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TECHNICAL POINT

Anal Sphincteroplasty and Counter-Clockwise Gracilis Muscle Transposition by Using Transperineal Ischioanal Fossa Access in a Male Patient with Fecal Incontinence Who Undergone to Low Anterior Resection for Rectal Cancer

Rektum Kanseri Nedeni ile Low Anterior Rezeksiyon Uygulanmış Fekal İnkontinanslı Erkek Hastada Transperineal İskioanal Fossa Erişimi Kullanılarak Anal Sfinkteroplasti ve Counter-Clockwise Grasilis Kas Transpozisyonu

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ABSTRACT

Fecal incontinence is a clinical condition that negatively affects the patient's social and psychological life, and presents a surgical challenge due to dissatisfactory postoperative outcomes. Here we discuss the case of a 72-year-old male patient who underwent intersphincteric low anterior rectal resection for low rectal cancer one year earlier and developed complete fecal incontinence. We achieved good postoperative results in this patient by performing transperineal anal sphincteroplasty and counter-clockwise gracilis muscle transposition.
Keywords: Fecal incontinence, gracilis muscle transposition, ischioanal fossa, rectal cancer, low anterior resection

ÖZ

Fekal inkontinans, hastanın sosyal ve psikolojik hayatını olumsuz etkileyen ve hoşnutsuz postoperatif sonuçlara bağlı olarak, cerrahi güçlüklerden birini oluşturan klinik bir durumdur. Bir yıl önce alt rektum kanseri nedeni ile intersfinkterik low anterior rezeksiyon uygulanmış olan, komplet fekal inkontinanslı 72 yaşındaki bir erkek hastada transperineal anal sfinkteroplasti ve counter-clockwise rotasyon tarzında grasilis kas transpozisyonu uygulayarak iyi postoperatif sonuçlar elde ettik.
Anahtar Kelimeler: Fekal inkontinans, grasilis kas transpozisyonu, iskioanal fossa, rektal kanser, low anterior rezeksiyon

Introduction

We performed combined anal sphincteroplasty and counter-clockwise rotation manner gracilis muscle transposition procedure by transperineal access to provide the ischioanal fossa access in a male patient suffered from complet fecal incontinence (FI) for one year following low anterior rectal resection operation. Operation was performed in Lloyd-Davies lithotomy position. Ischioanal fossa access was provided by vertical transperineal incision. Surgical anal canal exposition between the puborectal and superficial external anal sphincteric muscles in the extrashincteric plane was achieved by transperineal surgical access. After the completion of the surgical anal exposition in the extrasphincteric plane, a ventral defect and muscular fibers weakness of the external anal sphincteric musculature were detected, which is thought to developed as a result of the

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excessive anal dilatation performed in previous surgery. The retracted ends of the ruptured and weakened external anal sphincteric muscles were found, and repaired one by one along the torn line by using no 0 Vicryl U-sutures (Figure 1). The right side gracilis muscle was prepared by protecting its proximal neurovasculer bundle, and transposed to ischioanal fossa in counter-clockwise rotation manner around of external anal sphincteric musculature via a subcutaneous tunnel (Figure 2). After completion of the gracilis transposition around the surgical anal canal in 360 degree in counter-clockwise manner, it was fixed to levator ani muscle, subcutaneous external anal sphincteric muscles, peripheral tissues and itself. An aspirative drain was placed to ischioanal fossa, and layers were closed. In his postoperative period, the patient was found to have continence to solid stools, and to have occasionally incontinence to liquid stools and gas. In early postoperative period, pelvic magnetic resonance imaging showed that the surgical anal canal was completely surrounded by the transposed gracilis muscle, and the regression of the increased anorectal angle into normal limits (Figure 3).

