



A surgical technique for secondary repair of obstetric anal sphincter injuries; sphinctero-vagino-perineoplasty

Obstetrik anal sfinkter hasarının sekonder onarımında cerrahi teknik; sfinktero-vajino-perineoplasti

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Abstract

Objective: This study was conducted to present the preliminary results of seven patients treated with sphinctero-vagino-perineoplasty for secondary repair of obstetric anal sphincter injuries.

Materials and Methods: This retrospective study was conducted on the records of seven patients who underwent secondary repair of obstetric anal sphincter injuries at the colorectal surgery unit of a tertiary care center between February 2015 and December 2017.

Results: All patients with solid stool incontinence were fully recovered at postoperative month 3. The Wexner incontinence score was significantly improved (decreased from 14.12 [range: 8-20] to 2.28 [range: 1-4]). The complication rate was 85.7% (wound infection, abscess, hematoma, detachment).

Conclusion: Combined repair of anal sphincters, perineal body, superficial transverse perineal muscles, and bulbospongiosus muscles, which contribute to anal continence, may improve surgical outcomes in patients with obstetric anal sphincter injuries.

Keywords: Anal incontinence, obstetric anal sphincter injury, perineoplasty, sphincteroplasty, vaginoplasty

Öz

Amaç: Bu çalışma obstetrik anal sfinkter hasarının sekonder onarımında sfinktero-vajino-perineoplasti uygulanan yedi hastanın erken dönem sonuçlarını bildirmek amacıyla yapıldı.

Gereç ve Yöntemler: Obstetrik anal sfinkter hasarı nedeniyle sekonder onarım planlanan ve Şubat 2015-Aralık 2017 tarihleri arasında bir üniversite hastanesinin kolorektal cerrahi ünitesinde sfinktero-vajino-perineoplasti uygulanan yedi hastanın kayıtları geriye dönük incelendi.

Bulgular: Postoperatif 3. ayda hiçbir hastada katı gaita inkontinansı gözlenmedi. Wexner inkontinans skorunda belirgin düzelme (14,12'den [aralık: 8-20] 2,28'e [aralık: 1-4] geriledi) izlendi. Hastaların %85,7'sinde komplikasyon (enfeksiyon, abse, hematoma, detaşman) gelişti.

Sonuç: Anal kontinansı oluşturan yapıların (anal sfinkterler, perineal body, süperfisyel transvers perineal kaslar, bulbospongiosus kaslar) kombine onarımı obstetrik anal sfinkter hasarının sekonder onarımında daha iyi sonuçlar edilmesine imkan sağlayabilir.

Anahtar Kelimeler: Anal inkontinans, obstetrik anal sfinkter hasarı, perineoplasti, sfinkteroplasti, vajinoplasti

Introduction

The most common cause of anal incontinence in women is obstetric anal sphincter injuries (OASIS). Clinically apparent OASIS occur in less than 3 percent of vaginal deliveries⁽¹⁾. In spite of primary repair, up to 5% of these

patients develop anal incontinence, which severely impairs their quality of life^(2,3). When OASIS is treated for anal incontinence, it is considered as a secondary repair even if no primary repair has been performed during the postpartum period⁽⁴⁾. There is no consensus on which surgical technique is

PRECIS: We present the preliminary results of seven patients treated with sphinctero-vagino-perineoplasty for secondary repair of OASIS.

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effective for secondary repair of OASIS⁽⁵⁾. Unfortunately, long-term consequences of surgical interventions (sphincteroplasty, perineorrhaphy, and transposition of muscle flaps) are unsatisfactory. All of these techniques are focused on either isolated anal sphincter repair, or reconstruction of tissue supporting the anal canal with the anal sphincter unrepaired. We believe that the damage to the perineal body, superficial transverse perineal muscles, and bulbospongiosus muscles, which provide contribution to anal continence, is ignored, especially in direct surgical repair. Therefore, the success rates of conventional techniques focused on anal sphincter repair for OASIS are low. In this study, we present the preliminary results of a surgical technique that involves combined restoration of vaginal, perineal, and anal sphincter muscles, for secondary repair of OASIS.

Materials and Methods

The medical records of 7 women who underwent secondary repair of OASIS at a colorectal surgery unit of a tertiary care center between February 2015 and December 2017 were reviewed. Prior to the surgery, endoanal ultrasonography (EAUS) was performed to measure the degree of sphincter defect. Wexner incontinence scores (WIS) were recorded in both the preoperative and postoperative periods. Postoperative complications and follow-up periods were also recorded. The menstrual cycle was taken into account. Progesterone supplements were given to delay menstruation in the postoperative period. Sexual intercourse was prohibited for 3 months postoperatively.

