar ve hayvan deneylerinde etik standartlara uymaları beklenmektedir. İnsan üzerindeki veya laboratuvar hayvanları içeren çalışmalarda, yazarların yayının Gereç ve Yöntem kısmında deney protokolünün ilgili kurumsal inceleme komitesi tarafından onaylandığını ve sorumlu devlet kurumu kurallarına uyduğunu açık bir dille açıklamaları gereklidir. İnsan üzerindeki çalışmalarda kurumsal inceleme kurulu onayına ek olarak, aydınlatılmış onam da bulunmalıdır.

Orijinal Makaleler (özet, kaynaklar, tablolar, rakamlar hariç) 3000 kelime ve dört figürü aşmamalıdır.

Orijinal Makaleler aşağıdaki gibi organize edilmelidir:

Özet: Özet 250 kelimeyi geçmemeli ve şunları içermelidir;

Amaç: Çalışmanın amacı nedir?

Yöntem: Kullanılan yöntem ve materyaller (örneğin hayvanlar) veya hastalar ya da konu (sağlıklı gönüllüler gibi) hakkında kısa bir açıklama içermelidir.

Bulgular: Ana bulgular nelerdir?

Sonuç: Çalışmanın ana sonuçları ve etkileri nelerdir?

Anahtar kelimeler: Özetin altında en az 3 anahtar kelime veriniz. Kısaltmaları anahtar kelime olarak kullanmayınız.

Giriş: Açık bir dille çalışmanın amaç ve gerekçesini belirtin ve çalışmanın arka planını açıklarken sadece en önemli kaynaklardan alıntı yapın.

Gereç ve Yöntem: Gözlemsel veya deneysel deneklerin (hastalar, deney hayvanları veya kontrol grupları dahil) seçim şeklini açıklayın. Deney protokolünün ilgili kurumsal inceleme komitesi tarafından onaylandığını ve ilgili devlet kurumu kurallarına uyduğunu açık bir dille açıklayın. İnsan çalışması durumunda, tüm şahısların aydınlatılmış onamlarının alındığını açık bir dille belirtin. Yöntem, cihaz ve ürünleri tanımlayın (Parantez içinde üretici firma adı ve adresi)** Uygulanmış olan tüm prosedürler, diğer çalışmacıların aynı deneyi tekrar edebilecekleri detay ve netlikte anlatılmalıdır. İstatistiksel yöntemler de dahil olmak üzere yerleşik ve yaygın olarak bilinen çalışma yöntemleri için kaynaklar belirtilmelidir. Yayınlanmış ancak yaygın olarak bilinmeyen yöntemler için ise kaynaklar ve kısa tanımlamalar verilmelidir. Kullanma sebepleri ve limitasyonları belirtilmelidir.

Bulgular: İstatistiksel yöntemlerle desteklenmiş bulgularınızı ayrıntılı olarak sunun. Şekil ve tablolar metni tekrar değil, takviye etmelidir. Verilerin hem metinde hem figür olarak verilmemesi gerekir. Metin veya figürden birisi olarak verilmesi yeterlidir. Sadece kendi önemli izlenimlerinizi belirtin. Kendi izlenimlerinizi diğerlerininkiyle karşılaştırmayın. Bu tür karşılaştırma ve yorumlar tartışma bölümünde yapılmalıdır.

Tartışma: Bulgularınızın önem ve anlamını vurgulayın ancak bulgular kısmında verilenleri tekrarlamayın. Fikirlerinizi yalnızca bulgularınızla kanıtlayabildiklerinizle sınırlı tutun. Bulgularınızı diğerlerininkiyle karşılaştırın. Bu bölümde yeni veriler bulunmamalıdır.

Teşekkür: Sadece çalışmaya ciddi katkılarda bulunmuş kişilere teşekkür edin. Yazarlar ismen teşekkür ettikleri herkesten yazılı izin almak zorundadır. Teşekkür kısmına "Yazarlar ….teşekkür eder" şeklinde başlayın.

Yazarlık ve Katkı Sağlayanlar: Dergi, biyomedikal dergilere gönderilen yayınlara yönelik ICMJE tavsiyelerini izler. Buna göre "yazarlık" aşağıdaki dört kritere dayalı olmalıdır:

Yazar;

- Yayının konsept veya dizaynına, çalışmanın verilerinin elde edilmesine, analizine ve yorumlanmasına önemli katkılar veren; ve

- İşi hazırlayan veya entellektüel içerik açısından eleştirel biçimde gözden geçiren; ve

- Yayınlanacak son şekli onaylayan; ve

- Çalışmanın her bir bölümünün doğruluğu ve bütünlüğü ile ilgili sorunları uygun bir şekilde inceleyen ve çözüm sağlayan sorumlu kişidir.

Bu şartların hepsini sağlamayan diğer tüm katılımcılar yazar değil, "Teşekkür" bölümünde anılması gereken katkı sağlamış kişilerdir.

Kaynaklar: Kaynakları 1'den başlayarak Arap rakamları ve alfabetik sıra ile verin. Kaynak numaraları cümle sonunda noktadan sonra üstte küçük rakamlar şeklinde (superscript) yazılmalıdır. Kısaltmalar için gerekli standartları http:/www.bilimterimleri.com adresinde bulunan Türk Bilim Terimleri Kılavuzu'ndan edinin.

Dergi başlıkları "Cumulated Index Medicus" kısaltmalarına uygun olmalıdır.

Dergiden: Yazar/yazarların soyadı ve adının ilk harfi, makale başlığı, dergi başlığı ve derginin özgün kısaltması, yayın tarihi, baskı, kapsayıcı sayfa numaralarını içermelidir.

Örneğin: 1. Dilaveris P, Batchvarov V, Gialafos J, Malik M. Comparison of different methods for manual P wave duration measurement in 12-lead electrocardiograms. Pacing Clin Electrophysiol 1999;22:1532-1538.

Kitap Bölümü: Yazar/yazarların soyadı ve adının ilk harfi, bölüm başlığı, kitap editörleri, kitap başlığı, basım, yayın yeri, yayın tarihi, kapsadığı sayfa numaralarını içermelidir

Örneğin: 1. Schwartz PJ, Priori SG, Napolitano C. The Long QT Syndrome. In: Zipes DP, Jalife J, eds. Cardiac Electrophysiology. From Cell to Bedside. Philadelphia; WB Saunders Co. 2000:597-615.

Tablolar: Tüm tablolar Arapça sayılarla numaralandırılmalıdır. Tüm tablolardan metin içerisinde numara sırası ile bahsedilmelidir. Her tablo için tablonun içeriği hakkında bilgi veren bir başlık verin. Başka yayından alıntı olan tüm tabloları tablonun alt kısmında kaynak olarak belirtin. Tabloda dipnotlar tablonun altında, üst karakter olarak küçük harflerle verilmelidir. İstatistiksel anlamlı değerler ve diğer önemli istatistiksel değerler yıldız ile işaretlenmelidir.

Şekiller: Şekillerin "Windows" ile açılması gerekir. Renkli şekiller veya gri tonlu görüntüler en az 300 dpi olmalıdır. Şekiller ana metinden ayrı olarak "*.tiff", "*.jpg" veya "*.pdf" formatında kaydedilmelidir. Tüm şekil ayrı bir sayfada hazırlanmalı ve Arap rakamları ile numaralandırılmalıdır. Her şekilde kendisindeki işaret ve sembolleri açıklayan bir alt yazı olmalıdır. Şekil gönderme için yazardan hiçbir ek ücret alınmaz.

Ölçü Birimleri ve Kısaltmalar: Ölçü birimleri System International (SI) birimleri cinsinden olmalıdır. Kısaltmalardan başlıkta kaçınılmalıdır. Sadece standart kısaltmalar kullanın. Metinde kısaltma kullanılırsa ilk kullanıldığı yerde tanımlanmalıdır.

İzinler: Yazarlar yayınlarına önceden başka bir yerde yayınlanmış şekil, tablo, ya da metin bölümleri dahil etmek isterlerse telif hakkı sahiplerinden izin alınması ve bu izin belgelerinin yayınla beraber değerlendirmeye gönderilmesi gerekmektedir. Böyle bir belgenin eşlik etmediği her materyalin yazara ait olduğu kabul edilecektir.

Davetli (Talep üzerine yazılan) Derlemeler

Özet uzunluğu: 250 kelimeyi aşmamalıdır.

Makale uzunluğu: 4000 kelimeyi aşmamalıdır.

Kaynak sayısı: 100 kaynağı aşmamalıdır.

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Derlemeler, üzerine konuyla ilgili yeni bir hipotez ya da çalışma oturtulabilecek bir sonuç içermelidir. Literatür taraması metodlarını veya kanıt düzeyi yöntemlerini yayınlamayın. Derleme makaleleri hazırlayacak yazarların ilgili konuda önceden araştırma makaleleri yayımlamış olması gerekir. Çalışmanın yeni ve önemli bulguları sonuç bölümünde vurgulanır ve yorumlanmalıdır. Derlemelerde maksimum iki yazar olmalıdır.

Olgu Sunumları

Özet uzunluğu: 100 kelimeyi aşmamalıdır.

Makale uzunluğu: 1000 kelimeyi aşmamalıdır.

Kaynak sayısı: 15 kaynağı aşmamalıdır.

Olgu Sunumları aşağıdaki gibi yapılandırılmalıdır:

Özet: Olguyu özetleyen bir yapılandırılmamış özet (gereç ve yöntem, bulgular, tartışma gibi bölümlerin olmadığı).

Giriş: Kısa bir giriş (tavsiye edilen uzunluk: 1-2 paragraf).

Olgu Sunumu: Bu bölümde ilk tanı ve sonuç da dahil olmak üzere olgu ayrıntılı olarak anlatılır.

Tartışma: Bu bölümde ilgili literatür kısaca gözden geçirilir ve sunulan olgunun, hastalığa bakışımızı ve yaklaşımımızı nasıl değiştirebileceği vurgulanır.

Kaynaklar: Vancouver tarzı, (yukarıda 'Kaynaklar' bölümüne bakınız).

Teşekkür

Tablolar ve şekiller

Teknik Notlar

Özet uzunluğu: 250 kelimeyi aşmamalıdır.

Makale uzunluğu: 1200 kelimeyi aşmamalıdır.

Kaynak Sayısı: 15 kaynağı aşmamalıdır.

Teknik Notlar, yeni bir cerrahi tekniğin açıklanmasını ve az sayıda olguda uygulanmasını içermektedir. Büyük bir atılım/değişikliği temsil eden bir tekniğin sunulması durumunda tek bir olgu yeterli olacaktır. Hastanın takip ve sonucu açıkça belirtilmelidir.

Teknik Notlar aşağıdaki gibi organize edilmelidir:

Özet: Aşağıdaki gibi yapılandırılmalıdır:

Amaç: Bu çalışmanın amacı nedir?

Yöntem: Kullanılan yöntemlerin, hastalar ya da sağlıklı gönüllülerin veya hayvanların tanımı, malzemeler hakkında kısa bir açıklama.

Bulgular: Ana bulgular nelerdir?

Sonuç: Bu çalışmanın ana sonuçları ve etkileri nelerdir?

Endikasyonları

Yöntem

Diğer yöntemlerle karşılaştırılması: Avantaj ve dezavantajları, zorluklar ve komplikasyonlar.

Kaynaklar: Vancouver tarzı (yukarıda 'Kaynaklar' bölümüne bakınız)

Teşekkür

Tablolar ve şekiller; alt yazıları dahil

Video Makale

Makale Uzunluğu: 500 kelimeyi aşmamalıdır.

Kaynak Sayısı: 5 kaynağı aşmamalıdır.

Tanıyı, uygulanan cerrahi tekniği ve sonucu açıklayarak olguyu kısaca özetleyiniz. Uygun şekilde adlandırılmış ve referans edilmiş video materyalleri ile tüm önemli noktaları, örn; yeni cerrahi tekniği, belirtiniz. Materyaller, yazarların cerrahi tekniğini anlattıkları veya karşılaştıkları ilginç vakalardan oluşmalıdır.

Teknik Gereklilikler: Veriler, makale yükleme sırasında diğer dosyalarla birlikte eklenmelidir. Video süresinin 10 dakikayı geçmemesi kaydıyla dosya boyutu maksimum 350 MB olmalı ve 'MOV, MPEG4, AVI, WMV, MPEGPS, FLV, 3GPP, WebM' formatlarından biri kullanılmalıdır. 100 MB'yi aşmayan video dokümanları sisteme yüklenebilir. Daha büyük video dokümanları için lütfen iletisim@galenos.com.tr adresinden bizimle iletişime geçiniz. Tüm video seslendirmeleri İngilizce olmalıdır. Video atıfları, Şekil veya Tablo atıfları ile aynı biçimde kullanılmalıdır. Örneğin; "….Bunu gerçekleştirmek için, yeni bir cerrahi teknik geliştirdik (Video 1)." Video materyallerinde isim ve kurumlar yer almamalıdır. Kabul edilen makalelerin video materyalleri online yayınlanacaktır.

Editöre Mektuplar

Makale uzunluğu: 500 kelimeyi aşmamalıdır.

Kaynak Sayısı: 10 kaynağı aşmamalıdır.

Türk Kolon ve Rektum Hastalıkları Dergisi'nde yayınlanan makaleler hakkında yorumlar memnuniyetle kabul edilir. Özet gerekli değildir, ancak lütfen kısa bir başlık ekleyiniz. Mektuplar bir şekil veya tablo içerebilir.

Editöryal Yorumlar

Makale uzunluğu: 1000 kelimeyi aşmamalıdır.

Kaynak Sayısı: 10 kaynağı aşmamalıdır.

Editöryal yorumlar sadece editör tarafından kaleme alınır. Editöryal yorumlarda aynı konu hakkında başka yerlerde yayınlanmış yazılar hakkında fikir veya yorumlar belirtilir. Tek bir yazar tercih edilir. Özet gerekli değildir, ancak lütfen kısa bir başlık ekleyiniz. Editöryal gönderimler revizyon/gözden geçirme talebine tabi tutulabilir. Editörler, metin stilini değiştirme hakkını saklı tutar.

Etik

Bu dergi, bilimsel kayıtların bütünlüğünü korumayı tahhüt etmektedir. Yayın Etik Komitesi (COPE) üyesi olarak, dergi olası olumsuz davranışlarla nasıl başa çıkılacağı konusunda Yayın Etik Komitesi (COPE) kılavuzlarını takip edecektir.

Yazarlar araştırma sonuçlarını yanlış sunmaktan; derginin güvenilirliğine, bilimsel yazarlık profesyonelliğine ve en sonunda tüm bilimsel çabalara zarar verebileceğinden dolayı, sakınmalıdır. Araştırma bütünlüğünün sürdürülmesi ve bunun sunumu, iyi bilimsel uygulama kurallarını takip ederek başarılır. Bu da şunları içerir:

- Yazılı eser değerlendirilmek üzere eş zamanlı birden fazla dergiye gönderilmemelidir.

- Yazılı eser daha önceki bir eserin geliştirilmesi olmadıkça, daha önce (kısmen ya da tamamen) yayınlanmamış olmalıdır. [Metnin yeniden kullanıldığı imasından kaçınmak için tekrar kullanılabilir materyallerde şeffaflık sağlayın ("self-plagiarism""kişinin kendinden intihali")].

- Tek bir çalışma; sunum miktarını arttırmak için birçok parçaya bölünmemeli ve zaman içinde aynı ya da çeşitli dergilere gönderilmemelidir. (örneğin "salam-yayıncılık" "salamizasyon").

- Veriler, sonuçlarınızı desteklemek için fabrikasyon (uydurma) ya da manüple edilmiş olmamalıdır.

- Yazarın kendine ait olmayan hiçbir veri, metin veya teori kendininmiş gibi sunulmamalıdır (intihal). Diğer eserlerin kullanımı, (eserin birebir kopyalanması, özetlenmesi ve/veya başka kelimeler kullanarak açıklanmasını da içeren) ya telif hakkı korunacak şekilde izin alınarak ya da tırnak işareti içinde birebir kopyalanarak uygun onay ile kullanılmalıdır.

Önemli not; Türk Kolon ve Rektum Hastalıkları Dergisi intihal taramak için bir program (iThenticate) kullanmaktadır.

- Eser sunulmadan önce sorumlu makamlardan ve çalışmanın yapıldığı enstitü/kuruluşlardan-zımnen veya açıkça-onay alınmasının yanı sıra tüm yazarlardan açıkça onay alınmış olmalıdır.

- Sunulan eserde yazar olarak ismi olanların, bilimsel çalışmaya yeterince katkısı olmuş olmalıdır ve ortak mesuliyet ve sorumluluğu olmalıdır.

Bununla beraber:

- Yazarlık veya yazarların sıra değişiklikleri eserin kabulünden sonra yapılamaz

- Yazının revizyon aşamasında, yayın öncesi veya yayınlandıktan sonra yazar isim eklenmesi veya çıkarılması istemi; ciddi bir konudur ve geçerli sebepler olduğunda değerlendirilebilir. Yazar değişikliği gerekçesi; haklı gerekçeli, inandırıcı ve sadece tüm yazarların yazılı onayı alındıktan sonra; ve yeni/silinmiş yazarın rolü silme hakkında ikna edici ayrıntılı bir açıklama ile kabul edilebilir. Revizyon aşamasında değişiklik olması halinde, bir mektup revise edilmiş yayına eşlik etmelidir. Yayına kabul edildikten veya yayınlandıktan sonra değişiklik olması halinde, bu istek ve gerekli dökümantasyonun yayıncı yoluyla editöre gönderilmesi gerekmektedir. Gerek görüldüğünde bu isteğin gerçekleşmesi için daha fazla doküman talep edilebilir. Değişikliğin kabul veya red kararı dergi editörü insiyatifindedir. Bu nedenle, yayının gönderilmesi aşamasında yazar/yazarlar; gönderecekleri ilgili yazar grubunun isim doğruluğundan sorumludur.

- Yazarlardan sonuçların geçerliliğini doğrulamak amacıyla verilerin ilgili belgelerinin istenmesi halinde bu verileri göndermek için hazır bulundurulmalıdır. Bunlar, ham veri, örnekler, kayıt vb. şeklinde olabilir.

Görevi kötüye kullanma ya da suistimal şüphesi halinde dergi COPE yönergeleri izleyerek bir soruşturma yürütecektir. Soruşturmanın ardından, iddia geçerli görünüyorsa, yazara sorunu gidermek için bir fırsat verilecektir.

Usulsüzlük, şüphe seviyesinde kaldığında; dergi editörü aşağıdaki yollardan birine başvurabilir;

- Makale halen şüpheli ise, reddedilip yazara iade edilebilir.

- Makele online yayınlanmış ise; hatanın mahiyetine bağlı olarak ya yazım hatası olarak kabul edilecek ya da daha ciddi durumlarda makale geri çekilecektir.

- Hatalı yayın ve geri çekme durumlarında açıklayıcı not yayınlanır ve yazarın kurumu bilgilendirilir.

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Yazarlara Bilgi

İnsan ve Hayvan Araştırmaları

İnsan Hakları Beyannamesi

İnsan katılımlı araştırmalar; 1964 Helsinki Deklarasyonu'na ve sonrasında yayımlanan iyileştirici ilkelere uygun olmalıdır ve yazarlar tarafından kurumsal ve/veya ulusal etik kurul komitelerine başvurulup onay alınmış olduğu beyan edilmelidir.

