J COLOPROCTOL (RIO J). 2017;xxx(xx):xxx–xxx

Journal of Coloproctology

www.jcol.org.br

Review Article

Anatomical, surgical and clinical considerations related with operative procedures performed in combined abdominal and perineal approaches for the treatment of lower rectal cancer

Ali Naki Yücesoy

Batı Bahat Hospital, General Surgery Department, Istanbul, Turkey

ARTICLE INFO

Article history:
Received 13 June 2017
Accepted 18 September 2017

Keywords:
Lower rectal cancer
Combined abdominal and perineal approach
Sphincter-saving surgery

ABSTRACT

Background and aim: Combined abdominal and perineal (anterior or posterior) approaches used in lower rectal cancer surgery have been based on similar anatomical and surgical features. The main aim of this manuscript is to evaluate the results of combined approaches performed for lower rectal cancer and to comment on surgical and anatomical features of the operations.

Methods: Anatomical, surgical and clinical details of the combined abdominal and perineal approaches performed for lower rectal cancer were evaluated by reviewing published articles about this subject in English in PubMed, EMBASE, Cochrane library and other sources.

Results: Ten articles including case reports were found on combined abdominal and perineal approaches published between 2003 and 2015. There were 83 patients who had been operated by using combined approaches for lower rectal cancer surgical treatment in these series. While the circular resection margine positivity had not been reported in the cases; the mean Wexner continence score had been reported between 5 and 5.5. The most important dissatisfaction of these surgical methods has been reported as persistent perineal fistulas encountered 9.6% of the patients in average in the postoperative period.

Conclusion: The APPEAR (Anterior Perineal Plane for Ultra Low Anterior Resection) procedure is the most known surgical procedure in which the combined abdominal and anterior perineal approach is used. Combined abdominal and perineal (anterior or posterior) approaches can be described as surgical procedures in which the sphincter-saving extrasphincteric dissection and proximal segmental sphincteric excision techniques are performed.

E-mail: alinakiyucesoy@gmail.com
https://doi.org/10.1016/j.jcol.2017.09.417

Please cite this article in press as: Yücesoy AN. Anatomical, surgical and clinical considerations related with operative procedures performed in combined abdominal and perineal approaches for the treatment of lower rectal cancer. J Coloproctol (Rio J). 2017. https://doi.org/10.1016/j.jcol.2017.09.417

Considerações anatômicas, cirúrgicas e clínicas relacionadas a procedimentos operatórios realizados em abordagens abdominais e perineais combinadas para o tratamento de câncer retal baixo

Palavras-chave:
Câncer retal baixo
Abordagem abdominal e perineal combinada
Cirurgia com preservação de esfíncter

RESUMO

Experiência e objetivo: As abordagens abdominais e perineais (anterior ou posterior) combinadas, utilizadas na cirurgia para o câncer retal baixo, têm se baseado em características anatômicas e cirúrgicas similares. O objetivo principal desse estudo é avaliar os resultados de abordagens combinadas realizadas em pacientes com câncer retal baixo e também comentar as características cirúrgicas e anatômicas das operações.

Métodos: Avaliamos os detalhes anatômicos, cirúrgicos e clínicos das abordagens abdominais e perineais combinadas para o câncer retal baixo por meio de uma revisão dos artigos publicados no idioma inglês sobre esse tópico em PubMed, EMBASE, Cochrane Library e outras fontes.

Resultados: Encontramos 10 artigos, inclusive relatos de casos, sobre abordagens abdominais e perineais combinadas publicados entre 2003 e 2015. Nessas séries, 83 pacientes no total tinham sido operados com o uso de abordagens combinadas para o tratamento de câncer retal baixo. Embora a positividade para ressecção circular da margem não tenha sido informada nos casos, foi relatado um escore de Wexner para continência que variou de 5-5,5. A insatisfação mais importante relatada com esses métodos cirúrgicos foi a persistência de fístulas perineais, em uma média de 9,6% dos pacientes no período pós-operatório.

Conclusão: APPEAR é o procedimento cirúrgico mais conhecido; com seu uso, emprega-se a abordagem abdominal/perineal anterior combinada. As abordagens abdominais e perineais (anterior ou posterior) combinadas podem ser descritas como procedimentos cirúrgicos nos quais são realizadas técnicas de dissecção extra-esfinctérica (com preservação do esfíncter) e de excisão esfinctérica segmentar proximal.

Introduction

The rectum has limited surgical access as depending to its anatomical features which is embedded into its visceral neighbors and pelvic musculature. Classically, the rectum is 17–18 cm in length. It can be examined surgically as three parts; upper, middle and lower thirds, each one is roughly 6 cm in length. Anatomically, the rectum can be investigated as two parts (supralevator part and sublevator part) by considering the levator ani muscle. The sublevator part of the rectum forms the surgical anal canal together with external anal sphincteric musculature embedded into lipomatous tissue in ischioanal fossa which surounds it. The surgical anal canal resembles two intertwined cylindrical muscular tubes. External sphincteric musculature constitutes the outer one of the intertwined two muscular tubes. External anal sphincteric system has a coil-like shape formed mainly by a narrow muscular tube. Inner muscular tube situated into coil-like external sphincteric system is formed by anatomical anal canal and distal part of the lower rectum.

Intersphincteric space is a potential space between the two cylindrical muscular tube in which intersphincteric dissection is carried out. While the internal anal sphincteric system, which is derived from endoderm and innervated by autonomous nervous system, and formed by thickening of the internal circuler muscle, can be considered as a part of the bowel wall; the external anal sphincteric system which is derived from ectoderm and innervated by somatic nervous system cannot be considered as a part of the bowel wall. While the internal anal sphincteric muscle provides the unconscious continence measured by resting anal pressure, the external anal sphincteric musculature provides the conscious continence measured by squeezing anal pressure. Anus is closed by the external and internal sphincteric systems which provide its air-tight characteristic. It should be kept in mind that anorectal area is one of the embryonic transition zones between endoderm and ectoderm. All of the anatomic and physiologic features (e.g. the transition from cubical epithelium to squamous epithelium, from autonomous innervation to somatic innervation, from smooth muscle to striated muscle, from unconscious movement to conscious movement) of the embryonic endo-ectodermal transition zones can be observed in the anorectal area.

Rectal cancer, especially lower rectal cancer, is a challenging problem for surgeons. Sphincter-saving surgery has become one of the gold standards in rectal cancer surgery after the total mesorectal excision procedure, which was described by Heald in 1982.[1] In spite of the surgical improvements, the lower rectal cancer surgery has remained as a surgical challenge depending to its higher anal sphincter compromising, permanent colostomy and locoregional recurrence ratios compared to other parts of the rectum. Anatomical features of the lower rectum constitutes one of the most important causes

Please cite this article in press as: Yücesoy AN. Anatomical, surgical and clinical considerations related with operative procedures performed in combined abdominal and perineal approaches for the treatment of lower rectal cancer. J Coloproctol (Rio J). 2017. https://doi.org/10.1016/j.jcol.2017.09.417