



# Is the Ischioanal Fossa the Most Appropriate Surgical Area for Fecal Incontinence Surgery?

## İskioanal Fossa, Fekal İnkontinans Cerrahisi için En Uygun Alan mıdır?

Ali Naki Yücesoy

Batı Bahat Hospital, Clinic of General Surgery, İstanbul, Turkey

### ABSTRACT

Fecal incontinence is the one of the surgical challenges faced by surgeons. Damage to the anal sphincter and neurological diseases are the major causes of fecal incontinence. Surgical interventions are especially necessary for reconstruction of the anal sphincter in patients with fecal incontinence patients due to anal sphincter damage. Surgical interventions performed for fecal incontinence can result in unsatisfactory postoperative outcomes, or initially satisfactory outcomes which deteriorate over time. We have performed surgical interventions with transvaginal access by combining the anal sphincteroplasty and gracilis transposition procedures in female patients who have anal sphincter damage subsequent to vaginal childbirth. The main aim of the transvaginal approach in our technique is to allow extrasphincteric dissection in the ischioanal fossa. As a result of our successful postoperative outcomes, this question came to our minds. Is the ischioanal fossa the most appropriate surgical area in fecal incontinence surgery?

**Keywords:** Fecal incontinence, anal sphincteroplasty, gracilis muscle transposition, ischioanal fossa

### ÖZ

Fekal inkontinans, cerrahların cerrahi zorluklarından birisidir. Anal sfinkter hasarları ve nörolojik hastalıklar, fekal inkontinansın majör nedenleridir. Cerrahi girişimler, özellikle anal sfinkter hasarı nedeni ile fekal inkontinansı olan hastalarda gereklidir. Fekal inkontinans için gerçekleştirilen cerrahi girişimlerin postoperatif hoşnutsuz sonuçları olabilir veya postoperatif başarılı sonuçlar zamanla bozulabilir. Vajinal doğumları takiben anal sfinkter hasarı gelişmiş kadın hastalarda, vajinal erişim ile anal sfinkteroplasti ve gracilis transpozisyon işlemlerini kombine ederek, cerrahi girişimler gerçekleştirdik. Tekniğimizdeki transvajinal erişim kullanılmasındaki ana amaç, ischioanal fossada ekstrasfinkterik disseksiyon sağlamaktır. Başarılı postoperatif sonuçlarımızın bir sonucu olarak şu soru aklımıza geldi. İskioanal fossa, fekal inkontinans cerrahisi için en uygun alan mıdır?

**Anahtar Kelimeler:** Fekal inkontinans, anal sfinkteroplasti, gracilis kas transpozisyonu, ischioanal fossa

## Introduction

Fecal incontinence (FI) can be defined as the lack of person's bowel control ability. FI is a clinical condition affecting patient's social and psychological life and is the one of the surgical challenges for the surgeons due to its postoperative dissatisfactory outcomes. FI is mostly seen in females. The most common causes of the FI in females are anal sphincteric damages which are subsequent to vaginal childbirths. Other common causes of FI are the surgical operations in which the anorectal region is involved, e.g. anal fistula, hemorrhoid, anal fissure or rectal cancer operations. Anal sphincteroplasty and muscle transposition operations are the most common used surgical methods performed for

FI surgery.<sup>1</sup> Combined anterior anal sphincteroplasty and adynamic gracilis muscle transposition operation using transvaginal access to in a female patient suffered from FI depending to anal sphincter damages was published by our group, and three more operations were performed by using same method with success in last 24 months.<sup>2</sup> All patients have adequate continence to gas, solid and liquid stool in their postoperative periods.

## Method

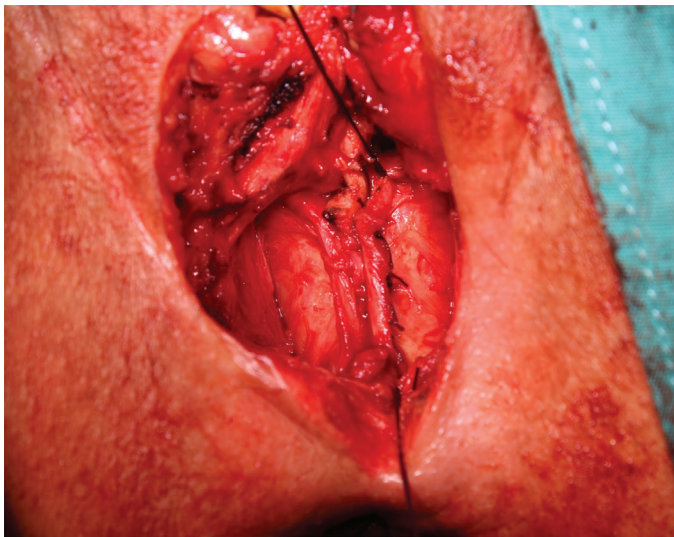
We performed combined anal sphincteroplasty and gracilis muscle transposition operations by using transvaginal access for anal sphincteric exposition in the