Surgical technique

All patients underwent surgery in the lithotomy position under spinal anesthesia. First, a semicircular incision was made matching the projection of the anal sphincter. The second U-shaped incision was made on the posterior commissure of the bulbospongiosus muscles (Figure 1). The vaginal mucosa was dissected to a depth of 6 cm, extending laterally to the bulbospongiosus and puborectal muscles and inferiorly to the perineal body. The anorectal mucosa was dissected from the sphincter muscles at a depth of 5 cm. The anal sphincters were dissected free with at least a depth of 4 cm (Figure 2). The retracted ends of the sphincters were identified and repaired using the overlapping method using 3/0 polydioxanone sutures. The perineal body was formed on the external anal sphincter (EAS) and the anus was centralized by end-to-end repair of the free ends of the bulbospongiosus muscles (Figure 3). A subcutaneous Penrose drain was placed. Anoderm, vagina, and perineal skin were sutured with absorbable materials. V-Y advancement flaps were used in patients with tissue defects between the vagina and anus (Figure 4). Protective ileostomy was performed only in cases where tissue loss of the anal canal and vagina (cloaca-like deformity) were noticed.



Figure 1. A semicircular incision matched the projection of the bulbospongiosus muscles

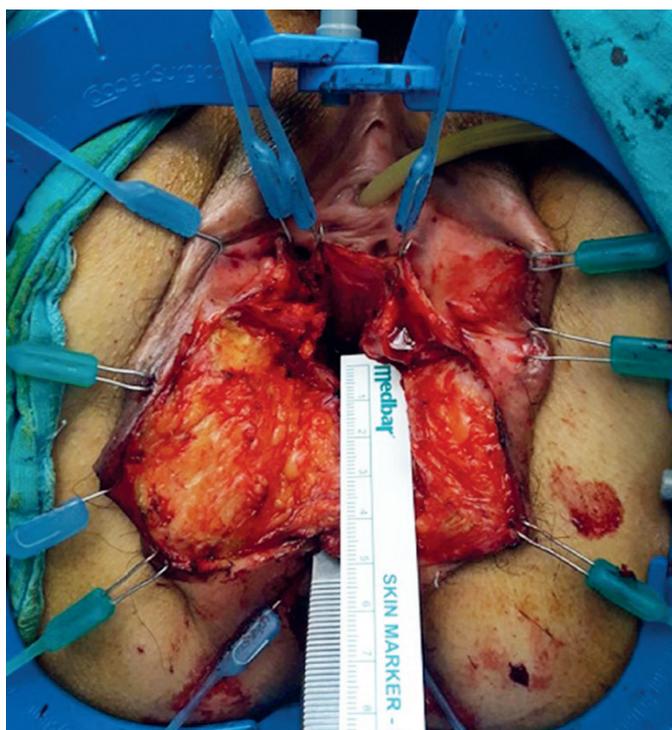


Figure 2. The vaginal mucosa was dissected at a depth of 6 cm, extending laterally to the bulbospongiosus and puborectal muscles and inferiorly to the perineal body. The anorectal mucosa was dissected from the sphincter muscles at a depth of 5 cm. The anal sphincters were dissected free with at least a depth of 4 cm

Statistical Analysis

Statistical Package for the Social Sciences 17.0 for Windows Data was used. Descriptive frequencies were applied. This study was conducted according to the principles of the 1975 Helsinki Declaration, which was revised in 2000. Informed consent was obtained from patients.

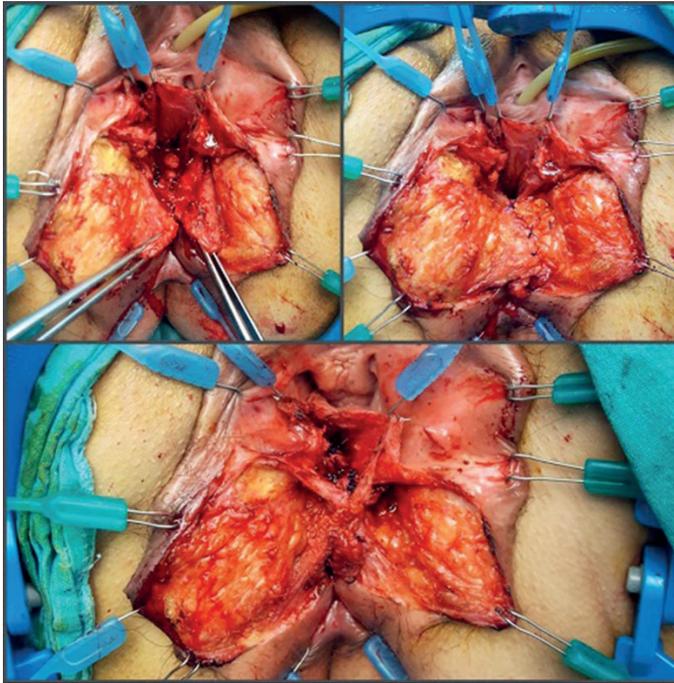


Figure 3. The retracted ends of the sphincters were repaired using the overlapping method. The perineal body was formed on EAS and the anus was centralized through end-to-end repair of the free ends of the bulbospongiosus muscles.