Araştırmanın 1964 Helsinki Deklarasyonu veya kıyaslanabilir standartlara göre yürütülmesi ile ilgili şüphe durumunda, yazarlar bu durumun nedenlerini açıklamak zorundadır ve bağımsız etik kurulları veya diğer değerlendirme kurulları aracılığıyla şüphelerin giderilmesi gerekmektedir.

Aşağıda belirtilen durumlar yazı içerisinde "Kaynaklar" bölümünden önce yer almalıdır:

Etik Kurul Onayı: "Çalışmada insanlara uygulanan tüm prosedürler kurumsal ve ulusal araştırma kurullarının etik standartlarına, 1964 Helsinki Deklarasyonu'na ve sonrasında yayımlanan iyileştirici ilkelere uygun olmalıdır."

Retrospektif çalışmalarda, aşağıda belirtilen cümle yer almalıdır.

"Bu tür çalışmalarda yazılı onam gerekmemektedir."

Hayvan Hakları Beyannamesi

Araştırmalarda kullanılan hayvanların refahına saygı gösterilmelidir. Hayvan deneylerinde, yazarlar hayvanların bakımında ve kullanımında uluslararası, ulusal ve/veya kurumsal olarak oluşturulmuş kılavuzlara uymalıdır ve çalışmalar için kurumdaki veya çalışmanın yapıldığı veya yürütüldüğü merkezdeki (eğer böyle bir merkez varsa) Klinik Araştırmalar Etik Kurulundan onay alınmalıdır. Deneysel hayvan çalışmalarında "Guide for the care and use of laboratory animals http://oacu.od.nih.gov/regs/guide/guide.pdf doğrultusunda hayvan haklarını koruduklarını belirtmeli ve kurumlarından etik kurul onay raporu almalıdırlar.

Hayvanlar ile yürütülen çalışmalarda, aşağıda belirtilen durumlar yazı içerisinde 'Kaynaklar' bölümünden önce yer almalıdır:

Etik Kurul Onayı: "Hayvanların bakımı ve kullanımı ile ilgili olarak uluslararası, ulusal ve/veya kurumsal olarak oluşturulmuş tüm kılavuzlara uyulmuştur."

Eğer uygun bulunduysa (komitenin bulunduğu merkezde): "Hayvan çalışmalarında yapılan tüm uygulamalar kurumsal veya çalışmanın yürütüldüğü merkez tarafından belirlenmiş etik kurallara uyumludur."

Eğer makale insan ya da hayvan katılımlı bir çalışma değilse, lütfen aşağıda yer alan uygun durumlardan birini seçiniz:

"Bu makalenin yazarları insan katılımlı bir çalışma olmadığını bildirmektedir."

"Bu makalenin yazarları çalışmada hayvan kullanılmadığını bildirmektedir."

"Bu makalenin yazarları insan katılımlı veya hayvan kullanılan bir çalışma olmadığını bildirmektedir."

Bilgilendirilmiş Onam

Bütün bireyler ihlal edilemeyecek kişisel haklara sahiptir. Çalışmada yer alan bireyler, elde edilen kişisel bilgilere, çalışmada geçen görüşmelere ve elde edilen fotoğraflara ne olacağı konusunda karar verebilme hakkına sahiptir. Bundan dolayı, çalışmaya dahil etmeden önce yazılı bilgilendirilmiş onam alınması önemlidir. Bilimsel olarak gerekli değilse ve katılımcılardan (veya katılımcı yetkin değilse ebeveynlerinden veya velilerinden) basılması için yazılı onam alınmadıysa, katılımcılara ait detaylar (isimleri, doğum günleri, kimlik numaraları ve diğer bilgileri) tanımlayıcı bilgilerini, fotoğraflarını ve genetik profillerini içerecek şekilde yazılı formda basılmamalıdır. Tam gizlilik sağlanmasının zor olduğu durumlarda, bilgilendirilmiş onam formu şüpheyi içerecek şekilde düzenlenmelidir. Örneğin fotoğrafta katılımcıların göz kısmının maskelenmesi gizlilik açısından yeterli olmayabilir. Eğer karakteristik özellikler gizlilik açısından değiştirilirse, örneğin genetik profilde, yazar yapılan değişikliğin bilimsel olarak sorun oluşturmadığından emin olmalıdır.

Aşağıdaki ifade belirtilmelidir:

Bilgilendirilmiş Onam: "Çalışmadaki tüm katılımcılardan bilgilendirilmiş onam alınmıştır."

Eğer makalede katılımcıların tanımlayıcı bilgileri yer alacaksa, aşağıdaki ifade belirtilmelidir:

"Makalede kişisel bilgileri kullanılan tüm katılımcılardan ayrıca bilgilendirilmiş onam alınmıştır."

DEĞERLENDİRME SÜRECİ

Türk Kolon ve Rektum Hastalıkları Dergisi'ne gönderilen tüm yazılar, sisteme yüklendikten sonra ilk önce editöryal kurul tarafından derginin amaç ve hedeflerine uygunluk ve temel şartları sağlama yönünden değerlendirilecektir. Yazılar, konusunda uzman dergi hakemlerine değerlendirilmek üzere gönderilecektir. Tüm kabul edilen yazılar yayımlanmadan önce, istatistik ve İngiliz dili konusunda uzman editörler tarafından değerlendirilecektir. Sayfaların ilk gözden geçirilmesinden sonra, hakem yorumları ön karar vermek için Editör'e gönderilecektir. Bu aşamada, ilk değerlendirmede bulunanların düşüncesi doğrultusunda, yazı kabul edilebilir, reddedilebilir veya yazıda düzeltme yapılması istenebilir. İlk değerlendirme sonrasında değerli bulunan makaleler için genellikle düzeltme istenir. Düzeltilen makaleler ilk karardan sonraki 2 ay içerisinde tekrar dergiye gönderilmelidir. Süre uzatmaları yardımcı editörden 2 aylık süre bitmeden en az 2 hafta önce talep edilmelidir. Türk Kolon ve Rektum Hastalıkları Dergisi tarafından, 2 aylık düzeltme süresi sona erdikten sonra, yazı kabul edilmeyecektir. Düzeltme yapılan yazılar sisteme tekrar yüklendikten sonra değerlendirilmek üzere (genellikle ilk değerlendirmeyi yapan hakeme) gönderilecektir. Sonuç olarak yayımlanma kararı verildikten sonra, baskı öncesi Teknik Editör tarafından son kez değerlendirilecektir ve iletişim kurulacak olan yazara gözden geçirme ve son düzenlemeleri yapmak üzere işaretlenmiş bir nüshası elektronik ortamda gönderilecektir.

DÜZELTME SONRASI GÖNDERİLMESİ

Revize edilmiş bir versiyonu gönderirken yazar, yorumcular tarafından ele alınan her konuyu ayrıntılı olarak açıklamalı ve nokta nokta ayrıntılı olarak "yorumlara yanıt" sunmalıdır ve ardından belgenin açıklamalı kopyası bulunmalıdır (her yorumcunun yorumu nerede bulunabilir, yazarın cevap ve satır numaraları gibi yapılan değişiklikler).

Bunun yanı sıra ana revize yazı, kabul mektubu tarihinden itibaren 30 gün içinde teslim edilmelidir. Yazının revize edilmiş versiyonunun tanınan süre içinde verilmemesi durumunda, revizyon seçeneği iptal edilebilir. Yazar(lar) ek sürenin gerekli olduğunu düşünüyorsa, ilk 30 günlük süre bitmeden, uzatmayı talep etmelidir.

İNGİLİZCE YAZIM

Tüm yazılar yayımlanmadan önce profesyonel olarak "English Language Editor" tarafından değerlendirilmektedir.

KABUL SONRASI

Tüm kabul edilen makaleler editörlerden biri tarafından teknik açıdan değerlendirilecektir. Teknik inceleme tamamlandıktan sonra, makale ilgili birime gönderilerek yaklaşık bir hafta içerisinde tamamen atıf yapılabilir "Kabul Edilmiş Makale" şeklinde online olarak yayınlanacaktır.

Telif Hakkının Devri

Yayımlayan dergiye (veya basım ve yayma haklarının ayrı olduğu yapılarda ayrı olarak) makalenin telif hakkının devri gerekmektedir. Telif yasaları gereği bilginin yayılması ve korunması daha güvenli olarak sağlanacaktır.

Resimler

Renkli çizimlerin yayımlanması ücretsizdir.

Basım Öncesi Son Kontrol (Proof Reading)

Amaç; dizgi kontrolünü sağlamak veya dönüştürme hatalarını fark etmek, bütünlük ve netlik açısından yazıyı, tabloları ve şekilleri kontrol etmektir. Yeni bulgu ekleme, değerlerde düzeltme, başlıkta ve yazarlarda önemli değişikliklere editör izni olmadan müsade edilmemektedir.

Online olarak yayımlandıktan sonra yapılacak değişikliklerde, Erratum üzerinden form oluşturulup makaleye erişim sağlayacak bağlantı oluşturulması gerekmektedir.

ERKEN YAYIN

Kabul edilmiş yazının baskı için tümü hazırlanırken online olarak özet hali yayımlanır. Kabul edilen yazı kontrolden geçtikten sonra, yazarlar son düzeltmeleri yaptıktan sonra ve tüm değişiklikler yapıldıktan sonra yazı online olarak yayımlanacaktır. Bu aşamada yazıya DOI (Digital Object Identifier) numarası verilecektir. Her iki forma da www.journalagent.com/krhd adresinden ulaşılabilecektir. Kabul edilen yazının yazarları elektronik ortamdaki sayfaları çıktı olarak aldıktan sonra proofreading yapmak, tüm yazıyı, tabloları, şekilleri ve kaynakları kontrol etmekle sorumludur. Baskıda gecikme olmaması için 48 saat içinde sayfa kontrolleri yapılmış olmalıdır.

YAZIŞMA

Tüm yazışmalar dergi editöryal kuruluna ait aşağıdaki posta adresi veya e-mail adresi ile yapılacaktır.

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Editorial/Editöryal

From the editors,

Dear colleagues,

We leave behind a busy working season, and we are delighted to be in the presence of you with a new issue of Turkish Journal of Colorectal Disease.

As you know, Turkish Society of Colon and Rectal Surgery has organized a very successful congress last April. The congress was attended by the honoral surgeons of Colorectral Surgery attracted great attention by national and international fields. Besides, "Masterclass" which was collaborated by Turkish Society of Colon and Rectal Surgery and European Society of Coloproctology has drawn interest widely.

My Dear Colleauges, since May, the agreement with "plexus" ended which supporting the infrastructure of Turkish Journal of Colorectal Disease. As from this issue, Turkish Journal of Colorectal Disease has now started to accept the article submission and evaluation process through its new agreement with "Manuscript Manager". Therefore, my colleagues who want to submit an article to the journal should become a member one time only again. I would like to point out that this issue should be considered with all my respect.

Two article about 'Pilonidal Sinus disease' was presented in this issue which was a lot of Authors from Turkey providing many contrubution to the Medical literature about this illness. In Addition, the article presenting new local aneastetic technique for cration stoma will be worth to take attention. also, I believe that the article sharing experiences of sphincter injuries due to birth travma and cases of acute appendagitis will draw attention.

This issue also included an experimental study investigating the effect of glutamine on the experimental colitis model. In addition, four interesting case reports were included. I believe you will read with pleasure. I wish you all a healthy summer holiday and wish to meet you in September issue...

Tahsin Çolak, MD

Surgery Professor and Editor-in-Chief

Editörden,

Değerli meslektaşlarım,

Yoğun bir çalışma sezonunu geride bırakıp, yavaş yavaş yaz aylarına girdiğimiz bu günlerde yeni ve dopdolu bir sayıyla karşınızda olmaktan mutluyuz.

Bildiğiniz gibi, Türk Kolon ve Rektum Cerrahisi Derneği Nisan ayında oldukça başarılı bir kongre düzenledi. Kolorektal cerrahinin duayen isimlerinin katıldığı bu kongre ulusal ve uluslararası alanda geniş ilgi gördü. Ayrıca ESCP (Avrupa Koloproktoloji Derneği) ve Türk Kolon ve Rektum Cerrahisi Derneği'nin ortak düzenlediği "Masterclass" da geniş ilgi gördü.

Değerli meslektaşlarım, mayıs ayı itibarıyla Türk Kolon ve Rektum Hastalıkları Dergisi alt yapısını destekleyen "pleksus" ile anlaşmasını sonlandırdı. Bu sayı itibarıyla Türk Kolon ve Rektum Hastalıkları Dergisi artık makale gönderim ve değerlendirme işlemlerini yeni anlaşma yaptığı "Manuscript Manager" üzerinden kabul etmeye başladı. Bu nedenle dergiye makale göndermek isteyen meslektaşlarımın bir kereye mahsus yeniden üye olmaları gerekmektedir. Bu hususa dikkat edilmesini saygıyla istirham ederim.

Bu sayıda, ülkemizde sık görülen ve Türkiye'de birçok müellifin tıbbi literatüre katkı sağladığı "pilonidal sinüs hastalığı" hakkında iki makaleye yer verildi. Bununla birlikte lokal anestezi altında stoma trefini açılması ile ilgili bir diğer makalenin de dikkatinizi çekeceğini ümit ediyorum.

Doğum travmasına bağlı gelişen sfinkter yaralanmaları ve akut appendagitis olgu deneyimlerin paylaşıldığı makalelerinin dikkat çekeceğine inanıyorum.

Bu sayıda ayrıca experimental kolit modelinde glutaminin etkisinin araştıran bir deneysel çalışmaya da yer verildi.

Ayrıca birbirinden ilginç dört olgu sunumuna da yer verildi. Keyifle okuyacağınıza inanıyorum.

Hepinize sağlıklı bir yaz tatili dilerken, eylül sayısında buluşmak dileğiyle...

Prof Dr Tahsin Çolak

Cerrah Profesörü ve Baş-Editör

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RESEARCH ARTICLE

Trephine Stoma Creation Under Local Anesthesia with Sedoanalgesia

Sedoanaljezi Eşliğinde Lokal Anestezi Altında Trefin Stoma Uygulaması

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ABSTRACT

Aim: In this paper, we aimed to evaluate the patients who underwent trephine stoma with sedoanalgesia in addition to local anesthesia and to share the results.

Method: The patients who underwent trephine stoma with sedoanalgesia in addition to local anesthesia for fecal diversion in our general surgery clinic between June 2012 and June 2017 were evaluated retrospectively. The patients were evaluated in terms of demographic characteristics, diagnosis of primary disease and complications.

Results: A total of 11 patients (F/M: 4/7) were evaluated. The mean age was 54 (±4) years. The mean follow-up period was 18 months (range 2-30). Primary disease was rectal cancer in seven patients (63.6%), Fournier's disease in two patients (18.2%), genital cancer in one patient (9.1%), and rectovaginal fistula in one patient (9.1%). Only one patient underwent transverse colostomy and 10 patients underwent sigmoid colostomy. There were no complications related to surgical procedures. One patient died on the 14th postoperative day because of complications secondary to metastasis.

Conclusion: Trephine stoma technique, which does not require laparotomy, is a fast, reliable, and easy to use method especially in high-risk patients with poor general condition.

Keywords: Colostomy, emergent surgery, local anesthesia, minimally invasive surgery, trephine stoma

ÖZ

Amaç: Bu yazıda lokal anesteziye ilave olarak sedoanaljezi ile trefin stoma uyguladığımız hastaları değerlendirmeyi ve sonuçlarını paylaşmayı amaçladık.

Yöntem: Haziran 2012-Haziran 2017 tarihleri arasında genel cerrahi kliniğimizde fekal diversiyon amacıyla sedoanaljezi yardımlı lokal anestezi eşliğinde trefin stoma uygulaması yapılan hastalar retrospektif olarak incelendi. Hastalar demografik özellikleri, primer hastalığın tanısı ve komplikasyonlar açısından değerlendirildi.

Bulgular: Toplam 11 (K/E: 4/7) hastanın verileri değerlendirildi. Ortalama yaş 54 (±4) yıl idi. Ortalama takip süresi 18 ay (2-30 arasında) idi. Hastaların primer hastalıkları 7 hastada rektum kanseri (%63,6), 2 hastada Fournier hastalığı (%18,2), 1 hastada genital kanser (%9,1), 1 hastada rektovajinal fistül (%9,1) idi. Yalnızca 1 hastaya tranvers kolostomi, 10 hastaya ise sigmoid kolostomi uygulandı. Girişimsel işleme bağlı herhangi bir komplikasyon gelişmedi. Bir hasta postoperatif 14. günde metastaza sekonder komplikasyonlar nedeniyle öldü.

Sonuç: Özellikle genel durumu iyi olmayan, yüksek riskli hastalarda, laparatomi gerektirmeyen trefin stoma tekniği hızlı, güvenilir, kolay uygulanabilen bir yöntemdir.

Anahtar Kelimeler: Kolostomi, acil cerrahi, lokal anestezi, minimal invaziv cerrahi, trefin stoma

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Introduction

In colorectal surgery, stoma applications are the process of opening the intestinal tract to the abdominal wall. The history of surgical stoma dates back 200 years.[1] Stomas can be either temporary or permanent and their indications are very various. In colorectal surgery, the stoma is mostly performed for incontinence requiring fecal diversion, Fournier's gangrene, complex anorectal fistulas, anorectal trauma, and obstructed anorectal tumors. The techniques for the creation of stomas for fecal diversion may vary depending on the indication and the condition of the patient.[2] The most important determinants for the selection of the type of stoma are the location of the stoma, the technique used, and the characteristics of the patient.[1] This procedure is usually done by laparotomy, but it can also be performed without a laparotomy.

Trephine stoma technique is a less invasive procedure without laparotomy. Trephine as a medical term means the removal of a tissue by circular incision. In this technique, a circular incision is made to the previously determined area in the abdominal wall and a stoma is created with the intestines brought from the abdomen. It is a method that can be preferred especially in patients with poor general condition, comorbidity and complication.

In the literature, there are some articles related to this technique and the procedure was performed under general anesthesia or regional anesthesia in most of them. In our clinic, the application was performed with sedoanalgesia in addition to local anesthesia. In this paper, we aimed to evaluate the patients who underwent trephine stoma with sedoanalgesia in addition to local anesthesia and to share the results.

Materials and Methods

The patients who underwent trephine stoma with sedoanalgesia in addition to local anesthesia for fecal diversion in our general surgery clinic between June 2012 and June 2017 were retrospectively evaluated. Data of the patients were obtained from personal records and computer records. Patients with missing data were excluded from the study. A total of 11 patients were included in the study. The patients were evaluated in terms of demographic characteristics, diagnosis of primary disease and complications. All patients were consulted with the anesthesia clinic as routine procedure and the risks of anesthesia were determined.

Statistical Analysis

Statistical analysis of the study was performed using SPSS 20 (SPSS for Windows, Inc., Chicago, IL, USA). Data were presented as percentage and arithmetic mean ± standard deviation (minimum-maximum).

Technique

The procedure was performed under sterile conditions in the operating room. Colostomy area was marked in the left lower quadrant while the patients were sitting, standing and lying. After a single dose of antibiotic prophylaxis, the patient was draped and prepped as if laparotomy was to be performed. All patients received nasal oxygen at 2 liters/min during the procedure. All medications were administered intravenously.