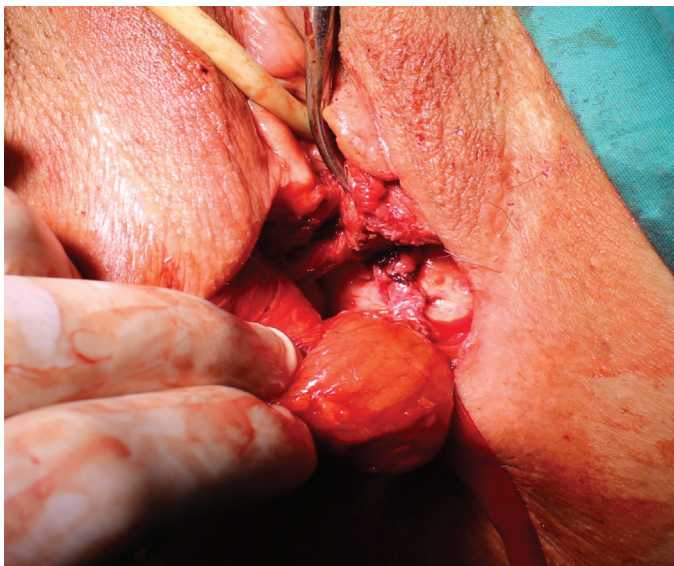
Address for Correspondence/Yazışma Adresi: Ali Naki Yücesoy MD  
Batı Bahat Hospital, Clinic of General Surgery, İstanbul, Turkey  
Phone: +90 212 471 33 00 E-mail: alinakiyucesoy@gmail.com

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extrasphincteric plane in the ischioanal fossa in four female patients suffered from complete FI in last 24 months. The patients had difficult and prolonged vaginal delivery stories in their past. Internal and external anterior sphincteric defects were detected in preoperative endoanal ultrasonographic examinations. It is found that significant decreases in the resting anal pressure and the squeezing anal pressure values in their preoperative anal sphincteric pressure measurements. Operations were performed in Lloyd-Davies lithotomy position. Surgical exposition in the extrasphincteric plane in the ischioanal fossa was provided by using of the transvaginal access in the patients after passing rectovaginal septum. The retracted



**Figure 1.** Anterior anal sphincteroplasty in the ischioanal fossa by using transvaginal access in a female patient



**Figure 2.** Counter clock-wise manner rotation of the transposed gracilis muscle around of the external sphincteric musculature in ischioanal fossa by using transvaginal access in a female patient

ends of the damaged external and internal anal sphincteric muscles were found, and one by one repair was performed by using No 0 Vicryl U-sutures along the torn line (Figure 1). Usually, the right-side gracilis muscle was prepared by protecting its proximal neurovascular bundle. The gracilis muscle was transposed into ischioanal fossa via a subcutaneous tunnel, and its transposition was completed around of external anal sphincteric musculature in counter clock-wise rotation manner in 360 degree. Gracilis muscle was fixated to superficial external anal sphincteric muscle, levator ani muscle, peripheral tissues and itself to provide of the surgical anal canal and anterior anal sphincteroplasty line stabilization (Figure 2). On the magnetic resonance examination, the surgical anal canal which is completely surrounded by the transposed gracilis muscle was showed (Figure 3). Additionally, magnetic resonance imaging examination showed that preoperatively increased anorectal angle was decreased into normal limits. It is thought that anorectal angle decrease is emerged as a result of the counter clock-wise manner gracilis transposition. Combined anal sphincteroplasty and counter clock-wise manner rotated gracilis transposition operations were performed in four female patients with FI by using transvaginal ischioanal fossa access. There were no major complications. All patients have postoperative good continence to the solid and liquid stool and the gas.



**Figure 3.** Postoperative sagittal magnetic resonance views shows the anorectal angle reconstruction and counter clock-wise manner rotated gracilis muscle transposition in a female patient

## Discussion

Combined abdominal and perineal (anterior or posterior) perineal accesses have been used as alternative sphincter-saving surgical methods in lower rectal cancer surgery.<sup>3,4,5</sup> Combined abdominal and perineal rectal resection techniques have different anatomical and surgical features when compared with intersphincteric dissection technique which is the most commonly used sphincter-saving surgical technique for lower rectal cancer.<sup>6</sup>

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.<sup>7</sup> The main aim of the anterior or posterior perineal access in the combined abdominal and perineal approaches used for lower rectal cancer surgery is to provide of the surgical exposition of the surgical anal canal in the extrasphincteric plane in the ischioanal fossa. Anterior perineal access on the surgical anal canal can be easily provided by using transvaginal access in females. The surgical anal canal can be described as two intertwined cylindrical muscular tubes which are vertically situated in the ischioanal fossa. While the outer one of the intertwined muscular tubes is constituted by the external anal sphincteric musculature, inner muscular tube is formed by internal sphincteric muscle and distal part of the lower rectum. It should be noted that external anal sphincteric musculature has a vertically situated coil-like shape. In the FI surgery, it is important to have a surgical access to ischioanal fossa in which surgical anal canal is situated. In this way, a detailed surgical exposition of the anal sphincteric muscles, the visualization and reconstruction of the damaged external and internal sphincteric muscles can be provided easily. Therefore, it seems quite plausible the use of the transvaginal route for the ischioanal fossa access in females who constitute the majority of FI cases. The liberalization of

the surgical anal canal in the extrasphincteric plane between puborectal and superficial external anal sphincteric muscles to perform the surgical procedures for FI surgery can be provided by transvaginal access.

FI surgery is still controversial. Also, our technique may contain many controversial elements, e.g. the combination of the surgical techniques, the low number of the cases, the short follow-up periods. But, it seems that the ischioanal fossa is the most appropriate surgical area for performing surgical procedures of the FI surgery.

## Ethics

**Informed Consent:** Informed consent was filled out by all participants.

**Peer-review:** Internally peer-reviewed.

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