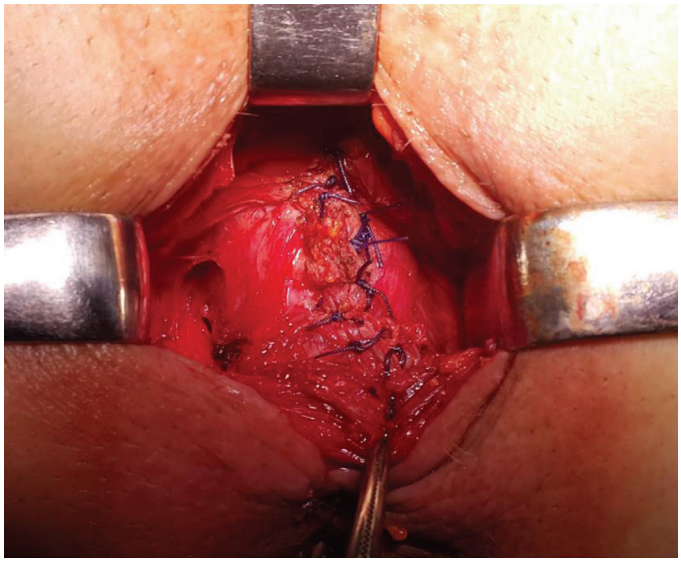

Figure 1. The external anal sphincteric musculature reparation along the torn line in a male patient with fecal incontinence

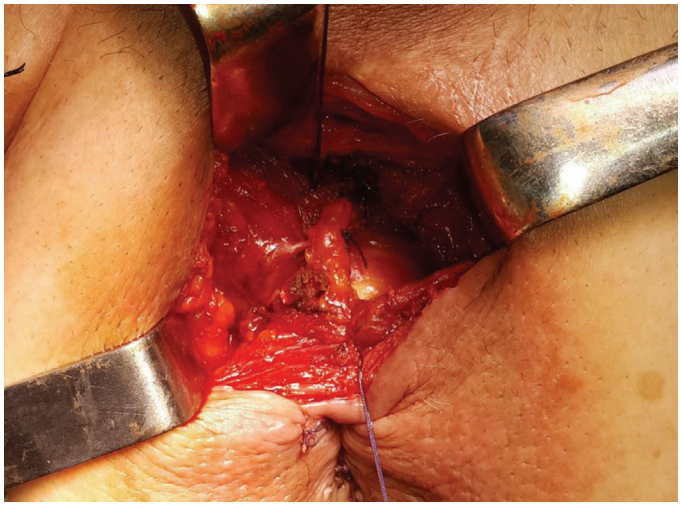

Figure 2. Counter-clockwise manner transposition of the gracilis muscle around the external sphincteric musculature in the ischioanal fossa in a male patient with fecal incontinence

Discussion

FI is a clinical condition mostly seen in women. Anal sphincteric damage and neurological disorders are the major causes of FI. Anterior anal sphincteric damages arisen from vaginal delivery is the most common reason of the FI in females. Iatrogenic injuries due to the surgical procedures including the anorectal region are the other common causes of FI, e.g. anal fistula, hemorrhoid, anal fissure or rectal cancer operations. Another cause of FI is direct perineal traumas. Anterior sphincteroplasty is the most common surgical method performed for anal sphincteric reconstruction. Adynamic and dynamic muscle transposition techniques are the other most common used surgical procedures in the fecal incontinence surgery. The external anal sphincteric musculature is embryologically derived from ectoderm, and composed of striated muscles. It should not be considered as a part of the bowel wall. Internal anal sphincteric muscle derived from endoderm is composed of smooth muscles, and it can be considered as a continuation of the bowel wall. While the conscious continence is provided by the external anal sphincteric musculature, internal anal sphincteric muscle provide the unconscious