Initially, all patients were administered midazolam 0.05 mg/kg and fentanyl 1 mcg/kg by anesthesiologist. Ramsay sedation scale that was developed by M. A. Ramsay in the mid-1970s was used to determine the level of sedation of patients.[3] Ramsay score of the patients was kept between 3-4. This scale consists of a total of six items, each of which contains three levels of awake and asleep.[4] These are as follows: patient awake, anxious, agitated, or restless; patient awake, cooperative, orientated, and tranquil; patient drowsy, with response to commands; patient asleep, brisk response; patient asleep, sluggish response and patient has no response. The first three responses are evaluated in the awake patient, and the other three responses are evaluated by glabella tap or loud auditory stimulus. Midazolam 0.03 mg/kg and fentanyl 0.5 mcg/kg IV were administered when additional dose was needed.

While the patient was sedated, rectus muscle and sheath were infiltrated with lidocaine or bupivacaine. Lidocaine is faster, but short-acting, while bupivacaine is slower and much longer effective. The dose limitation for both is independent of each other. The recommended dose by the Food and Administration is 7 mg/kg for lidocaine. The maximum reported dose range is 200-300 mg. The maximum dose for bupivacaine is 175 mg. If adrenaline is added, these can be increased up to 500 and 225 milligrams.[5]

Local anesthesia including intradermal, subdermal and deep subcutaneous is performed in the previously marked area. An elliptical incision in normal colostomy size is used to pass the skin and subcutaneous fascias to reach the fascia of the left rectus muscle. Next, local anesthetic agent infiltration is performed on the lateral of the rectus abdominis muscle toward the aponeurosis of the internal, external oblique and transversus abdominis muscle. After the fascia is incised, the muscles are opened and the peritoneum is reached. At this stage, the intestinal loop is taken out of the opening by Babcock clamp (loop colostomy) and the baguette is passed. The colostomy mouth is then sutured (Figure 1).

Results

The data of 11 patients included in the study were evaluated. The mean age of the patients was 54±4 years (range: 37-81).

Four of the patients were female (36%) and seven were male (64%). Regarding primary diagnosis, seven patients had rectal cancer (63.6%), two patients had Fournier's disease (18.2%), one patient had genital cancer (9.1%), and one patient had rectovaginal fistula (9.1%). Six patients (54.5%) had comorbidities, including diabetes mellitus, ischemic heart disease, chronic obstructive pulmonary disease, and other organ metastases due to the rectum tumor (lung, liver, adrenal). Only one patient underwent transverse colostomy and 10 patients underwent sigmoid colostomy. Five of the patients with rectal cancer had complete obstruction and 2 patients had partial obstruction. These 7 patients were treated under emergency conditions and the other patients were treated electively. No complication was observed in any patient due to interventional procedures. One patient died on the 14th postoperative day because of complications secondary to metastasis. The mean follow-up period was 18 months (range: 2-30) (Table 1).



Figure 1. The patient who underwent trephine stoma

No anesthetic drug-related complication was observed during or after the procedure. Wound site infection developed in one patient who had ostomy due to Fournier's gangrene. In all patients, oral intake was started on the 1st postoperative day. No postoperative ileus was observed in any patient. Three of the patients who underwent ostomy due to rectal cancer were operated laparoscopically during the follow-up period.

Discussion

Stoma is a Greek word meaning "opening" or "mouth". Intestinal stoma means that the intestine is mouthed on the abdominal wall. It is divided into two, as permanent or temporary. Furthermore, it is classified as end ileostomy (Brooke ileostomy), loop ileostomy, continent (Kock) ileostomies, loop colostomy, double-barrel colostomy (Mikulicz), Hartmann's procedure, and permanent end colostomy according to opening type.[6]

Stomas can be opened with laparotomy or laparoscopy or without laparotomy. Trephine stoma technique, which is opened without laparotomy, was first described by Senapati. Trephine stoma technique can be performed as ileostomy or colostomy.[2,7] Trephine stoma technique, which does not require laparotomy in high-risk patients, is a fast, reliable and easy to use method. Previous abdominal surgery is

Table 1. The characteristics of the patients

Patient ID	Age	Gender	The underlying reason	Comorbidities	Colon segment
1	74	M	Fournier's gangrene	COPD	Transverstomy
2	68	M	Obstructed rectum cancer	Ischemic heart disease	Left colon
3	63	F	Rectovaginal fistula	Ischemic cerebrovascular disease	Left colon
4	81	F	Vulva cancer Anal invasion	Diabetes mellitus Lung metastasis	Left colon
5	37	F	Obstructed rectum cancer	No	Left colon
6	70	M	Obstructed rectum cancer	Thrombocytopenia Liver, lung and surrenal metastasis	Left colon
7	59	M	Obstructed rectum cancer	No	Left colon
8	51	F	Obstructed rectum cancer	No	Left colon
9	47	M	Fournier's gangrene	Diabetes mellitus	Left colon
10	51	M	Partial obstructed rectum cancer	No	Sigmoid colon
11	59	M	Partial obstructed rectum cancer	No	Sigmoid colon

M: Male, F: Female, COPD: Chronic obstructive pulmonary disease

usually not a contraindication. The operation time is shorter and the postoperative opiate requirement is less than the stoma performed by laparotomy.[6] Trefin stoma is a simple, fast and the least invasive technique among the techniques of stoma creation. Because there is no separate laparotomy incision in the abdomen, postoperative recovery is faster and pain is minimal.[7] However, it may rarely be difficult to determine the proximal and distal part of the intestine. We encountered this difficulty in our patient with genital cancer and colonoscopy was performed to determine the parts during surgery.[8] Another topic of discussion is the length of the incision when creating the trephine stoma. In a study, it is stated that this length should be two-thirds of the stoma.[9] The length of our incisions was the same as stoma length.

In a study on trephine stoma performed in cases with sigmoid volvulus, sigmoid colon was taken out of the body by a small incision under general anesthesia and resection was performed. Then, trephine stoma was performed.[10] The most important problem of this study is the need for general anesthesia. In our study, which had small number of patients, none of the patients had sigmoid volvulus.

In the literature, there are many articles about the trephine stoma technique and most of them were performed under general anesthesia.[11,12,13] Also, laparoscopic assisted trephine stoma technique was performed.[13] The most important difference of our study from other studies was that it was performed under sedoanalgesia in addition to local anesthesia.

Conclusion

In patients with a high risk of anesthesia, trephine stoma creation under sedoanalgesia does not cause an additional morbidity burden due to the lack of endotracheal intubation. Also, no need for laparotomy causes less intra-abdominal adhesion in patients with rectal cancer who are candidates for neoadjuvant chemotherapy and facilitates subsequent laparoscopic surgery. Therefore, this method should be kept in mind in patients with rectum cancer or anorectal diseases requiring diversion and should be performed if necessary.

Ethics

Ethics Committee Approval: Retrospective study.

Informed Consent: Retrospective study.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: A.A., B.H.K., M.B.B., Concept: B.H.K., M.B.B., N.K., A.B., Design: N.K., A.A.B., N.A., A.B., Data Collection or Processing: A.A.B., N.K., S.Ş.K., A.Aksoy., Analysis or Interpretation: M.B.B., B.H.K., A.A.B., A.A., Literature Search: A.Aksoy., S.Ş.K., N.A., B.H.K., M.B.B., Writing: B.H.K., M.B.B., A.A., N.K., A.A.B.

Conflict of Interest: No conflict of interest was declared by the authors.

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RESEARCH ARTICLE

Comparison of V-Y Flap and Limberg Flap Methods in Pilonidal Sinus Surgery

Pilonidal Sinüs Cerrahisinde V-Y Flep ile Limberg Flep Yöntemlerinin Karşılaştırılması

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ABSTRACT

Aim: The aim of this study was to compare the advantages of V-Y flap and Limberg flap techniques in the surgical management of complicated pilonidal sinus disease requiring extensive excision, and to review the superiorities of each other in the light of the literature.

Method: The study included 100 patients who were hospitalized with the diagnosis of pilonidal sinus disease and who were planned to undergo flap reconstruction due to the diameter of the defect. Patients were randomly divided into two groups as A and B. Fifty patients in group A underwent V-Y flap and 50 patients in group B underwent Limberg flap. Both groups were prospectively followed-up in terms of complications, recovery times, workforce losses, patient satisfaction and 2-year recurrence rates, and the findings were compared statistically.

Results: Demographic characteristics, complaints and clinical findings of both groups were similar. Although postoperative wound infection rates were similar (26% vs. 28%; p>0.05), wound dehiscence was more common in the Limberg group (36% vs. 26%; p<0.05). The wound healing process and workforce losses were longer in the Limberg flap group, but the differences were not statistically significant. There were no differences between the groups in terms of patient satisfaction and recurrence in the 2-year follow-up period.

Conclusion: The long-term recurrence rates of V-Y flap and Limberg flap techniques are similar. Wound dehiscence is significantly less in V-Y flap technique. According to the results of this study, V-Y flap method following extensive tissue loss due to excision can be considered as a good alternative.

Keywords: Pilonidal sinus, Limberg flap, V-Y flap

ÖZ

Amaç: Komplike, geniş eksizyon yapılmasını gerektirecek pilonidal sinüs hastalığının cerrahi tedavisinde popüleritesini koruyan iki yöntem olan V-Y ile Limberg flep tekniklerini karşılaştırılarak, birbirine olan üstünlüklerinin literatür ışığında gözden geçirilmesi amacıyla bir çalışma planlandı.

Yöntem: Çalışmaya pilonidal sinüs hastalığı tanısı ile yatırılan ve oluşacak defekt genişliği sebebiyle flep uygulanması planlanan 100 hasta dahil edildi. Randomize olarak 2 gruba ayrılan hastalardan A grubundaki 50 hastaya V-Y flep, B grubundaki 50 hastaya ise Limberg flep uygulandı. Her iki grup gelişen komplikasyonlar, iyileşme süreleri, iş gücü kayıpları, hasta memnuniyetleri ve 2 yıllık nüks oranları açısından prospektif olarak takip edildi ve elde edilen bulgular istatistiksel olarak karşılaştırıldı.

Bulgular: Her iki grubun demografik özellikleri, yakınmaları ve klinik bulguları benzerdi. Postoperatif yara enfeksiyonu oranları yakın olmakla birlikte (%26, %28; p>0,005) yara ayrışması Limberg grubunda daha fazla görüldü (%26, %36; p<0,005). Yara iyileşme süreci, iş gücü kayıpları Limberg flep grubunda daha uzun olmakla birlikte sonuçlar istatistiksel açıdan anlamlı değildi. Hasta memnuniyetleri ve takip edilen 2 yıllık dönemdeki nüksler açısından gruplar arasında fark yoktu.

Sonuç: V-Y flep ve Limberg flep tekniklerinin uzun dönem nüks oranları yakındır. Yara açılması V-Y flep tekniğinde anlamlı olarak daha azdır. Bu çalışmanın sonuçlarına göre, geniş doku kaybına neden olan eksizyon sonrası V-Y flep yöntemi iyi bir alternatif olarak kabul edilebilir.

Anahtar Kelimeler: Pilonidal sinüs, Limberg flep, V-Y flep

Presented in: The abstract of this study was presented as an electronic poster (EPS-0517) at the 21st National Surgery Congress held in Antalya between 11-15 April 2018 and its sample was added.

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Introduction

Pilonidal sinus disease is a subcutaneous tissue disease that is common in the community and that mostly affects young adult patients. The incidence is 26/100000 in the general population and its frequency is higher in young patients and males.[1] Patients usually present with signs of abscess or sinus with chronic discharge. The treatment of the disease is important because of the painful and frequently recurring symptoms that affect the patient's lifestyle. The ideal treatment should be able to provide conditions such as quick recovery, no need for general anesthesia, outpatient treatment, minimal discomfort, minimal loss of workforce, better patient satisfaction with good cosmetic results, less recurrence and less cost. However, although many conservative and surgical methods have been defined, recurrence rates are still high and the search for the ideal treatment is ongoing.[2,3]

Although the treatment of pilonidal sinus disease in the form of acute abscess is standard (drainage), the treatment of chronic and recurrent cases is not clear. Conservative treatment methods are recommended for simple cases with single orifice and short tracts. Surgical treatment with excision is generally accepted in cases with chronic course, multiple orifices or recurrence; however, the method of closure of the defect is controversial. In particular, there is no clear consensus on the method to be chosen for the closure of the defect in complicated or recurrent cases where the tissue loss is large.

This prospective randomized study aimed to compare popular Limberg flap and V-Y flap techniques in order to add a comment to this subject.

Materials and Methods

After the approval of the Ethics Committee of Medical Faculty of Yıldırım Beyazıt University, the patients who were admitted to General Surgery Clinic of Ankara Atatürk Training and Research Hospital between February 2012 and 2016 and who would need flap for the defect in the sacrococcygeal region after pilonidal sinus excision were included in the study. Patients who had a systemic disease that could adversely affect wound healing and who refused to participate in the study during the informed consent were excluded. When the power analysis was performed for statistical evaluation, it was calculated that 100 patients would be sufficient. Patients were labeled in groups A and B according to the order of admission. After excision of the diseased part, V-Y flap was applied to the patients in group A and Limberg flap technique was used in group B. When both groups reached 50 patients, the study was finalized.

Age, gender, duration of complaints, physical examination findings, body mass index, anesthesia method, length of hospital stay, orifice number and length of the sinus tract were recorded. All postoperative data regarding wound infection, wound dehiscence, suture removal day, postoperative loss of sensation, time to return to work, recurrence and its treatment, patient satisfaction and cosmetic concerns were recorded.

The surgical field of all patients was shaved on the operating table just before the operation. Povidone-iodine was used for skin cleansing. All patients underwent antibiotic prophylaxis with 1 g of cefazolin sodium during anesthesia induction. After the patients were taken to the operating table in the prone jackknife position, the excision area and the area suitable for the flap technique were marked with a pen.

In group A, the tissue was totally excised down to presacral fascia with a rectangular incision including all sinuses and pits until the presacral fascia was visualized. Following hemostasis, a V shaped incision was used to incise the right gluteal region up to gluteus muscle fascia and the tissue to be used for the flap was mobilized. The obtained fascia-cutaneous flap was shifted to the opposite side in Y shape and was sutured to presacral fascia and subcutaneous skin with 1/0 polyglactine sutures. The skin was closed in interrupted 2/0 monofilament polypropylene sutures (Figure 1). A hemovac drain was used in all patients.

In group B, the tissue was totally excised down to presacral fascia with a rhomboid incision including all sinuses and pits. Following hemostasis, the flap from the right gluteal region was raised so that it included skin, subcutaneous fat, and the fascia overlying gluteus maximus, and rotated to cover the defect. Rhomboid was inserted into the defect so that the lower end did not remain in the intergluteal groove. The flap was sutured to presacral fascia and subcutaneous skin with 1/0 polyglactine sutures. The skin was closed in interrupted 2/0 monofilament polypropylene sutures. A hemovac drain was used in all patients (Figure 2).

All surgeries were performed by the same team. The wound was cared with pressure dressings and the drains were preserved until the daily drainage was below 10 mL. The wound infection was defined as presence of symptoms such as erythema, pain, redness, and induration, or surgeon opening the wound or defining the wound as infected, as well as purulent drainage not exceeding the skin and subcutaneous tissue in the wound within 30 days after the surgery. Five days of oral ampicillin + sulbactam treatment was performed in patients with wound infection. Spontaneous dehiscence without any evidence of infection in the first month was defined as wound dehiscence. The sutures of the patients in both groups were removed in our outpatient clinic and the day of removal was recorded in the

follow-up form. Patients in follow-up were checked in our outpatient clinic at the 6th, 6th and 24th months. The patients who could not come to the hospital were interviewed by telephone in terms of their time to return to work, operation satisfaction and recurrence, and their results were recorded. While evaluating the patient satisfaction levels, the patients were asked to score with a number between 1 and 5 (highest satisfaction 5, least satisfaction 1).

Statistical Analysis

SPSS for Windows 20.0 package program (SPSS Inc, Chicago, Illionis, USA) was used for statistical analysis of the data. Continuous variables were expressed as mean ± standard deviation. Continuous variables were compared using t-test and categorical variables were compared using chi-square test. ANOVA test and post hoc Tukey test were used for the comparison of parametric data between the groups. Kruskal-Wallis and chi-square test were used for comparison of nonparametric values and percentages. A p value of <0.05 was considered statistically significant in all tests.



Figure 1. V-Y flap method



Figure 2. Limberg flap method

Results

Ninety-three patients were male and seven were female, and the mean age was 26.8 years (range, 15-46). There was no difference between the two groups in terms of demographic characteristics and the anatomical structure of the disease (p>0.05) (Table 1).

Of the patients in group A, the number of patients with previous surgeries were as follows: three had primary repair, one had Limberg flap, one had Karydakis flap, one had marsupialization and five had only drainage. Of five patients with previous surgery in group B, three had primary repair, one had V-Y flap, and one had only drainage. There was no significant difference between the groups in terms of previous surgery data (p>0.05).

There were no statistically significant differences between the two groups in terms of preoperative symptoms, orifice number, sinus tract length, type of anesthesia used for surgery and length of hospital stay. Complaints of all patients were pain, swelling and discharge in the sacral region. In all cases, there was more than one sinus orifice and there was also sinus orifice outside the midline. In other words, there was a need for an excision that would require a flap in all patients.

There were no differences between the groups in terms of postoperative complications, length of hospital stay, time of suture removal, loss of sensation, and time to return to work (Table 2). Wound infections were found in 13 patients in group A on day 7 (range, 4-13) and in 14 patients in group B on day 7 (range, 3-13). Wound dehiscence was observed on day 6 (range, 3-10) in

Table 1. Characteristics of groups

	V-Y group (A) (n=50)	Limberg group (B) (n=50)	p
Age, years	26.1 (15-45)	27.66 (15-46)	0.327
Gender, M/F	43/7	50/0	0.075
BMI, kg/m^2	24.93 (20.21-32.41)	25.95 (22.49-34.61)	0.189
Comorbidities	0	1	0.317
Previous surgery	11	5	0.103
Duration of complaints, month	18.34 (1-96)	17.27 (0.5-120)	0.418
Number of sinus orifices	3 (2-5)	3 (2-6)	1.00
Tract length, cm	3.03 (1-7)	2.7 (1-7)	0.306

M: Male, F: Female, BMI: Body mass index

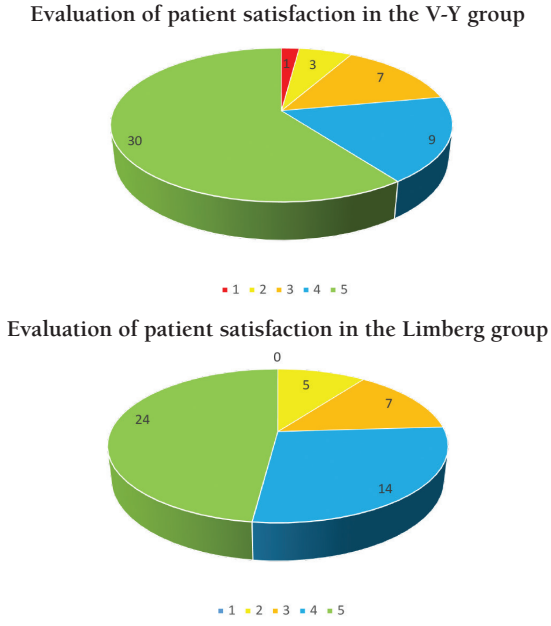
group A and on day 9 (range, 3-14) in group B. While there was no difference between the groups in terms of time of dehiscence, it was seen in more patients in Limberg group (36% vs. 26%; p<0.05).

Recurrence was observed in two patients (mean: 19 months) in group A and in three patients in group B (mean: 11 months) in the first 2 years. Although there was no significant difference between the groups in terms of recurrence, it was observed that recurrences developed earlier in the Limberg group. Contrary to the predicted, there was no difference in recurrence rates between obese patients and non-obese patients, and patients with and without infection (p>0.05).

Although it was observed that patients in group A were more satisfied with cosmetic results, there was no statistically significant difference between the two groups in terms of overall satisfaction (p>0.05) (Graphic 1).

Table 2. Postoperative findings

	V-Y group (A)	Limberg group (B)	p
Wound infection	13	14	0.823
Wound dehiscence	13	18	0.004
Length of hospital stay, day	1.84 (1-5)	2.02 (1-7)	0.564
Suture removal, day	17.8 (12-30)	18.7 (12-30)	0.354
Loss of sensation	5	7	0.540
Return to work, day	27.86 (7-62)	27.38 (15-60)	0.832
Patient Satisfaction	4.28 (1-5)	4.14 (2-5)	0.499
Recurrence	2	3	0.648



Graphic 1. Evaluation of patient satisfaction

Discussion

Despite the definition of many methods for the closure of the wound in complicated pilonidal sinus patients treated with surgical excision that leaves a wide tissue defect, there is no consensus on optimal flap technique. The main objective is to ensure that the patient is operated with a technique with a low morbidity and mortality rate, and that he/she returns to work as soon as possible. For this, the complication rate of the procedure should be low, the hospital stay should be short and the recurrence rates should be low.[2,4,5] As a definite method cannot be established regarding aforementioned features, the V-Y flap and the Limberg flap, which are two popular methods, were compared in this study.[6,7] There are only three studies in the English literature comparing the V-Y flap and Limberg flap.

There are three basic principles in the surgical treatment of pilonidal sinus disease. These are complete eradication of the sinuses, good closure of the remaining defective area and prevention of recurrences.[5,8] There is no contradiction in the complete removal of the sinuses, however, the main discussion is on how to close the defect formed.[9,10] Leaving large defects open or marsupialization are not preferred today due to long recovery time and poor cosmetic results.[5,9,10] It is difficult to perform flap techniques with more limited dissection such as Karydakis and Bascom without creating tension in large and complicated cases. As is well known, good wound healing can only be achieved by well-fed tissues and minimal tension. Therefore, various flap techniques have been developed and many studies have been published. While many factors such as being primary or recurrence, number of sinuses, defect size, patient preference, and surgeon experience play role in the preferred surgical technique, the most popular flap techniques for cases with large tissue loss are V-Y flap and Limberg flap techniques.

The 2-year recurrence rate of Limberg flap method, which is one of the most frequently used techniques, is reported as 0-6% in the literature.[11] A similar recurrence rate was found in this study (6%). Limberg technique has low recurrence rate and low hospital stay in both primary and recurrent pilonidal sinus cases. However, in some studies in which Limberg flap method has been performed, cosmetic dissatisfaction is a significant disadvantage.[12,13] In a study in sixty-three patients, 63% of patients were not satisfied with the cosmetic result.[13]

V-Y flap technique was first used by Khatri et al.,[6] in 1994 in five patients and it is preferred in recurrent cases. The researchers argued that V-Y flap technique provided a better wound healing due to lesser tension, lesser postoperative seroma and dead space rates as a result of limited dissection and mobilization compared to Limberg flap.[14,15] The

disadvantage of V-Y flap method reported in the literature seems to be longer operative time and longer hospital stay.[16,17] Operative times were not compared in our study. However, the length of hospital stay of patients in the V-Y group was similar to that of the Limberg group with a mean of 2 days and was significantly lower than the literature. Similarly, time to return to work of the patients who underwent V-Y flap was similar to the Limberg group and was shorter than the other studies in the literature.

The reported rates for V-Y flap technique was 0-10.2% for wound site infection, 0-4.6% for seroma and 0-10.2% for wound dehiscence.[16,17,18] The rates we obtained in our study were slightly higher compared to the literature. The reason for this was concluded to be lower sociocultural levels and self-care of our patients and that they did not comply with the post-discharge recommendations.

A controversial subject in the literature is the use of drains. There are publications regarding them as beneficial and there are also studies claiming the opposite. Our general experience in pilonidal sinus surgery is the use of drains. In this study, seroma development is significantly less in all of our patients due to the use of drains. Therefore, in obese patients and those who have large tissue defects, we recommend that the drain is placed and is not removed until the amount of discharge is reduced.

Recurrence rate is one of the most important criteria in the success of surgical procedures. Both techniques have significantly less recurrence rates compared to other methods. The recurrence rate for V-Y flap and Limberg flap were 0-11% and 0-6%, respectively, in the literature.[11,17,18] In our study, recurrence was detected in only two patients (4%) in the V-Y flap group and three patients in the Limberg group (6%) in a 2-year period. Although recurrence rate following Limberg procedure is close to the literature, our recurrence rate in the V-Y group is lower.

Conclusion

In our study, the superiority of V-Y flap technique to Limberg was observed in terms of cosmetic satisfaction and low recurrence rate. Regarding wound dehiscence, V-Y flap results seem to be better with a statistically significant difference. According to the results of this study, V-Y flap technique should be considered as a good choice for the closure of large tissue defects in the surgical treatment of pilonidal sinus disease.

Ethics

Ethics Committee Approval: The study was approved by the Yıldırım Beyazıt University Faculty of Medicine Ethics Committee (approval number: 20.01.2016/09).

Informed Consent: Written informed consent was obtained from all patients preoperatively.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: S.A., R.S., Concept: R.H.G., Design: R.H.G., R.S., Data Collection or Processing: R.S., S.A., Analysis or Interpretation: M.Ö.Y., Literature Search: R.H.G., R.S., Writing: R.S.

Conflict of Interest: No conflict of interest was declared by the authors.

Financial Disclosure: The authors declared that this study received no financial support.

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RESEARCH ARTICLE

Evaluation of Etiological Risk Factors in the Development of Adult Chronic Pilonidal Disease

Erişkin Kronik Pilonidal Sinüs Hastalığının Oluşumunda Etiyolojik Risk Faktörlerinin Değerlendirilmesi

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ABSTRACT

Aim: Pilonidal disease has a high rate of recurrence after surgical interventions and measures that can be taken to prevent the recurrence are gaining importance. This study was planned to review the possible risk factors and to provide guidance for the reduction of pilonidal disease.

Method: Patients diagnosed with pilonidal disease between January 2014 and January 2017 were evaluated. Age, gender, weight, height, body mass index (BMI), occupation and sitting or standing position during working, family history of pilonidal sinus, skin color and hair color were analyzed retrospectively. The BMI of the patients was categorized as ≤20.0 kg/m^2, 20.1-25.0 kg/m^2, 25.1-30.0 kg/m^2, 30.1-35.0 kg/m^2 and 35.1-40.0 akg/m^2.

Results: The total number of patients with pilonidal disease was 217 with a mean age 26.0. The disease had two age peaks at 19 and 24-27 years. Pilonidal disease was statistically significantly more commonly observed in patients with BMI of 25.1-30.0 kg/m^2 (p<0.001). The disease was significantly higher in brunette patients compared to auburn and blonde patients (p<0.001). The disease was observed in 49.8% patients with seated positional occupations (p<0.001).

Conclusion: Age, skin color and hair color are unmodifiable risk factors, but prevention of obesity, reducing sitting time and changing routines while fulfilling occupations seem preventive methods.

Keywords: Etiology, pilonidal sinus, prevention

ÖZ

Amaç: Pilonidal sinüs hastalığı cerrahisi sonrası yüksek oranda oluşan nüksler nedeniyle hastalık oluşmaması için alınabilecek önlemler önem kazanmaktadır. Bu çalışma olası risk faktörlerinin gözden geçirilip pilonidal hastalığın önlem alınarak azaltılmasında ışık tutması amacıyla planlanmıştır.

Yöntem: Ocak 2014 ve Ocak 2017 arası pilonidal sinüs tanısı almış hastalar değerlendirildi. Yaş, cinsiyet, ağırlık, boy, vücut kitle indeksi (VKİ), iş ve oturur veya ayakta icra edilişi, ailede pilonidal sinüs varlığı, deri ve saç rengi, retrospektif olarak analiz edildi. Hastaların VKİ'si ≤20,0 kg/m^2, 20,1-25,0 kg/m^2, 25,1-30,0 kg/m^2, 30,1-35,0 kg/m^2 and 35,1-40,0 kg/m^2 olarak kategorize edildi.

Bulgular: Pilonidal sinüs olan 217 hastanın ortalama yaşı 26,0 idi. On dokuz ve 24-27 yaş aralığı, hastalarda 2 ayrı pik yapmış olarak görüldü. Pilonidal sinüs VKİ'si 25,1-30,0 kg/m^2 olan hastalarda istatiksel olarak sık görüldü (p<0,001). Esmer tenli hastalarda, sarışın ve kumrallara göre istatistiksel olarak bu hastalık daha sık idi (p<0,001). Oturarak icra edilen mesleklerde bu hastalığın görülme oranı %49,8 idi (p<0,001).

Sonuç: Hastanın yaşı, ten ve saç rengi değiştirilebilir risk faktörü değildir ancak obezitenin engellenmesi, oturur pozisyonda yapılan işlerde mümkünse sürenin kısaltılması veya icra ederken iş alışkanlığının değiştirilmesi preventif olabilir görülmektedir.

Anahtar Kelimeler: Etiyoloji, pilonidal sinüs, önlem

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Introduction

Pilonidal sinus (PS) is a common surgical disease with a midline or lateral hair-containing sinus in the natal cleft.[1] Although the etiology is not known exactly, risk factors include increased hair amount in the region, male gender, obesity, prolonged sitting, family history, trauma, irritation of the coccyx, and inattention to personal hygiene.[2] The incidence shows variability due to geographical- and population-based conditions.[3,4] Because of the high rates of recurrence after surgical interventions, prevention is preferred to therapy. Therefore, here we performed this study to determine the factors associated with an increased risk of PS that could be avoided, and to provide guidance for the reduction of PS.

Materials and Methods

The project was approved by the local ethics committee (project no: 325). Patients diagnosed with PS between January 2014 and January 2017 were evaluated. Age, gender, weight, height, body mass index (BMI), occupation and sitting or standing position during working, family history of PS, skin color and hair color were analyzed retrospectively. The BMI of the patients was categorized as ≤20.0 kg/m^2, 20.1-25.0 kg/m^2, 25.1-30.0 kg/m^2, 30.1-35.0 kg/m^2 and 35.1-40.0 kg/m^2. The patients with missing data, acute PS and younger than 18 years old were excluded from the study.

Statistical Analysis

The data analysis was performed using SPSS for Windows, version 22. The normality of the distribution of continuous variables was determined by Kolmogorov-Smirnov test and histogram. The data were reported as mean ± standard deviation, or median and range, where applicable. The categorical data were analyzed using chi-square test when appropriate. A p value less than 0.05 was considered statistically significant.

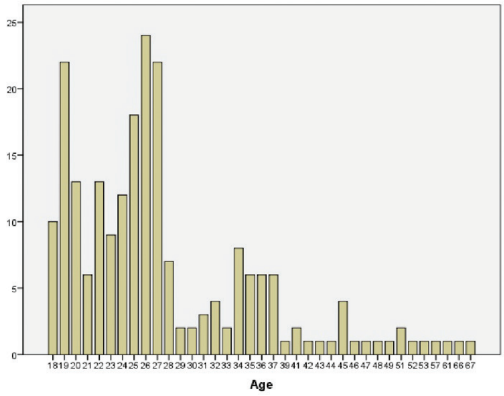


Figure 1. Age distribution of patients with pilonidal disease

Results

The total number of patients with PS was 217. The patients were between the ages of 18-67 (median: 26 years) (Figure 1). The male to female ratio was 5.6. Female subjects were older at the time of diagnosis. The median ages for female and male patients were 27 and 24 years, respectively, but the age distribution was not statistically significant between two genders (p=0.398). The disease had two age peaks at 19 and 24-27 years. (Figure 1).

The BMI distribution among patients was seen in Figure 2. Pilonidal disease was statistically significantly more commonly observed in patients with BMI of 25.1-30.0 kg/m^2 (p<0.001).

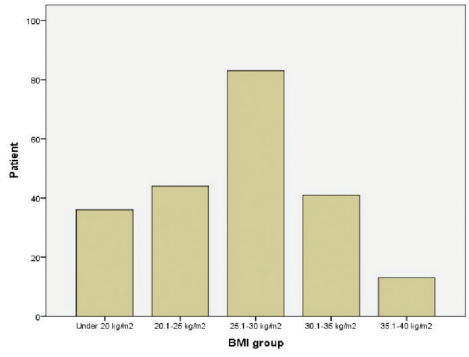


Figure 2. Body mass index distribution of patients with pilonidal disease

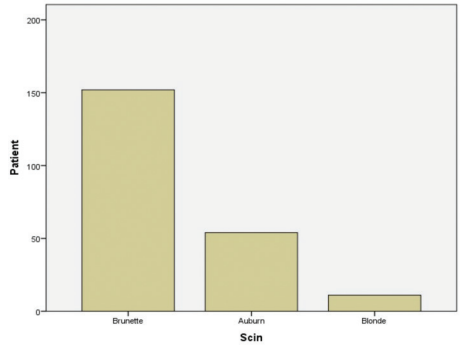


Figure 3. Skin and hair color distribution of patients

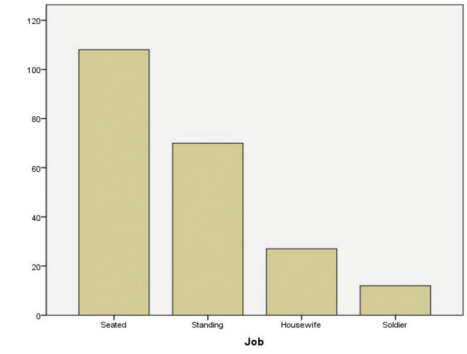


Figure 4. The distribution of occupations and working positions

The color of the skin and hair was also an important factor (Figure 3). The disease was significantly higher in brunette patients compared to auburn and blonde patients ($p<0.001$).

The most important variable affecting the disease was the sitting position (Figure 4). The disease was observed in 49.8% patients with seated positional occupations ($p<0.001$).There were no correlation between family history and occurrence of the disease ($p=0.662$).

Discussion

The etiology of PS is a problematic issue in medicine.[5] Most of the patients (70%) reported in the literature were between 20 and 30 years of age.[6] In our study, the mean age of patients was 26 years. More secretion in pilosebaceous glands due to sex hormones in young population may trigger the disease. In our study, the male to female ratio was 5.6 as in previous studies[7], which means that the disease occurs more frequently in men.

High BMI is an important factor for the occurrence of PS.[8] In this study, PS was statistically significantly more commonly observed in patients with BMI of 25.1-30.0 kg/m^2 as in the study of Bolandparvaz et al.,[7] referring that overweight patients (BMI >25) were at greater risk of disease. Deep and moist natal cleft in overweight or obese patients is more susceptible to injury with hair ends due to vacuum effect of the area.[9]

In the literature, the skin and hair colors are not well-evaluated variables. In our study, we found that brunette patients had the disease more than auburn and blonde patients significantly. From the point of view, this variable should be evaluated prospectively assessed in other studies.

The relationship between occupation and PS has been notified. In one report, Kaymakcioglu et al.,[6] emphasized the importance of sitting position while working, as in our study.

Conclusion

In conclusion, age, skin color and hair color are unmodifiable risk factors, but prevention of obesity, reducing sitting time and changing routines while fulfilling occupations seem preventive methods.

Ethics

Ethics Committee Approval: The study was approved by the Adana City Training and Research Hospital Clinical Research Ethics Committee (approval number: 325).

Informed Consent: Retrospective study.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: A.K., S.C., Concept: A.P., A.K., Design: A.K., Data Collection or Processing: S.C., Analysis or Interpretation: A.K., Literature Search: A.P., Writing: A.K., A.P.

Conflict of Interest: No conflict of interest was declared by the authors.

Financial Disclosure: The authors declared that this study received no financial support.

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RESEARCH ARTICLE

Birth Trauma: Sphincter Injuries

Doğum Travması: Sfinkter Yaralanması

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ABSTRACT

Aim: Fecal incontinence is a condition that has social and economic effects and that disrupts the quality of life. A complete definition of fecal incontinence is difficult. However, it can be defined as the failure to control the anal discharge of intestinal content at an appropriate time and place. The diagnosis of fecal incontinence is challenging and complex. One of the most important causes of fecal incontinence is trauma in the perianal region. The most important cause of such trauma is birth trauma. We examined our cases who had sphincter repair due to acute injury in the perianal region during delivery.

Method: The data of 10 female patients who were admitted to Necmettin Erbakan University, Meram Faculty of Medicine, Department of General Surgery with perianal injuries between 2010 and 2015 were analyzed retrospectively. Data regarding age, severity of injury, first intervention time, repair type, wound problems and post-operative complications were investigated. Long-term results were analyzed.

Results: It was observed that 10 female patients underwent emergency surgery due to acute perianal injury. Tenpatients were included in the study and their files were analyzed retrospectively. The mean age of the patients was 24 (range: 19-36) years. Four patients had type 4 injury, two had type 3a injury, one had type 3b injury, and three had type 3c injury.

Conclusion: We believe that it is important to perform surgical treatment before tissue edema develops.

Keywords: Childbirth, incontinence, trauma

ÖZ

Amaç: Fekal inkontinans sosyal ve ekonomik etkileri olan ve yaşam kalitesini bozan bir durumdur. Fekal inkontinansın tam bir tanımını yapmak zordur. Ancak barsak içeriğinin uygun zaman ve yerde, anal yoldan çıkışının kontrol edilememesi şeklinde tanımlanabilir. Fekal inkotinans tanısı zor ve karmaşıktır. Fekal inkontinansın en önemli nedenlerinden biri perianal bölgede oluşan travmadır. Bu travmanın en önemli nedeni doğum travmasıdır. Doğum esnasında perianal bölgede oluşan akut yaralanma nedeniyle sfinkter tamiri yapılan olgularımızı inceledik.

Yöntem: Necmettin Erbakan Üniversitesi Meram Tıp Fakültesi Genel Cerrahi Kliniği 2010-2015 yılları arasında başvuran perianal bölge yaralanması olan 10 kadın hastanın verileri retrospektif olarak incelendi. Hastaların yaş, yaralanma derecesi, ilk müdahale zamanı, onarım şekli, yara problemleri ve postoperatif komplikasyonları değerlendirildi. Uzun dönem sonuçları incelendi.

Bulgular: On kadın hastanın akut perinal bölge yaralanması nedeniyle acil cerrahi uygulandığı tespit edildi. Çalışmaya 10 hasta alındı ve dosyaları retrospektif olarak incelendi. Kadın hastalarının yaş ortalaması 24 (19-36) idi. Kadın hastaların 4'ünde tip 4 yaralanma, 2'sinde tip 3a, 1'inde tip 3b ve 3'ünde tip 3c yaralanma izlendi.

Sonuç: Cerrahi müdahalenin doku ödemi gelişmeden yapılmasının önemli olduğu kanaatindeyiz.