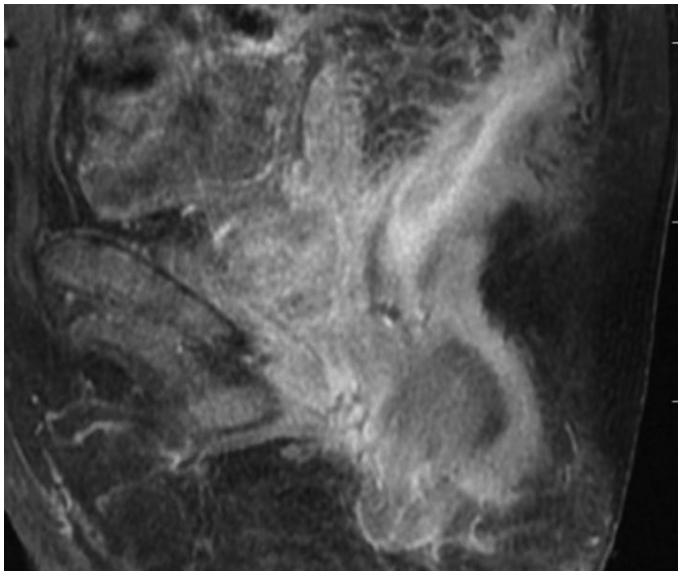

Figure 3. Early postoperative sagittal magnetic resonance imaging shows counter clock-wise manner transposed gracilis muscle around the surgical anal canal, and anorectal angle reconstruction

continence. The external anal sphincteric musculature and the sublevator part of the lower rectum including internal anal sphincteric muscle are configurated as two nested muscular tubes in the ischioanal fossa, and this formation named as the surgical anal canal. The surgical anal canal can be considered as intertwined two muscular tubes. It should be noted that external anal sphincteric musculature has a vertically situated coil-like shape surrounding the distal part of the lower rectum in the ischioanal fossa. Ischioanal fossa has a wedge-shaped cavity between the levator ani muscle and perineum. It is covered with obturator fascia and filled with lipomatous tissue. Ischional fossa contains of the surgical anal canal. It also hosts the pudendal neurovasculer bundles. Ischioanal fossa does not contain of the mesorectal tissue. When a surgical exposition is provided for rectal cancer surgery in the ischioanal fossa by using anterior or posterior perineal approach, the surgical dissection is in the extrasphincteric plane.[1,2] The main aim of the perineal access use in our technique is to provide of the extrasphincteric rectal dissection in the ischioanal fossa. We have performed such a similar operation in female patients suffered from FI depending to anal sphincteric damage by using transvaginal access to provide surgical exposition in ischioanal fossa.[3] Perineal access provided us surgical exposition in extrasphincteric plane fossa without comprimising of the perineal muscles and pudendal nerves in the ischioanal fossa. Ischioanal fossa access gives full liberalisation possibility of the surgical anal canal between puborectal and superficial external anal sphincteric muscles in the extrashincteric plane. While the ischioanal fossa access can be provided by using transvaginal route in female patients, transperineal route can used in male patient. Consequently, ishioanal fossa should be considered as an appropriate area in surgical treatment of FI.[4] In this way, it can be easily provided a good surgical exposition on the anal sphincteric muscles to find their retracted ends and to repair them separetely and completely along the torn line. Thus, the infrastructure of the gracilis muscle transposition to completely surround the external anal sphincteric muscles has been done also. In our technique, gracilis muscle was transposed to ischioanal fossa to completely surround the external anal sphincteric musculature, it was not transposed only around of the distal part of the external anal sphincteric musculature as in classical gracilis transposition operation[5]. The main aim of the counter-clockwise manner gracilis muscle transposition in our technique is to provide of the reconstruction of the anorectal angle which is widened in the patients suffered from FI by pulling the rectum towards to pubic bone. It should be noted that ischioanal fossa is an appropriate surgical area which is need to be reached in the fecal incontinence surgery.

Ethics

Peer-review: External and internal peer-reviewed.

Authorship Contributions

Concept: A.N.Y., Design: A.N.Y., Data Collection or Processing: A.N.Y., E.S., M.Ç., Analysis or Interpretation: A.N.Y., E.S., M.Ç., Literature Search: A.N.Y., E.S., M.Ç., Writing: A.N.Y., E.S.

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