Anahtar Kelimeler: Doğum, inkontinans, travma

Introduction

Fecal incontinence is a condition that has social and economic effects and disrupts quality of life.[1] It is hard to offer an exact definition of fecal incontinence. However, it can be defined as the failure to control the anal discharge of intestinal content at an appropriate time and place.[2] The prevalence, diagnosis, and treatment methods of fecal incontinence could not be clearly identified. Many methods used in diagnosis and treatment have evolved over time.[3] The

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diagnosis of fecal incontinence is challenging and complex. One of the most significant causes of fecal incontinence is trauma in the perianal region. The most important cause of such trauma is birth trauma. It is difficult to evaluate patients and to plan treatment. The surgical method is determined by the severity of sphincter damage and injury to organs in the perianal region. Therefore, the aim of this study was to analyze the patients who underwent sphincter repair due to acute injuries in the perianal region.

Materials and Methods

The data of 10 female patients who were admitted to Necmettin Erbakan University, Meram Faculty of Medicine, Department of General Surgery with perianal injuries between 2010 and 2015 were analyzed retrospectively. Data regarding age, severity of injury, first intervention time, repair type, wound problems and post-operative complications were investigated. Long-term results were analyzed. Patients with acute injury requiring emergency intervention were included in the study. Patients who did not underwent emergency intervention for a reasonbut who underwent repair procedures in the long-term were excluded from the study.

Results

It was observed that 10 patients underwent emergency surgery due to acute perianal injury. It was determined that 10 patients experienced injury during childbirth. Ten patients were included in the study and their files were analyzed retrospectively. The mean age of the patients was 24 (range: 19-36) years. Four patients had type 4 injury, two had type 3a injury, one had type 3b injury, and 3 had type 3c injury (Figure 1). Six patients were primipares and six patients gave birth to babies weighing more than 4000 gr. Six patients had episiotomy and 3 did not receive episiotomy. Moreover, six of the patients had vacuum assisted labor. Nine of the patients had emergency intervention within the first 10 (range: 1-18) hours. One patient was initially treated at an external center and presented to our center on the 3rd day upon split formation in the injury. This patient was re-operated (Table 1).

Table 1. Patient data

Variable	
Number	10
Age, years	24 (19-36)
Severity of injury	Type 4 (n=4)
	Type 3a (n=2)
	Type 3b (n=1)
	Type 3c (n=3)
Pre-operative time	10 (1-18) hour (n=1, 3 day)
Postoperative follow-up time	3 (1-7) years
Mean resting pressure	40 (30-70) mmHg
Mean extrusion pressure	60 (50-120) mmHg
Mean duration of extrusion	30 (20-56) seconds
Mean coughing reflex	70 (54-110) mmHg

While all patients received sphincteroplasty and vaginoplasty, five patients underwent levatorplasty. After repair, the rectovaginal septum was thicker than 2 cm in all patients. Three/0 polyglactin sutures were used for all repairs and interrupted repair was completed (Figure 2). Drains were placed in the repair area. Vaginal tampons were used and were frequently changed to reduce the risk of surgical site complications. Colorectal irrigation was performed in all patients during the surgical procedure.

Colostomy was not created for any patient, however, medical ileus was created. Parenteral feeding was continued for six days. All patients received third generation cephalosporin and metronidazole. Oral intake was enabled on the 5th day and the patients were discharged between the 7th and 10th days. Patients were asked to avoid sexual intercourse for 3 months. They were advised not to undergo vaginal delivery in their following labors. All patients received laxatives in



Figure 1. A patients with type 3c injury

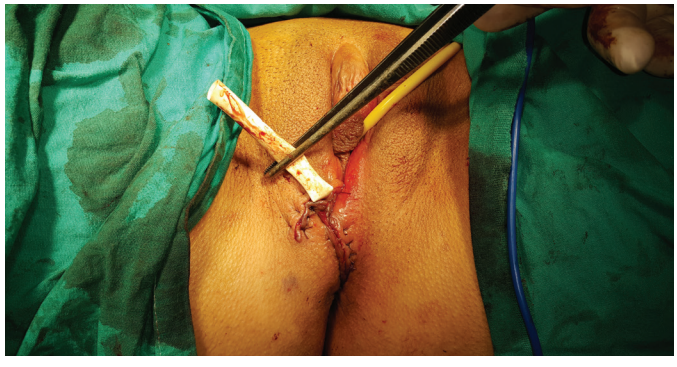


Figure 2. Post-repair image

order to ease stool discharge and to prevent constipation for a month. This period was extended in patients with chronic constipation.

All patients were followed-up for one month. None of the patients had wound site pathologies. Anal manometric pressure measurements were conducted at the 3rd month. The mean resting pressure was 40 (range: 30-70) mmHg, extrusion pressure was 60 (range: 50-120) mmHg, mean duration of extrusion was 30 (range: 20-56) seconds, and coughing reflex was 70 (range: 54-110) mmHg.

Three patients experienced gas incontinence at the 6th month. These patients received biofeedback for 2 months upon failure to detect complete sphincter damage by imaging techniques. Complaints of the patients improved after two months. The patients have been in the follow-up program for a mean period of 3 years and they do not have complaints of incontinence.

Discussion

The main causes of the problem in most of the patients with fecal incontinence are obstetric trauma or sphincter defects that emerge after anal surgery. There are varying degrees of injury in 53% to 79% of patients following vaginal delivery.[4,5]Although the rate of such injuries is too high, not all injuries cause sphincter damage. The rate of primary obstetric anal sphincter injury is approximately 18% in vaginal deliveries.[6] Eight studies were investigated in a meta-analysis and it was seen that 5.7% of women had anal sphincter injury during first labor and 6.3% during the following labors.[7] In another study, a total of 700 patients pregnant with twins were evaluated and the rate of sphincter injury was found to be 2.8%.[8] In a study of patients who had vaginal or C-section deliveries, the authors found that complaints related to incontinence varied between 13% and 25%.[9] The rate of fecal incontinence in patients with postpartum sphincter injury is approximately 7.7%.[10] While the rate of incontinence is 6.3% in nulliparous women, it is 8.8% in uniparous women and 8.4% in secundiparous women, compared with 11.5% in triparous women and women who had more than 3 deliveries.[11] Only 27% of endoanal ultrasonography results show occult anal sphincter injuries.[12] One third of the patients with detected damage also had symptoms of incontinence. Asymptomatic patients are at risk for incontinence in the coming years. All of our patients had anal sphincter damage due to birth trauma. The vast majority of our cases sustained anal sphincter injury during the first delivery.

Creation of episiotomy during labor prevents uncontrolled perianal fissures. However, the results of a meta-analys is revealed that episiotomy increased the risk of fecal incontinence.[13] The most important parameters for sphincter damage at vaginal delivery are interventional delivery and birthweight of the baby.[14] Tertiary fissures are frequently seen in interventional deliveries with midline episiotomy. Uncontrolled fissures are less common after medio-lateral episiotomy procedures. Although six patients had episiotomy, uncontrolled fissures could not be prevented. We believe this was due to the problematic timing of episiotomy. Although the starting point of the episio-incision was medio-lateral, it then proceeded medially. Six patients had interventional deliveries. Six of the babies had a birth weight of more than 4000 grams.

The first treatment that should be offered for any incontinence patient with anal sphincter defect is primary sphincter repair. Pre-operative intestinal cleaning should be done very carefully. Perioperative antibiotic prophylaxis is necessary. Randomized controlled studies have demonstrated that prophylaxis with second-generation cephalosporin significantly reduces the rate of infection.[15] Infection rates following anal sphincter repair due to vaginal birth injury is as high as 20%, whereas, wound healing problems reach up to 25%.[16] Surgical site infection was not observed in any of our patients. We administer a combination of third generation cephalosporin and metronidazole prophylaxis, and we continue treatment for 3 days. We pay special attention to keep the vagina dry. We believe that the reason why we do not have complications such as wound site infection and wound splitting is the attention we pay.

The vaginal wall on the front and anal canal mucosa on the back should be repaired in internal and external sphincter procedures. Sphincter repairs can be done in end-to-end or overlapping forms. The difference between end-to-end and overlapping suturing has not been shown in the literature within one-year of follow-ups.[17] We do end-to-end repair in cases with early surgery following injury. We prefer the overlapping method more for chronic cases. We repair all layers separately with interrupted sutures.

There is no sufficient data on whether a patient who had vaginal injury following vaginal delivery should have her next deliveries by vaginal or C-section delivery. However, some studies have reported that the possibility of a new anal sphincter injury following vaginal delivery is 3%.[18] Nevertheless, we do not recommend vaginal delivery to our patients. These patients have lower anal manometric pressure than normal patients (although the measurements do not have standard values). Micro or macro sphincter injuries happen in all deliveries. We support the idea that patients should not be exposed to the risk of having possible injuries.

Incontinence can be seen in women with sphincter injuries during delivery after repair. The most important cause of this

is residual anterior sphincter defects.[3] Adequate continence might not be achieved in the long term by the primary repair of third and fourth degree sphincter fissures that form during delivery. The incidence of anal incontinence was reported as 15-61%, although primary repair is done during delivery. The endoanal ultrasonography results presented in some studies have demonstrated that sphincter injuries remain up to 91% in patients with fissures repaired by interrupted side-to-side sutures.[3,19] Three-year follow-up results of our patients have not shown any significant continence problems. Biofeedback therapy has been shown to be helpful for patients suffering from gas incontinence and urogenesis problems.

Conclusion

Physicians should note that sphincter injuries might happen after every delivery. Patients should be informed about the fact that they might experience incontinence problems during the follow-ups. We believe that it is significant to perform surgical intervention before tissue edema develops.

Ethics

Ethics Committee Approval: The study was approved by the Necmettin Erbakan University Meram Faculty of Medicine Ethics Committee (approval number: 2017/292).

Informed Consent: Informed consent was obtained from all individual participants included in the study.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: M.Ç., M.A.Y., Concept: M.Ç., Design: M.Ç., Data Collection or Processing: M.Ç., Analysis or Interpretation: M.Ç., M.A.Y., Literature Search: M.Ç., M.A.Y., Writing: M.Ç., M.A.Y.

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RESEARCH ARTICLE

An Acute Abdomen Dilemma: Epiploic Appendagitis

Bir Akut Karın Dilemması: Epiploik Appendajit

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ABSTRACT

Aim: Appendagitis is a clinical condition caused by ischemia, torsion or inflammation of epiploic appendices located on serosal surface of the colon. Antibiotics and analgesics are generally sufficient in treatment. Rarely, excision might be needed. It might be confused with acute appendicitis and diverticulitis, depending on its localization.
Method: The data of 12 patients with acute abdomen, who were diagnosed to have epiploic appendagitis and responded to medical treatment completely, were analyzed retrospectively.
Results: There were seven female and five male patients with a mean age of 33 (range: 21-48) years. The mean body mass index was 25.5 (range: 19-34). There was no abdominal surgery. The mean length of hospital stay, leukocyte count and C-reactive protein (CRP) were 2.08 days, 10.41x10^3/µL and 2.3 mg/dL, respectively. Sixty-six point six percent (n=8) of the epiploic appendagitis was localized in the right colon and 33.3% (n=4) in the left colon. A positive correlation was found between the diameter of appendagitis and leukocyte count and CRP level (p>0.05). There was no correlation between appendagitis diameter and vomiting (p>0.05).
Conclusion: Appendagitis should be kept in mind in patients presenting with sudden onset, sharp and constant pain. Informing radiologist about this possibility may help to confirm the diagnosis.
Keywords: Conservative treatment, epiploic appendagitis, radiology

ÖZ

Amaç: Apandijit, kolon serozasında bulunan appendiks epiploikaların iskemi, torsiyon veya enflamasyonuna bağlı klinik durumdur. Antibiyotik ve analjezik tedavi tedavide genellikle yeterlidir. Nadiren, eksizyon gerekebilir. Yerleşim yerine bağlı olarak, akut apandisit vedivertikülit ile karışabilir.
Yöntem: Akut karın ile başvuran ve epiploik appendijit tanısı alarak medikal tedavi ile tamamen iyileşen 12 hastanın verileri retrospektif olarak incelendi.
Bulgular: Yaş ortalaması 33 (21-48) olan yedi kadın, beş erkek hasta vardı. Ortalama vücut kitle endeksi 25,5 (19-34) idi. Hiçbir hasta ameliyat edilmedi. Ortalama hastanede kalış süresi, lökosit sayısı ve C-reaktif protein (CRP) değerleri sırasıyla, 2,08 gün, 10,41x10^3/µL ve 2,3 mg/dL idi. Epiploik appendajitlerin %66,6'sı (n=8) sağ kolon ve %33,3'ü (n=4) sol kolon yerleşimliydi. Appendajit çapı, lökosit sayısı ve CRP düzeyi arasında pozitif bir ilişki saptandı (p<0,005). Appendajit çapı ile kusma arasında bir ilişki saptanmadı (p>0,005).
Sonuç: Epiploik appendajit, ani başlayan, keskin ve aralıksız ağrısı olan hastalarda akla gelmelidir. Bu olasılık açısından radyoloğun bilgilendirilmesi tanıyı kesinleştirmede yardımcı olabilir.
Anahtar Kelimeler: Konservatif tedavi, epiploik appendajit, radyoloji

Introduction

Acute primary epiploic appendagitis develops due to ischemia, torsion or inflammation of epiploic appendices located on serosal surface of the colon. Clinically, it generally presents with a sudden-onset, sharp and constant pain. It mimics acute appendicitis and diverticulitis depending on its localization, either in the right or left colon. Radiological findings may be confused with omental infarct, panniculitis or fat-containing tumors.[1] Radiologically, ultrasonography and computed tomography are sufficient to diagnose.[2] If it cannot be diagnosed radiologically, patients may undergo surgery due to acute abdomen. Appendagitis is frequently a self-limiting, benign clinical condition. It is mostly seen between 2nd and 5th decades, and is more frequent in

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women and obese people. A careful history taking, physical examination and radiological imaging can reveal accurate diagnosis. Antibiotics and analgesics are generally sufficient for treatment.

Materials and Methods

Twelve patients who were admitted to emergency department with acute abdomen and diagnosed with epiploic appendagitis between January 2014 and November 2017 were retrospectively analyzed. Physical examination, laboratory and imaging results were recorded. Local ethical committee approved the study and informed consent was obtained from the patients.

Statistical Analysis

SPSS 17 program was used for statistical analysis. Pearson correlation test was used to compare parameters. P<0.05 was considered statistically significant.

Results

There were seven female and five male patients with a mean age of 33 (range: 21-48) years. The mean body mass index (BMI) was 25.5 (range: 19-34). There was no abdominal surgery. The mean length of hospital stay, leukocyte count and C-reactive protein (CRP) were 2.08 days; 10.41x10^3/µL and 2.3mg/dL, respectively. The diagnosis was made by computerized tomography (CT) scan in all patients (Figure 1 and 2). Most (66.6%) of the epiploic appendagitis was localized in the right colon (Table 1). A positive correlation was found between the diameter of appendagitis and leukocyte count and CRP level (p<0.05). There was no relationship between appendagitis diameter and vomiting. The symptoms of the patients regressed with medical treatment. There was no complication or need for any surgical intervention.

Discussion

Epiploic appendices are lipomatous structures having a small arterial supply and venous return to colonic straight vessels. Matos and Costa[3] was the first to describe epiploic appendagitis in 1956 in the differential diagnosis of sudden-onset, right or left lower quadrant abdominal pain.

The patients describe a sharp, sudden onset, constant abdominal pain without nausea and vomiting or fever. The pain was reported to be more frequent in the left lower quadrant in the literature.[3,4,5] However, it was more frequent in the right lower quadrant in our study. Routine laboratory tests are within normal limits, except for mild leukocyte count and CRP increase.[6] Before the widespread availability of CT, appendagitis could only be diagnosed during



Figure 1. Epiploic appendagitis on computerized tomography

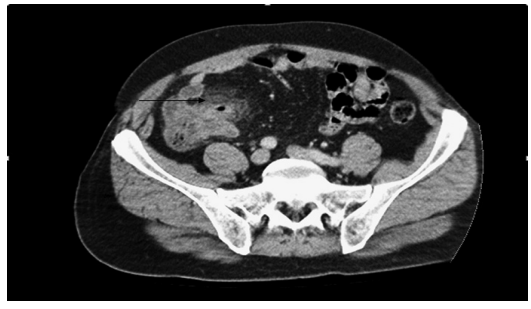


Figure 2. Epiploic appendagitis on computerized tomography

Table 1. Demographic characteristics of patients

Patient	Gender	Age (years)	Nausea/ vomiting	Pain localization	Leukocyte count (x10^3/µL)	CRP	Appendagitis diameter	BMI	Hospital stay (days)
1	Female	41	0	Right	7.06	0.5	1.6	20	1
2	Male	28	0	Right	10.10	2.1	1.7	27	2
3	Male	21	1	Right	9.10	2.9	2.1	23	3
4	Female	25	1	Left	10.90	3.3	2.4	32	3
5	Female	38	0	Right	13.00	1.7	1.5	29	2
6	Male	24	0	Left	8.10	2.2	1.1	19	1
7	Female	37	0	Right	12.30	4.1	2.7	33	3
8	Female	45	0	Right	11.40	1.2	1.8	25	2
9	Female	22	0	Right	9.40	1.6	2.3	27	3
10	Male	29	1	Left	11.10	1.4	1.9	34	1
11	Male	48	1	Left	13.80	5.1	3.7	23	3
12	Female	40	0	Right	8.70	2.3	1.2	31	1

CRP: C-reactive protein, BMI: Body mass index

surgical exploration, as its symptoms are non-specific. A study reported 2.5% preoperative correct diagnosis rate for appendagitis, which is very low.[1] Suspicion of appendagitis and informing the radiologist will be useful in the correct diagnosis during preoperative evaluation. Cases with non-radiological diagnosis or non-regressive symptoms despite medical therapy can undergo surgery with a prediagnosis of acute abdomen.[7,8]

It appears as an oval, non-compressible and hypoecoic lesion in ultrasound imaging.[9,10] There is severe tenderness on the lesion location. CT reveals a lesion of lipid density along with inflammatory findings in the neighborhood of colon.[11] Parietal peritoneum may appear thickened, if inflammation expands. Generally, the colonic wall appears to have normal thickness in CT, although it may appear thicker. The radiological findings of appendagitis resolve completely in 6 weeks.[12]

Epiploic appendagitis is a benign, self-limiting clinical condition with a size of 0.5 to 5 cm, and it is generally seen in young and middle-aged patients and obese people.[2] The high mean BMI and mean age in our study are consistent with the literature. Heavy physical activity may increase the risk of developing appendagitis. Male or female dominance is not certain in the literature.[1,3] It may be confused with acute appendicitis, acute cholecystitis or diverticulitis, depending on localization. The patients with a definite diagnosis based on imaging should be initially treated medically. Diagnostic laparoscopy can be used in cases with unexplained clinical or non-regressive symptoms. In addition, laparoscopic excision of appendagitis can eliminate the pathology.[13]

Epiploic appendagitis is one of the blamed factors in etiology of intraperitoneal loose body, along with omental torsion and peritoneal debris.[14] These intraperitoneal structures can mimic pseudotumor in imaging. Following acute period, appendagitis may show calcification and may be confused with carcinamatosis radiologically.[7] In such situations, if available, comparison with previous radiological imaging is helpful in diagnosis; otherwise, biopsy may be needed. While necrotized epiploic appendix tissue generally shows eggshell calcification, metastatic calcifications frequently show nodular formation.[15] However, in some cases, this discrimination is not clear. Thus, previous radiological imaging showing appendagitis is very important to differentiate this pathology from malignancy when suspected.

Conclusion

In conclusion, appendagitis is a clinical condition that is diagnosed by radiological imaging and that is generally conservatively treated. Ultrasound and CT scan are sufficient to make a diagnosis because of typical radiological findings. This typical appearance is important to differentiate it from acute appendicitis, omental infarction, diverticulitis and cholecystititis. Appendagitis should be kept in mind in patients with sudden onset or severe abdominal pain and mild increase in leukocyte or CRP counts. Informing the radiologist about suspected appendagitis may facilitate diagnosis.

Ethics

Ethics Committee Approval: The study was approved by the İstanbul Haydarpasa Numune Training and Research Hospital Ethics Committee (approval number: (07/06/2018-62977267-000-8436).

Informed Consent: Informed consent of all patients were taken.

Peer-reviewed: Externally peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: H.Ö., Z.Ü.Ö., O.S., Concept: H.Ö., Z.Ü.Ö., Design: H.Ö., Data Collection or Processing: H.Ö., Z.Ü.Ö., F.C., Analysis or Interpretation: H.Ö., O.S., Literature Search: H.Ö., F.C., Writing: H.Ö., Z.Ü.Ö., O.S.

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RESEARCH ARTICLE

The Effects of Glutamine and N-Acetylcysteine on Experimental Colitis Induced by 2,4,6-Trinitrobenzene Sulphonic Acid in Rats

Ratlarda 2,4,6-Trinitrobenzeno Sülfonik Asitle Oluşturulan Deneysel Kolit Üzerine Glutamine ve N-Asetilsisteinin Etkisi

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ABSTRACT

Aim: Various factors including free oxygen radicals were have been described in the pathogenesis of inflammatory bowel disease. The aim of this study was to investigate the effects of antioxidant N-acetylcysteine (NAC) and combined glutamine (Gln) on experimental colitis.

Method: In order to achieve this, rats were randomized and administered intraperitoneal NAC or oral Gln + intraperitoneal NAC one day after experimental colitis model induced with trinitrobenzen sulphonic acid. After the treatment, the rats were sacrificed and colon damage was evaluated macroscopically and microscopically. Malonyldialdehyde level and superoxide dismutase activity were analyzed biochemically.

Results: NAC and Gln + NAC groups showed macroscopically better results than the colitis group. Histopathologically, all treated groups provided significantly lower scores than the colitis group. Similarly, all treated groups provided better biochemical results than the colitis group.

Conclusion: According to the results of the experiment, it was concluded that NAC had positive effects on experimental colitis model.

Keywords: Experimental colitis, glutamine, N-acetylcysteine

ÖZ

Amaç: Enflamatuvar barsak hastalığı patogenezinde, serbest oksijen radikallerinin de aralarında bulunduğu çeşitli etkenler tanımlanmıştır. Bu çalışmanın amacı glutamin (Gln) ile kombine edilen antioksidan N-asetilsisteinin (NAC) deneysel kolit modeli üzerindeki etkilerini incelemektir.

Yöntem: Trinitrobenzeno sülfonik asit ile deneysel kolit modeli oluşturulduktan bir gün sonra ratlar randomize edilerek intraperitoneal NAC veya oral Gln + intraperitoneal NAC uygulandı. Tedavi sonrası ratlar sakrifiye edilerek, kolon hasarı makroskobik ve mikroskobik olarak değerlendirildi. Malonil dialdehid seviyesi ve süperoksit dismutaz aktivitesi biyokimyasal olarak analiz edildi.

Bulgular: NAC veya Gln + NAC verilen gruplarda makroskobik olarak kolit grubuna göre daha iyi sonuçlar elde edildi. Histopatolojik olarak tedavi verilen tüm gruplarda kolit grubuna kıyasla anlamlı olarak daha düşük skorlar elde edildi. Biyokimyasal olarakta tedavi verilen tüm gruplarda kolit grubuna kıyasla daha iyi sonuçlar elde edildi.

Sonuç: Deneyden elde edilen sonuçlara göre, NAC uygulanmasının deneysel kolit modeli üzerine olumlu etkili olduğu sonucuna varıldı.

Anahtar Kelimeler: Deneysel kolit, glutamin, N-asetilsistein

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Introduction

Inflammatory bowel disease (IBD) is a systemic disease that involves the gastrointestinal system and affects the quality of life. Although there are a large number of agents currently blamed for the etiology of the disease, it is more widely accepted that the immunoregulation deficiencies of the gastrointestinal tract and oxidative stress are effective and more attention is paid to free oxygen radicals.[1] In some studies, it was found that the colon biopsies of the patients with IBD had increased free oxygen radicals, and decreased glutathione (GSH) levels and antioxidant enzyme activity in patients with ulcerative colitis.[2] On the other hand, another study revealed that abnormally low levels of cysteine were measured IBD-related inflammation.[3]

New treatment methods are being searched due to developed tolerance and side effects of the drugs. Trinitrobenzene sulfonic acid (TNBS) is a substance used to create experimental colitis model.[4,5,6,7,8] In this model, many histopathological and clinical features of Crohn's disease can be observed as in humans and the period of chronic inflammatory response can be extended up to 8 weeks. Ethanol is given to eliminate the barrier of mucous membranes without making any morphological changes in the colon and thus helps the TNBS to penetrate into the intestinal wall.[9]

The purpose of this study was to have a better understanding the role of oxidative stress in the experimental colitis model and examine the effects of NAC and glutamine (Gln) in order to develop other treatment methods. Tissue damage was evaluated macroscopically and microscopically. Superoxide dismutase (SOD) activity and malonildialdehyde (MDA) levels were measured for the evaluation of antioxidant capacity.

Materials and Methods

The protocol was approved by the Committee of Animal Care and Use, Faculty of Medicine, Çukurova University. In this study, 50 male Wistar albino rats weighing between 220 and 320 gr and and with a mean age of 4 months were used. Light-dark cycle (12 h-12 h) was used during the experiment, and rats were placed in individual cages and were kept at room temperature at about 21°C. During the study, the rats were fed with distilled tap water and standard pellet feed, and the groups receiving glutamine were fed with 1g/kg of Gln mixed with distilled tap water and standard pellet. Anesthesia in rats was achieved by injecting 50 mg/kg dose of intramuscular ketamine hydrochloride (Ketalar, Parke Davis and Eczacıbaşı, İstanbul) +5 mg/kg of xylazine hydrochloride.

The Induction of Colitis

To create an experimental colitis, a mixture of 30 mg (80 mg/kg) TNBS (92823, picrylsulfonic acid solution 10 mL, purum, Switzerland) +30% ethanol was used. According to this method, 8-F polyurethane cannula was placed 8 cm rectally in anesthetized rats. Colitis was induced by administering 80 mg/kg TNBS +0.3 mL of 30% ethanol slowly through this cannula. The TNBS-E that remained in the cannula was introduced into the rectum by 1 cc air. Then, rats were held upsidedown for 30 seconds in order to prevent the reflux of the substance given and they were kept in the Trendelenburg position until they awakened from anesthesia.

Experimental Groups and Treatments (Table 1)

Group I (control group; n=10): Enema was applied with normal saline to the normal rats on the first and second days. Intraperitoneal sulforaphane (SF) was administered between the first and fourth days.

Group II (ethanol group; n=10): To monitor the possible effect of ethanol on the intestinal mucosa, 0.3 mL 30% ethanol was given through the anal canal in the supin position to a depth of about 8 cm through a thin nutrition catheter. The following day, intraperitoneal SF was given between the first and fourth days.

Group III (colitis group; n=10): A mixture of 80 mg/kg TNBS and 1 mL/kg 30% ethanol was given to a depth of about 8 cm through a thin nutrition catheter. The following day, intraperitoneal SF was given between the first and fourth days after the operation.

Group IV (NAC; n=10): A mixture of 80 mg/kg TNBS and 1 mL/kg 30% ethanol was given to a depth of about 8 cm through a thin nutrition catheter. The following day, 300 mg/kg intraperitoneal NAC injection was performed for 4 days.

Group V (Gln-NAC; n=10): Two weeks before the induction of colitis, 10 g/L Gln was mixed with drinking water. Drinking water was changed every three days and shaken two times a day. The remaining water was subtracted from the first amount and it was checked if the rats had taken enough water or not. Starting from the day after the induction of

Table 1. Comparison of macroscopical damage scores of the groups (Mann-Whitney U test p value) ($p<0.05$)

Groups	Control	Ethanol	Colitis	NAC
Ethanol	0.635			
Colitis	0.001	0.001		
NAC	0.001	0.001	0.023	
Gln-NAC	0.001	0.005	0.001	0.001

Gln: Glutamine, NAC: Antioxidant N-acetylcysteine

colitis, 300 mg/kg intraperitoneal NAC was injected for 4 days. The rats continued to receive Gln together with the drinking water until sacrificed.

The rats were sacrified on the 14th day after saline enema administration or TNBS-instillation and the distal colon was totally removed.

The Evaluation of Colonic Damage

Macroscopic Evaluation of the Colon

After the distal colon was removed under anesthesia by median laparotomy, it was opened longitudinally from the antimesenteric side of colon and the content of the colon was cleared with saline. Wallace macroscopic damage scale was used by a pathologist blinded to the content of the research.[10]

Histopathological Evaluation of the Colon (Table 2)

Colon tissue samples fixed in 10% formaldehyde solution were divided into 0.5 cm pieces. Then, after the standard labarotory follow-up, 5-micron sections were prepared by embedding into paraffine for histopathological examinations and sections were stained with hematoxylin-eosin. They were evaluated by using Olympus CX41 light microscope. The histopathological examinations of the tissues were performed by a pathologist blinded to sample groups using a scale that was mentioned in the previous studies.[11,12]

Measurement of SOD

Xanthine and xanthine oxidase (XOD) were used to generate superoxide anion radicals that react with 2-(4-iodophenyl)-3-(4-nitrophenol)-5-phenyltetrazolium chloride quantitatively to form a red formazan dye. SOD inhibits the reaction by converting the superoxide radical to oxygen. The measurement of SOD enzyme activity is performed with the % of formazan dye formation at 505 nm.[13,14]

Measurement of MDA

Under aerobic conditions, MDA reacts with thiobarbituric acid (TBA) at 95°C and pH 3.4 and forms a pink complex. This adduct is measured by spectrophotometer at 532 nm and expressed as nanomoles/milligrams.[15]

Statistical Analysis

Normality was checked for each continuous variable. Since the data were not distributed normally, appropriate non-parametric test was chosen. Comparisons between groups were performed using Student's t-test for normally distributed data and Mann-Whitney U test for non-normally distributed data. Bonferroni's correction was applied ($p<0.05/n$; where n=number of comparisons) when multiple comparisons were made. The results were presented as mean ± SD and median (minimum-maximum). Statistical analysis was performed using SPSS v 19.0 statistical package.

Results

Macroscopic Findings (Table 1)

Control Group

No change was detected in the colon macroscopically. The macroscopic damage score was 0.

Ethanol Group

The macroscopic damage score was 0. There was no statistically significant difference between the control group and the ethanol group ($p=0.635$). There was a statistically significant difference when compared with the colitis group ($p=0.001$). Statistically significant differences were found between the ethanol group and NAC group and Gln-NAC group ($p=0.001$, $p=0.001$ and $p=0.005$, respectively).

Colitis Group

The mean macroscopic damage score was 5. The score was significantly higher when compared with the control group ($p<0.05$).

NAC Group

The mean macroscopic damage score was 3.5. A higher macroscopic damage score was found in the NAC group compared to the control group ($p<0.05$). On the other hand, a lower macroscopic score was measured than the colitis group ($p<0.023$). When two groups receiving Gln were compared, it was seen that damage score was higher ($p<0.05$).

Gln-NAC Group

The mean macroscopic damage score was 4.5. Higher scores were measured compared to the control group ($p<0.05$), whereas the scores were lower than the colitis group ($p<0.05$). Macroscopic scores were lower compared to the NAC administered groups ($p<0.05$).

Histopathological Findings (Table 2, Figure 1)

Control Group

The score was 0 in the histopathological evaluation of the control group.

Ethanol Group

The mean damage score was 0. There was no statistically significant difference compared to the control group ($p=0.635$). The score was significantly lower compared with the TNBS-E administered groups ($p<0.05$ for all).

Colitis Group

The highest damage score was measured in this group (median: 6). This value was higher than all treated groups ($p<0.05$).

Table 2. Comparison of histological damage scores of the groups (Mann-Whitney U test p value) (p<0.05)

Groups	Control	Ethanol	Colitis	NAC
Ethanol	0.635			
Colitis	0.001	0.001		
NAC	0.001	0.001	0.004	
Gln-NAC	0.001	0.046	0.001	0.001

Gln: Glutamine, NAC: Antioxidant N-acetylcysteine

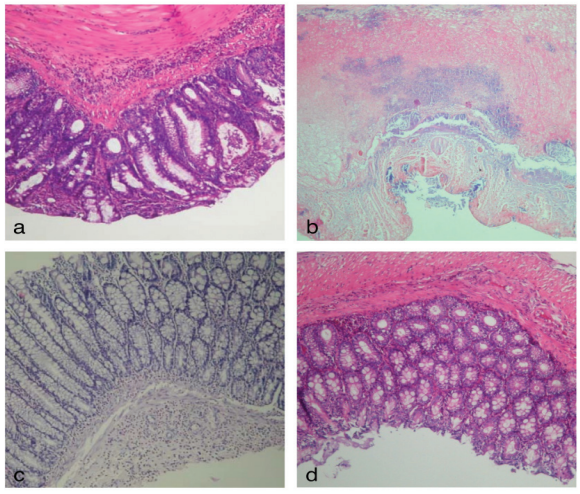


Figure 1. Histopathologic appearances of colon specimens: (a) Control group; normal colonic tissue HE x100, (b) Colitis group (TNBS); full-thickness colon necrosis (HE x40), (c) NAC group (TNBS + NAC); mild chronical inflammation (HE x100), (d) Gln-NAC group (TNBS + Gln-NAC); mild inflammation and edema (HE ×40)

HE: Hematoxylin eosin, TNBS: Trinitrobenzene sulfonic acid, NAC: Antioxidant N-acetylcysteine, Gln: Glutamine

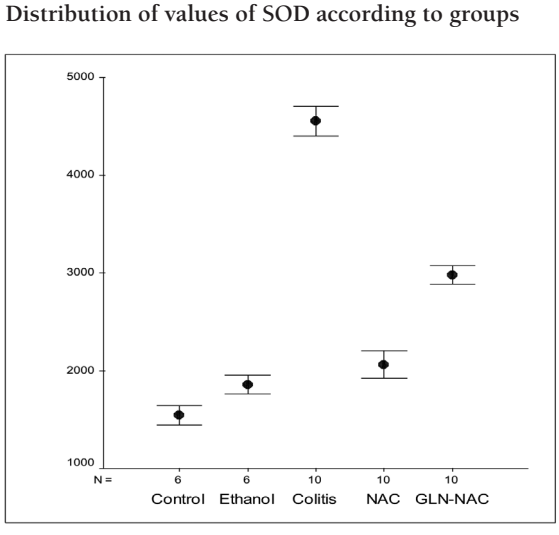


Figure 2. Mean and 95% CI of SOD according to the study groups
SOD: Superoxide dismutase, CI: Confidence interval, NAC: Antioxidant N-acetylcysteine, Gln: Glutamine

NAC Group

When compared to with the control and ethanol groups, higher histopathological damage scores were measured (median: 2, p<0.05). The score was lower than the colitis group (p<0.05).

Gln-NAC Group

A slightly higher histopathological damage score was measured than the control and ethanol groups (median: 1, p<0.05). The damage scores were lower in this group than the colitis and NAC groups (p<0.05).

The Results of SOD Activitiy Measurement (Figure 2)

Ethanol Group

A statistically significant increase in SOD activity was observed in this group compared to the control group (p=0.007). While there was no statistically significant difference between ethanol group and NAC group, a lower SOD activity was measured in the ethanol group compared with the TNBS-E administered groups (p=0.224).

Colitis Group

The highest SOD activity was measured in this group. The SOD activity was lower in the treated groups than in the colitis group.

NAC Group

A higher SOD activity was detected compared to the control group (p<0.017). The lowest SOD acvitity was measured in the NAC group among the treated groups.

GLN-NAC Group

The results in this group were higher than NAC group (p=0.001).

The Results of MDA Measurement (Figure 3)

Ethanol Group

The values in the ethanol group were higher than in the control group (p=0.01). The values were lowest when compared to all TNBS-E administered groups.

Colitis Group

The highest MDA level was obtained in this group. The values were found to be statistically higher than the treated groups.

NAC Group

Similar with SOD activity, the lowest MDA level was obtained in this group. No statistically significant difference was found between this group and ethanol group (p=0.201).

Gln-NAC Group

MDA levels in this group were higher than the control group (p=0.001). When compared to the colitis group, MDA levels were found to be statistically and significantly decreased (p=0.001).

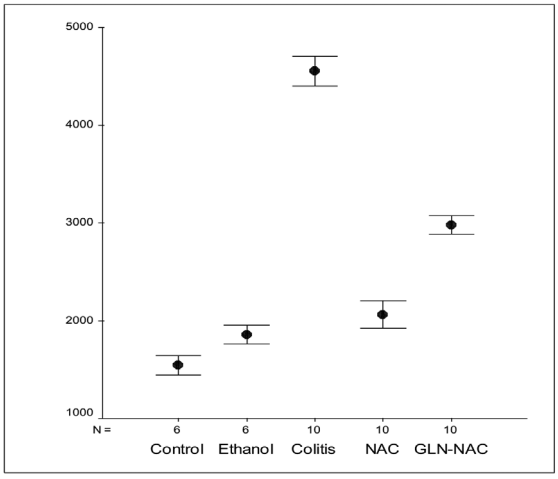


Figure 3. Mean and 95% CI of MDA according to the study groups

MDA: Malonildialdehyde, CI: Confidence interval, NAC: Antioxidant N-acetylcysteine, Gln: Glutamine

Discussion

Today, there is no definitive treatment for IBD except for surgery. Many clinical and experimental studies are performed to establish new treatment protocols. Oxidative stress is believed to play a key role in the pathogenesis of mucosal damage of IBD. In some of these studies, antioxidant substances have been investigated. In our study, we investigated the effect of NAC on oxidative stress and morphological changes in IBD, and the possible synergistic interaction of adding Gln, which is one of the precursors of GSH and an important antioxidant, such as cysteine in the composition of NAC.

In this study, colitis was induced with TNBS-E as shown in the literature. Expected findings were obtained in all groups with administered TNBS-E in compliance with the expected results and damage scores in all groups were higher than the control group. Unlike other studies, the efficacy of ethanol was evaluated as a given mucosal barrier breaker. The results showed that ethanol did not cause morphological damage, however, it increased SOD activity and MDA levels. Some studies evaluating the effect of ethonal on other systems have reported that altered MDA and SOD activities.[16,17,18,19] We think that ethanol in the TNBS-induced colitis model increased the SOD activity and MDA levels and it may affect the evaluation of the results obtained.

The effect of NAC on experimental colitis model has been investigated by many researchers. Siddiqui et al.,[20] investigated the effect of NAC, meselamine and NAC + mesalamine on mucosal recovery in TNBS-E-induced colitis model. It was showed that mesalamine + NAC reduced colonic inflammation and ulceration, and provided some curative effects on mucosa compared to their individual use. Besides, it was reported that combined treatment resulted in significant myeloperoxidase activitiy inhibition.[20] In another study conducted on a group of people, NAC and mesalamine were administered to some patients, and mesalamine and placebo were administered to another group. Consequently, better clinical results were observed with decrease of chemokines in the mesalamine and NAC group.[21] As noted in other studies, lower scores were obtained macroscopically and histopathologically in the damaged colon mucosa compared to the colitis model upon the application of NAC ($p<0.05$). The macroscopic and histopathological results obtained by adding Gln to NAC were better.

Free oxygen radicals form lipid peroxide radicals by causing lipid peroxidation. The resulting lipid peroxide radicals play an important role in the formation of the inflammatory process. Antioxidants are protective compounds against the harmful effects of free oxygen radicas. One of the most important enzymatic antioxidants is SOD. These enzymes are part of the natural defense system. The increased MDA levels in tissues reflect the level of lipid peroxidation.[22] Kurutas et al.,[23] found that NAC treatment protects the organism from the noxious substances of lipid peroxidation in acetic acid-induced colitis models. In our study, MDA levels were measured lower with NAC application compared to the colitis model. On the other hand, it was statistically significantly higher compared to the NAC group.

Two cytoplasmic enzymes, SOD and myeloperoxidase, protect the cell from oxidizing agents by breaking down superoxide anions and hydrogen peroxide. SOD reduces the oxidative stress and inflammatory response mediators.[24] SOD acts as an important preservative to prevent the damaging effects of superoxide anion radicals. Kuralay et al.,[25] showed that SOD levels increased in response to oxidative stress in the experimental colitis model and that this increase was reduced by antioxidant agents. Kruidenier et al.,[26] demonstrated that Cu/Zn SOD and MnSOD levels of the colonic mucosa in patients with IBD were higher than the control group. In this study, we observed lower SOD levels in the NAC group than in the colitis group. Similar with the other studies, it was concluded in our study that the antioxidant application had a positive effect on the colitis model in terms of treatment. Compared to the colitis model, a greater reduction was observed in the SOD level in the NAC + Gln group. However, contrary to expectations, the addition of Gln to NAC treatment did not provide more positive results. One reason for this is that Gln was mixed with drinking water and it might not reach enough tissue concentration.

Conclusion

In conclusion, TNBS-E-induced colitis model is easy to perform, but ethanol affects SOD activity and MDA levels. The administration of NAC appears to have beneficial effects on TNBS-E induced colitis, as indicated by decreased expression of SOD activity and MDA levels and by the scores that were used in the morphological evaluation.

Ethics

Ethics Committee Approval: The study was approved by the Çukurova University Animal Experiments Local Ethics Committee (approval number: 22.12.2016/11)

Informed Consent: Experimental animal study.

Peer-reviewed: Externally peer-reviewed.

Authorship Contributions

Surgical and Medical Practice: İ.C.E., A.R., K.D., A.G.S., Consept: O.A., İ.C.E., Design: İ.C.E., O.Y., S.M., Data Collection or Processing: İ.C.E., F.D., G.S., Analysis or Interpretation: G.S., İ.C.E., A.R., Literature Search: K.D., O.Y., A.G.S., İ.C.E., Writing: İ.C.E., A.R.

Conflict of Interest: No conflict of interest was declared by the authors.

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CASE REPORT

Appendix Duplication Accompanied by Acute Appendicitis

Akut Apandisitin Eşlik Ettiği Apendiks Duplikasyonu

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ABSTRACT

Acute appendicitis is the most common non-traumatic emergency surgical pathology, and duplication of the appendix is a rare congenital anomaly usually detected incidentally during laparotomy. Since Picoli first described appendix duplex in a female patient who presented with associated anomalies, few other cases have been reported. In this study, we aimed to present a case of appendix duplication detected in a 56-year-old female renal transplant patient undergoing surgery for acute appendicitis. Surgical management of double appendix is of practical importance to avoid serious medical and legal consequences.

Keywords: Double appendix, acute appendicitis, appendectomy

ÖZ

Akut apandisit travmatik olmayan acil cerrahi gerektiren en sık patoloji olup apendikse ait duplikasyon nadir bir konjenital anomalidir ve genellikle laparotomi esnasında tesadüfen saptanır. Picoli'nin eşlik eden anomalileri olan bir kadın hastada ilk apendiks duplikasyonu olgusunu bildirdikten sonra sınırlı sayıda olgu bildirilmiştir. Bu çalışmada akut apandisit nedeniyle ameliyat ettiğimiz 56 yaşında böbrek transplantılı bir kadın hastada tespit edilen apendiks duplikasyonu olgusunu sunmak amaçlanmıştır. Apendiks duplikasyonunun cerrahi yönetimi ciddi medikal ve yasal sonuçlardan kaçınmak adına pratik öneme sahiptir.

Anahtar Kelimeler: Apendiks duplikasyonu, akut apandisit, apendektomi

Introduction

The vermiform appendix develops as a conical extension from the apex of the caecal diverticulum which arises from the antimesenteric border of the proximal part of the post arterial segment of the mid gut.[1] After Picoli and colleagues reported the first case of appendix duplex in a female patient who presented with associated anomalies, limited number of cases has been reported so far.[2] Recently published review reported the incidence of duplicated appendix ranging from 0.004% to 0.009%.[3] In this study, we aimed to present a case of an appendix duplication which was diagnosed in a 56-year-old female renal transplant patient undergoing surgery for acute appendicitis.

Case Report

A 56-year-old female patient with a history of renal transplantation from 10 years ago was admitted to the emergency room due to fever, vomiting and abdominal pain that has been going on for 2 days. On the physical examination, there was defense and rebound in the suprapubic region and subsequently migrated the right lower quadrant. Body temperature was 3.8°C and all other hemodynamic parameters were in the normal range. In the laboratory study, the white blood cells was 17.750 mm^3 and the other values were in the normal range. Abdominal tomography was compatible with acute appendicitis (Figure 1). As the patient experienced kidney transplantation with

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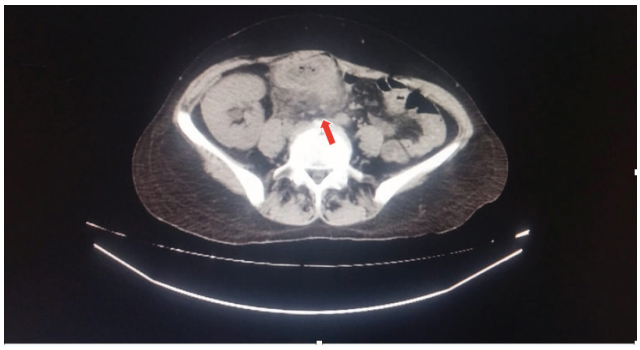


Figure 1. An inflamed bowel segment formed a mass of 2x3 cm in size which mimicked a plastrone secondary to acute appendicitis

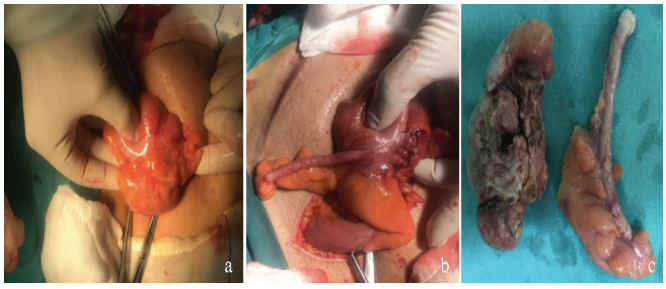


Figure 2. Macroscopic appearance of inflamed appendix (a), normal appendix (b) and pathologic specimen (c)

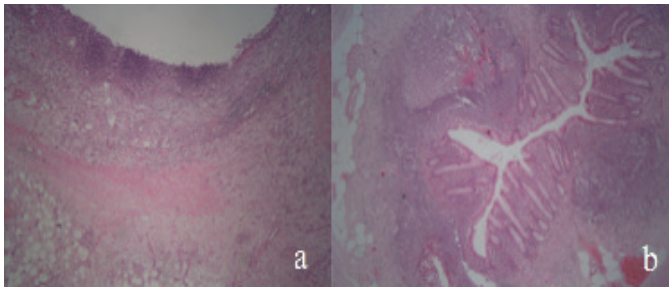


Figure 3. Microscopic view showing (H&E, X100) mucosal erosion and inflammation indicating acute appendicitis (a) and appendix with lymphoid follicles (b)

a right-oblique lumbar incision extending right lower quadrant, open surgical approach is preferred. During exploration, Type B2 appendix duplication, based on the Cave-Wallbridge classification[5], was detected (Figure 2). The patient was examined for congenital malformation of other intra-abdominal organs, and no other malformation was identified. While one of the appendixes had the findings of acute inflammation, the other one had a normal appearance (Figure 3a and 3b). Appendectomy for both appendixes was performed. Histopathological examination of the surgical specimen confirmed the intraoperative findings of appendiceal duplication as well as findings of acute inflammation of the second appendix. On pathological examination, the appendixes measured 7x4x3.5cm and 8x3x1cm. One of the appendixes was acute perforated appendicitis, periappendicitis and the other was appendix vermiformis. Microscopic images of both appendixes are shown in the Figure 1c. The patient had a full recovery without postoperative complications and was discharged on the postoperative day 4.

Discussion

Although the normal embryogenesis of the appendix is known, the exact cause of appendiceal duplication has not been fully explained. In an attempt to explain the pathogenesis of duplication, Cave put forward two theories; (i) the persistence of a transient embryological structure and (ii) incidental appendiceal duplicity to a more general affection of the primitive midgut.[4]

Since preoperative radiological identification of duplication of appendix is difficult, computed tomography may be the best mode of imaging to identify a duplex appendix.[3] The surgeons intraoperative attention and awareness are vital in terms of diagnosis. Macroscopic view and histopathological examination are substantially pathognomonic. The majority

Table 1. Cave-Wallbridge classification

Type A	Single caecum with one appendix exhibiting partial duplication.
Type B	Single caecum with two obviously separate appendixes.
B1	The two appendixes arise on either side of the ileocaecal valve in a B bird-like manner.
B2	In addition to a normal appendix arising from the caecum at the usual site, there is also a second, usually rudimentary, appendix arising from the caecum along the lines of the taenia at a varying distance from the first.
B3	The second appendix is located along the taenia of the hepatic flexure of the colon.
B4	The location of the second appendix is along the taenia of the splenic flexure of the colon.
Type C	Double caecum, each bearing its own appendix and associated with multiple duplication anomalies of the intestinal tract as well as the urinary tract.

of duplicated appendixes is believed to be silent and only discovered when one of them becomes inflamed.

In 1936, Cave classified appendiceal duplication for the first time which was modified by Wallbridge in 1963 into three types; as shown in Table 1.[4,5]

Appendix duplications are usually detected incidentally during surgery for acute appendicitis and it was identified in the same way in our case. As performed in our case, appendectomy for both appendixes is necessary for the correct evaluation of the clinical problems of patients with subsequent abdominal pain. We noticed that our patient had type B2 appendiceal duplication based on the Cave-Wallbridge classification. Most authors agree that Type B2 duplication may be the remnant of a "transient appendix" which appears during the sixth and seventh week of embryological development, the presence of which was first reported by Kelly and Hurdon.[3,6] Although appendiceal duplication may be associated with other congenital abnormalities[4] any other anomalies were absent in our patient.

Conclusion

In conclusion, intraoperative detection of appendicular duplication is of great practical importance, as overlooking of this clinical scenario may lead to medical and legal issues. Surgeons, especially junior surgical residents, should be aware of the potential anatomical anomalies and malpositions of the vermiform appendix; careful inspection of the caecum should be performed to avoid potentially serious clinical and medicolegal consequences. Moreover, acute appendicitis should be considered as a part of differential diagnosis of acute right lower quadrant pain despite history of appendectomy.

Ethics

Informed Consent: Obtained from the patient that was mentioned in the manuscript.

Peer-review: Externally peer-reviewed.

Author Contributions

Surgical and Medical Practices: U.T., A.R., Concept: U.T., F.D., A.R., Design: U.T., F.D., A.R., Data Collection or Processing: U.T., F.D., A.R., Analysis or Interpretation: U.T., F.D., A.R., Literature Search: U.T., F.D., A.R., Writing: U.T., F.D., A.R.

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CASE REPORT

Idiopathic Nonobstructive Colo-colonic Intussusception: A Rare Clinical Presentation

İdiyopatik Nonobstrüktif Kolo-kolonik İntussusepsiyon: Nadir Bir Klinik Tablo

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ABSTRACT

Adult intussusception is a rare clinical condition. There is generally an etiological factor, mainly malignancy. However, the number of idiopathic cases is very low. Patients may present with obstruction or acute abdomen, but the symptoms and signs may also be nonspecific. The diagnostic process is more difficult in patients with non-specific clinical presentation. In this article, the diagnosis and treatment options of an adult idiopathic colo-colonic intussusception are discussed.

Keywords: Intussusception, adult, idiopathic, colonic diseases, laparoscopy

ÖZ

İntussusepsiyon erişkinlerde nadir görülen bir durumdur. Başta malignite olmak üzere etiyolojik faktör sıklıkla tespit edilebilmektedir. Buna karşın idiyopatik olgu sayısı oldukça azdır. Klinik tablo, intestinal obstrüksiyon veya akut karının yanı sıra spesifik olmayan semptom ve bulgular şeklinde de ortaya çıkabilmektedir. Bu hastalarda tanısal süreç daha güçtür. Etkin preoperatif değerlendirme seçilecek cerrahi tedavi şekli ve genişliğini belirlemesi açısından önem taşır. Bu yazıda yetişkin bir idiyopatik kolo-kolonik intussusepsiyon olgusu eşliğinde tanı ve tedavi seçenekleri tartışılmıştır.

Anahtar Kelimeler: İntussusepsiyon, erişkin, idiyopatik, kolonik hastalıklar, laparoskopi

Introduction

Intussusception is most common in infants and children, but rare in adults, representing 5% of all bowel intussusceptions and 1% of all bowel obstructions.[1,2,3,4] The large bowel is the most common site for adult intussusception, and 80% of cases are colo-colonic intussusception.[5] A causal lesion is identified in 90% of adult intussusceptions and 44% of these lesions are malignant.[6] However, there are few cases of adult colo-colonic intussusception without any identifiable lesion in the literature. In this article, we report a case of adult colo-colonic intussusception without any pathologic underlying cause who was treated by laparoscopic resection.

Case Report

A 41-year-old male patient was admitted to emergency department with a complaint of abdominal colic pain predominantly in the left flank for 10 days. Two day before the admission, the patient reported worsening abdominal pain, nausea and vomiting. His bowel movement was normal. He had no comorbid disease, previous abdominal surgery or family history of colorectal cancer. Physical examination revealed painful abdominal distention without signs of peritoneal irritation. Bowel sounds were present. Initial laboratory values were within normal limits. Abdominal X-rays were taken and did not show any signs of obstruction or perforation.

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Abdominal and pelvic computed tomography (CT) demonstrated thickening of the sigmoid colon wall and mild distension of the ascending and transverse colon. Magnetic resonance imaging (MRI) was performed in accordance with the recommendations of radiology department on the basis of suspicion of intussusception in CT and thickening of the wall. Abdominal and pelvic MRI revealed "bowel within bowel" colo-colonic intussusception at the level of descending colon and sigmoid colon (Figure 1). The length of the affected colon segment was about 10 cm. In the absence of signs suggestive of acute intestinal obstruction, the patient was hospitalized for further investigation. On the second day of hospitalization, colonoscopy was performed in order to exclude malignancy. In the colonoscopic examination, congested colonic mucosa completely filled the colon lumen without evidence of malignancy, but permitted the advance of the colonoscopy (Figure 2). According to the findings, the patient was prepared for laparoscopic sigmoid resection with bowel cleansing. Intraoperatively, a round mass-like appearance was observed in the sigmoid colon as a result of an invagination of the descending colon into the sigmoid colon (Figure 3). Loose adhesions were also observed between the affected bowel segment and pelvic walls (Figure 4). No other abnormality was found. Laparoscopic resection of descending colon and primary anastomosis were performed. Gross examination of the resected specimen revealed a 15 cm colo-colonic intussusception (Figure 5). Histological examination revealed non-specific mucosal inflammation and fibrotic thickening at serosal surfaces



Figure 1. Magnetic resonance appearance of colo-colonic intussusception at the level of descending colon and sigmoid colon

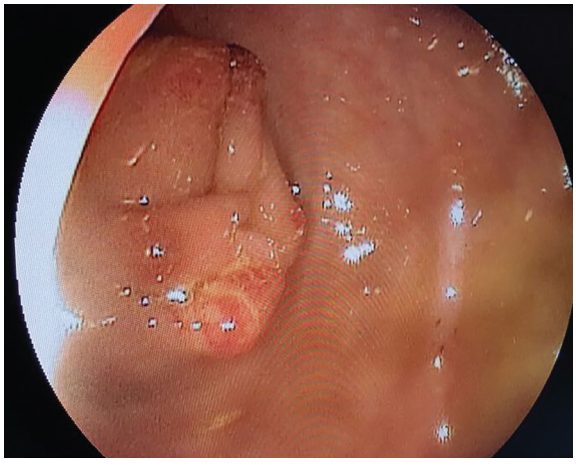


Figure 2. Colonoscopic view of colo-colonic intussusception



Figure 3. A round mass like appearance in the sigmoid colon (arrow) due to colo-colonic intussusception

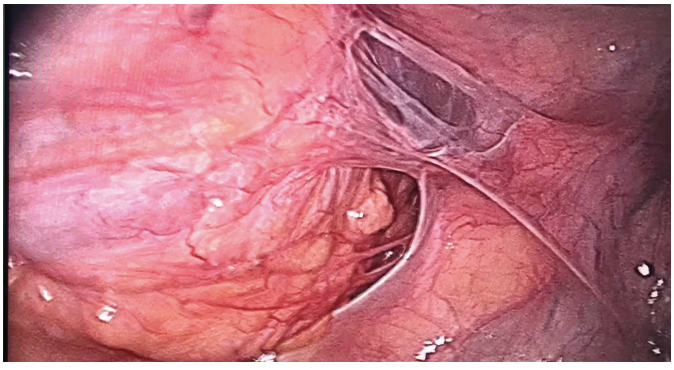


Figure 4. Loose adhesions between the affected bowel segment and pelvic walls

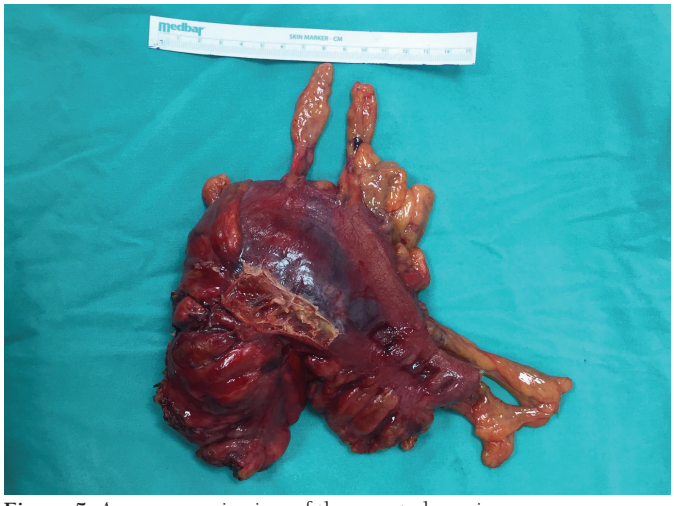


Figure 5. A macroscopic view of the resected specimen

of the colon segments. No neoplastic or benign lesion was identified. The postoperative period was uneventful and the patient was discharged on the fifth postoperative day. Written informed consent was obtained from the patient for the use of medical data.

Discussion

Adult intussusception is a rare clinic entity. The signs and symptoms of adult colo-colonic intussusception are nonspecific, and most patients present with chronic or intermittent abdominal pain, partial intestinal obstruction and gastrointestinal bleeding.[7] In the literature, 75% of patients presented with obstruction symptoms, 5% with acute abdomen, and one third of patients had a palpable abdominal mass. In adult patients, an underlying cause is found in 75-90% of patients, and malignancy is the most common etiology. Adenocarcinoma was particularly common in adult colo-colonic intussusception.[8]

An accurate preoperative diagnosis of adult colo-colonic intussusception is relatively difficult. There is no specific laboratory finding for adult intussusception. Due to being cost effective, ultrasonography (US) is considered a first-level diagnostic technique. The characteristic ultrasonographic findings of intussusception include the "target" or "doughnut" signs in the transverse view and the "pseudo-kidney" sign or "hay-fork" sign in the longitudinal view.[9,10] However, accuracy of US depends on status of patient body (obese patient etc.) and experience of radiologist. CT is the most valuable imaging technique to confirm a preoperative diagnosis of intussusception. The diagnostic accuracy of CT reported for intussusception is 58-100%.[6] CT can also demonstrate any mass associated with intussusception and may help assess the location and character of the mass and its association with surrounding tissues. CT can provide diagnostic findings of intussusception including an inhomogeneous "target" or "sausage" shaped soft tissue mass with a layering effect and/or an apparent mass lesion.[11,12] Endoscopic investigations such as colonoscopy and sigmoidoscopy can help identify both intussusception and the underlying causes (leading point) of intussusception and collect a histology sample.[6] However, in case of intestinal obstruction, endoscopy is not advisable due to the high risk of perforation. As the patient in our case did not show typical symptoms associated with intestinal obstruction, we performed colonoscopy.

The treatment of choice for adult intussusception is surgical resection of the affected bowel segment. The extent of resection depends on the underlying cause of intussusception, and malignant lesions require oncologic resection.[6] In patients with right sided intussusception (ileo-colonic, ileo-cecal and colo-colonic), construction with primary anastomosis is recommended, whereas Hartman procedure is more appropriate surgical option for left-sided or rectosigmoid intussusceptions, especially in the emergency setting.[7] In contrast to most pediatric patients, preoperative reduction of intussusception is not feasible for adult patients, and carries increased risk of perforation, tumor seeding (particularly intussusception associated with malignant lesions) and anastomotic complications. However, if preoperative diagnosis of lesion is benign and the bowel wall looks viable and healthy, reduction may be performed in order to limit extent of bowel resection.

Successful laparoscopic resections in adult intussusception cases have been reported in the literature.[13,14,15] Laparoscopy can be used for both diagnostic and operative purposes. Once the diagnosis of intussusception and underlying disease is confirmed laparoscopically, the surgeon can perform laparoscopic resection. However, the characteristics of intussusception (location and extent), underlying cause and the expertise of the surgeon affects the outcome of laparoscopic surgery. In this case, preoperative diagnosis of intussusception was performed by CT, MRI and colonoscopy, and laparoscopic resection was performed successfully.

Conclusion

In conclusion, idiopathic colo-colonic intussusception without intestinal obstruction is a rare clinical phenomenon. Non-specific clinical presentation makes the preoperative diagnosis of intussusception difficult. However, CT can help to establish preoperative diagnosis. Resection of the affected bowel segment is recommended and choice of surgical technique (laparoscopic or open) should be made based on characteristics of intussusception and the experience of the surgeon.

Ethics

Informed Consent: Written informed consent was obtained from patient in this case.

Peer-review: External and internal peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: F.A.G., R.K., Y.U., Concept: F.A.G., Y.U., Design: F.A.G., R.K., Data Collection or Processing: F.A.G., Y.U., Analysis or Interpretation: F.A.G., R.K., Literature Search: F.A.G., R.K., Writing: F.A.G., R.K.

Conflict of Interest: No conflict of interest was declared by the authors.

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CASE REPORT

Penetrating Sharp Object Injury in the Gluteal Region and Small Bowel Perforation Due to Pelvic Penetration: A Case Report

Gluteal Bölgede Kesici Delici Alet Yaralanması: Pelvis Nafiziyeti Sonucu İnce Barsak Perferasyonu: Olgu Sunumu

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ABSTRACT

Penetrating sharp object injuries in the gluteal region are common. However, it is very rare that these injuries lead to perforation of the small bowel by pelvic penetration, which is generally overlooked. As penetration depth increases, there may be life-threatening injuries such as vascular injury, bowel injury and genitourinary injury depending on the localization of injury site. The case report addressed in the present research focuses on a patient who was admitted to the hospital because of a penetrating sharp object injury in the gluteal region.

Keywords: Penetrating sharp object injuries, gluteal region, perforation of the small intestine

ÖZ

Gluteal bölgedeki kesici delici alet yaralanmaları sık görülmektedir. Ancak bu yaralanmaların pelvise penetrasyon göstererek ince barsak perforasyonuna sebep olması çok nadirdir. Penetrasyon derinliği arttıkça, yaralanma yerinin lokalizasyonuna bağlı olarak vasküler yaralanma, barsak yaralanması, genitoüriner yaralanma gibi hayatı tehdit eden yaralanmalar olabilir. Bu olgu sunumunda hastaneye gluteal bölgeye kesici delici alet yaralanmasıyla başvuran olgumuzu sunduk.

Anahtar Kelimeler: Kesici delici alet yaralanması, gluteal bölge, ince barsak perferasyonu

Introduction

The gluteal region is anatomically located between iliac wings, inferior gluteal folds and bilateral greater trochanter.[1] Penetrating sharp object injuries (PSOIs) in the gluteal region are rare and constitute 2-3% of all injuries.[2] These injuries generally do not pose serious health problems. However, visceral and vascular injuries leading to life-threatening events can be observed in one-quarter of the cases.[3] To the best of our knowledge, little research has been conducted on visceral and vascular injuries in the gluteal region. In this study, we present a case of small bowel perforation arising from an injury in the gluteal region. We hope our study will bring more interest to the subject and contribute to the scarce literature.

Case Report

A 24-year-old male patient was admitted to the Emergency Department of Dr. Abdurrahman Yurtaslan Ankara Oncology Training and Research Hospital with a PSOI in the gluteal region. Physical examination of the patient revealed 1 cm incision in the superior zone of the left gluteal region at 10 o'clock and eviscerated gangrenous ileum loop in the superior zone of the right gluteal region at 9 o'clock (Figure 1). The vitals were stable. A urinary bladder catheter was inserted and

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no macroscopic hemorrhage was observed. Lower extremity peripheral pulses were normal by palpation on both sides. There was no motor deficit in both lower extremities. No abnormality was found in the digital rectal examination.

Abdominal examination revealed muscular guarding and rebound tenderness. Abdominal examination findings and gangrenous prolapse of the ileal segment mandated surgical intervention. Laparotomy was performed via a midline abdominal infraumbilical incision. At exploration, approximately 200 cc hemorrhagic fluid was present in the abdomen. It was observed that approximately 15 cm incarcerated small intestinal loop, 20 cm proximal to the ileocaecal valve, had slipped out through the penetrated obturator canal during the injury. The incarcerated intestinal loop was taken back into the abdominal cavity, and three perforated areas and necrosis were observed (Figure 2). The injured segment was resected and end-to-end anastomosis was performed.

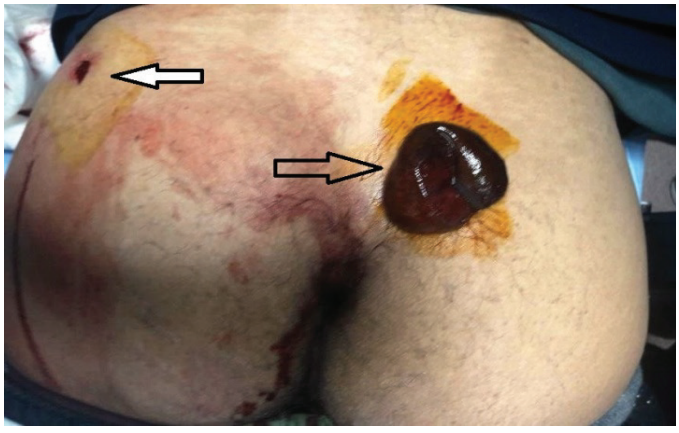


Figure 1. A 1 cm penetrating injury in the superior zone of the left gluteal region at 10 o'clock; eviscerated gangrenous ileum loop in the superior zone of the right gluteal region at 9 o'clock

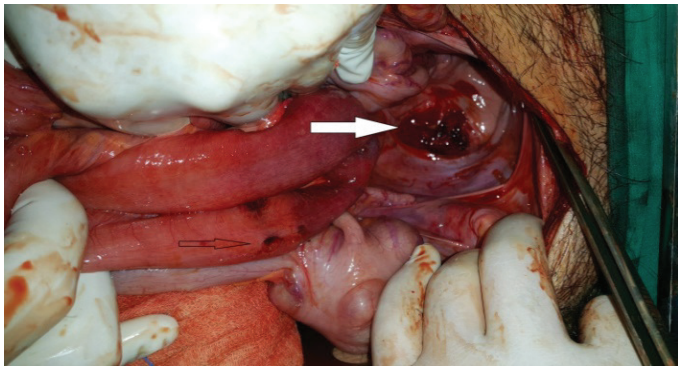


Figure 2. The intestinal loop with 3-4 perforations which was incarcerated through obturator canal which was opened after injury



Figure 3. Postoperative gluteal injury sites

In further exploration, no injury was detected to the iliac, femoral and obturator arteries or veins, aorta and vena cava inferior. The urinary bladder and ureter were intact. After rectal tube placement, it was concluded that the rectum was not injured. The abdominal cavity was irrigated with copious isotonic fluid. The peritoneum in the injured area was debrided and repaired. A drain was placed in the right pararectal space. The injured areas in the gluteal region had already been explored preoperatively, and the operation was completed by placing a Penrose drain in both injury sites (Figure 3).

On postoperative day 2, the possibility of a rectal injury was re-evaluated by rectoscopy. No injury was detected. Neurosurgery consultation recommended electromyography to rule out possible sciatic nerve damage and no deficit was detected by EMG. The bowel movements started on postoperative day 2 and he started oral feeding on day 3. At the end of postoperative day 6, he was discharged by surgical healing.

Discussion

PSOIs are as old as the history of humanity. Nowadays, PSOIs occur with the use of different objects in our country and around the world. According to the study conducted by Üstüner et al.,[4] PSOIs are usually performed by young men (16-35 years old), most often in summer, during may and between 12.00-04.00 a.m. Among these injuries, gluteal injuries are the third most common injuries following thoracic and abdominal injuries.[5] Depending on the type of injury, patients are generally discharged with antibiotics after closure of the wound with primary suture. However, there may be vascular, intestinal, genitourinary and sciatic nerve injuries depending on the depth and trajectory of penetration.[6] The upper zone and the lower zone are formed when the gluteal region is divided into two from the inter-trochanteric line. Mortality and morbidity of the upper zone injuries are higher than the lower zone.[3] Angiography and surgical intervention may be required for diagnosis and treatment.[7] In our case, the injury occurred in the upper zone and the patient was operated.

There is no consensus on the treatment algorithm of penetrating injuries to the gluteal region and the

management is still to be evolved. Treatment begins with ABCDE. First, CT is performed to investigate the presence of intraperitoneal fluid in patients with shock. If positive, laparotomy is performed and the localization of the bleeding is determined if negative. Packing and angioembolization are performed depending on the bleeding site, and surgery is performed if the bleeding could not be stopped. In patients without shock, CT is also the initial imaging method. Surgery, angioembolization or observation could be preferred according to the observed bleeding and abdominal injuries.[2]

In 2014, Lunevicius et al.,[8] updated the algorithm and recommended evaluation in the following order: general inspection of the patient, controlling the femoral pulse, neurological examination of the lower extremities, examination of urethra and rectum, and then rectoscopy was suggested after the patient became stable.[9] Radiologists recommend contrast-enhanced rectal CT if there is still clinical suspicion of rectal injury despite rectoscopy.[6] There is no standard treatment for pelvic wounds.[10]

In our case, the examination of the rectum, genital organs, femoral and distal pulses were performed. Since there was an incarcerated intestinal loop seen outside of the gluteal region and findings of acute abdomen, the surgery was performed. On the postoperative day 2, rectum was checked using rectoscopy. In PSOIs, the mortality rate is 0-2% in the posterior abdomen region, 0-4.4% in the anterior abdomen region, 2.1% in the thoraco-abdominal region, and 2.5-5.6% in the thorax region. The mortality rate in gluteal injuries is 2.9%, which is quite high compared to other parts of the body.[2]

Conclusion

In conclusion, PSOIs in the gluteal region may lead to life-threatening damages. Small bowel perforation is one of these damages and should be kept in mind though it is rarely observed.

Ethics

Informed Consent: Informed consent was obtained from the patient.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: E.Y., A.K., Concept: M.A.Ü., Design: M.A.Ü., L.D., Data Collection or Processing: A.K., Analysis or Interpretation: M.A.Ü., L.D., Literature Search: E.Y., Writing: M.A.Ü.

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CASE REPORT

Midgut Nonrotation in an Adult Patient and Ladd's Procedure

Yetişkin Hastada Midgut Nonrotasyonu ve Ladd Prosedürü

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ABSTRACT

Midgut malrotation is a congenital anomaly that usually occurs during infancy. The most common type is the "classic" form, which is defined as complete failure of rotation of both proximal (duodenojejunal limb) and distal (cecocolic) small bowel loops (nonrotation). Delayed diagnosis of midgut malrotation anomalies may lead to progression to catastrophic complications including volvulus and ischemic necrosis. Ladd's procedure is the standard of care. We aimed to report a brief case of a midgut nonrotation in an adult male patient.

Keywords: Midgut, malrotation, anomaly

ÖZ

Midgut malrotasyonu çoğunlukla doğum sonrası erken dönemde görülen konjenital bir anomalidir. En sık tipi hem proksimal (duodenojejunal bacak) hem de distal (çekokolik) ince barsak anslarının rotasyonunun olmaması ile karakterize olan klasik tiptir. Midgut malrotasyon anomalilerinde gecikmiş tanı volvulus ve iskemik nekrozu da içerebilen katastrofik komplikasyonlara yol açabilir. Ladd prosedürü standart tedavi şeklidir. Burada yetişkin bir erkek hastada midgut nonrotasyon olgusunu bildirmeyi amaçladık.

Anahtar Kelimeler: Midgut, malrotasyon, anomaly

Introduction

Midgut malrotation is a congenital anomaly and usually occurs in infancy. The most common type is the "classic" form of malrotation defined as complete failure of rotation of both proximal (duodenojejunal limb) and distal (cecocolic) small bowel loops (nonrotation).[1] Although this pathology may be a common diagnosis for pediatric surgeons, this may not be the case for surgeons treating adults in general. Delayed diagnosis of midgut malrotation anomalies can cause progression to catastrophic complications including volvulus and ischemic necrosis. We aimed to report a case of midgut nonrotation in an adult male patient and to increase familiarity with this disease among surgeons treating adults.

Case Report

A 29 year-old male patient was referred to our clinic from an outside hospital with a suspected inflammatory bowel disease due to ongoing abdominal pain, nausea, vomiting and constipation for the last 5 days. He was otherwise healthy with a past medical history significant only for benign prostatic hypertrophy and no prior abdominal surgeries. He was admitted to our clinic with an initial diagnosis of intestinal obstruction.

On physical examination, he was afebrile and hemodynamically stable with no signs of acute abdomen. Computerized tomography scan of the abdomen showed findings consistent with proximal small bowel obstruction. His initial management consisted of intravenous (IV)

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Figure 1. Intraoperative view of small bowel and colon (after excision of Ladd bands and appendectomy)

fluids, IV antibiotics and nasogastric decompression. Over a 24-hour period, the nasogastric tube output was 2 liters and clinical findings of mechanical obstruction did not improve. He consented for an exploratory laparotomy in the emergency settings. Intraoperatively, small bowel was found to be segregated into the right abdomen, consistent with midgut nonrotation anomaly. Subsequently, following steps were performed: counterclockwise detorsion of the small bowel, internal hernia reduction and take down of Ladd's band in the right upper quadrant (RUQ). Following these steps, cecum and appendix were identified in the left lower quadrant, and an appendectomy was also performed. Relocation of the duodenum to the RUQ was undertaken and subsequent to that colon was placed in the left abdomen. The affected small bowel segment was re-examined in terms of perfusion, and resection was deemed not necessary per operating surgeon (Figure 1). The patient's abdomen was closed primarily and he was transferred to the surgical floor. Postoperative course was uneventful and patient was discharged home on postoperative day 7.

Discussion

Intestinal malrotation occurs due to the lack of normal rotation and fixation of the embryologic gut during the first trimester of gestation.[2] Most of the patients with intestinal malrotation present during infancy with acute clinical presentation of intestinal obstruction. Although rare, adult patients more commonly present with chronic symptoms including intermittent vomiting, abdominal pain, weight loss, and food intolerance that lasts for more than 6 months.[3] High index of suspicion is required to make an early diagnosis and intervention and subsequently to prevent progression to bowel necrosis with midgut volvulus in adult cohort. Imaging studies are usually suggestive of the disease, but in most cases it is diagnosed intraoperatively. An upper gastrointestinal series can be used to establish the diagnosis preoperatively; nevertheless surgery shouldn't be postponed in patients with acute clinical presentation for further imaging. The choice of treatment depends on the severity of the presentation. Ladd's procedure is the standard of care and it can be scheduled electively in patients with chronic disease or as an emergency in the acute setting.[2] Nasogastric decompression, volume resuscitation and antibiotics are important aspects of preoperative preparation. Ladd's procedure is divided into the following 5 steps: initially, the mesentery should be assessed for any twists and signs of ischemia, and counterclockwise detorsion of volvulus is achieved if applicable. Following this, Ladd bands, which are fibrous bands between cecum and duodenum that can cause duodenal obstruction, should be divided. In addition, intermesenteric fibrous bands between bowel loops should be identified by running the entire bowel and should be divided. Due to higher incidence of aberrant location of the appendix, appendicitis in patients with malrotation was found to have a higher complication rate. An appendectomy is routinely performed as a part of the Ladd's procedure. The final step consists of placing the bowel in the corrected anatomic position as small bowel in the right abdomen, colon in the left abdomen, and cecum in the left upper quadrant.[2] Postoperative morbidity and reoperation rates are high in adult patients when compared to pediatric cohort. This might be due to longer time to diagnosis and more advanced disease.[4]

We shared an acute adult presentation of an intestinal malrotation with midgut volvulus. Surgeons primarily serving adult patient cohorts should keep malrotation as a differential diagnosis. Intestinal malrotation should be suspected in patients with abdominal pain with or without accompanying bowel obstruction symptoms. In addition, a more subtle presentation with chronic nonspecific gastrointestinal symptoms may be related to intestinal malrotation.

Ethics

Informed Consent: Written informed consent obtained

Peer-review: Externally peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: Ö.I., T.Y., Concept: Ö.I., T.Y., Design: Ö.I., T.Y., Data Collection or Processing: Ö.I., T.Y., Analysis or Interpretation: Ö.I., H.H.A., Literature Search: Ö.I., H.H.A., Writing: Ö.I., H.H.A.

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NOTES