The study was approved by the İnönü University Local Ethics Committee (approval number: 2017/12-6). Informed consent forms were completed by all participants.

Results

The average age of the women was 34.85 (range, 23-42) years, the average parturition number was 3.14 (range, 1-7), and the mean body mass index (BMI) was 27.14 (range, 22.7-30.4) kg/m². All patients had a history of vaginal delivery. They developed symptoms of anal incontinence immediately after their first vaginal birth, and gradually worsened in the following births. The mean duration of symptoms was 39.4 (range, 6-120) months. EAUS showed both complete defect of EAS and complete and/or partial defect of the internal anal sphincter (IAS) in 6 patients. There was EAS defect only in one patient. The anal sphincter defect angle did not exceed 130 degrees in any patient. One patient reported incontinence to gas and liquid, and six patients reported incontinence to solid stool, liquid, and gas (Table 1). All six patients with solid stool incontinence were fully recovered at postoperative month 3. The mean preoperative WIS was 14.42 (range, 8-20), whereas it was 2.28 (range, 1-4) at postoperative month 3. The postoperative complications (wound infection, abscess, detachment, hematoma) developed in 6 patients (85.7%). V-Y advancement flaps were used in two of these patients, and free skin flap transfer was performed in one patient. The



Figure 4. V-Y advancement flap between the vagina and the anus

average follow-up duration was 12.28 (range, 3-26) months.

Discussion

There are no randomized controlled trials comparing primary and secondary repair of OASIS due to ethical obstacles⁽⁶⁾. Based on observational studies, results of primary repair, especially performed by experienced surgeons, are superior to secondary repair^(7,8). Direct techniques include reconstruction of the sphincter itself, either by end-to-end or overlapping methods^(9,10). Indirect techniques include reconstruction of striated muscles or fasciae surrounding anal canal, and transposition of a striated muscle flap⁽¹¹⁻¹³⁾. In the literature, surgical techniques are focused primarily on isolated anal sphincter repair^(9,10,14,15). Although short-term results of sphincteroplasty are satisfactory with 75-86% improvement in incontinence, they attenuate with time notifying that less than 50 percent of patients are still continent after 5-10 years⁽¹⁶⁾. The retraction of sphincters and overlooked pudendal injury may predispose to failure in sphincteroplasty^(15,17,18). Indirect methods in which anal sphincters remain unrepaired have poor functional results. The muscles supporting the anal canal necessitate conscious voluntary effort, so it is difficult to maintain continence for prolonged periods, and impossible during sleep⁽¹⁷⁾. As a result, the success rates of conventional surgical techniques decrease with time after surgery⁽¹⁹⁻²¹⁾. All of these techniques are focused on either isolated anal sphincter repair, or reconstruction of tissue supporting the anal canal without anal sphincter repair. We believe that the damage to the perineal body, superficial transverse perineal muscles, and bulbospongiosus muscles, which provide contribution to anal continence, is ignored, especially in direct surgical repair. In the present study, all patients with solid stool incontinence were fully recovered at postoperative month 3. The improvement in WIS was statistically significant. Although complications were high they were resolved properly. We performed diverting colostomy in only two patients because diverting colostomy was not obligatory

Table 1. The characteristics of patients

| Characteristics | p1 | p2 | p3 | p4 | p5 | p6 | p7 |
|--|------|-------|-------|-------|-------|-------|-------|
| Age | 23 | 37 | 42 | 39 | 35 | 38 | 30 |
| BMI | 24 | 27.5 | 31.2 | 27 | 22.7 | 30.4 | 27.2 |
| Number of vaginal births | 1 | 2 | 4 | 6 | 2 | 4 | 1 |
| Time interval since the first vaginal birth [months (m)/years (y)] | 6 m | 8 y | 19 y | 16 y | 13 y | 25 y | 5 y |
| Duration of symptoms (month) | 6 | 12 | 120 | 6 | 12 | 60 | 60 |
| Preoperative WIS | 8/20 | 16/20 | 17/20 | 14/20 | 13/20 | 20/20 | 13/20 |
| Postoperative WIS (at 3 rd month) | 1/20 | 2/20 | 1/20 | 3/20 | 2/20 | 3/20 | 4/20 |
| Complications | | | | | | | |
| Wound infection | + | + | - | + | + | + | + |
| Abscess | - | - | - | - | + | + | + |
| Hematoma | - | - | - | - | + | - | - |
| Detachment | + | + | - | + | + | + | + |
| Diverting ostomy | - | - | + | - | - | + | - |
| V-Y advancement flap transfer | + | - | - | - | + | - | - |
| Free skin flap transfer | - | - | - | - | - | + | - |

BMI: Body mass index WIS: Wexner incontinence scores

in the treatment of OASIS. Venkatesh et al.⁽²²⁾ also reported favorable results of combined surgery in 44 patients with traumatic cloaca, the majority of which were secondary to obstetric injuries. They used puborectalis interposition, sphincteroplasty and perineal body repair. All patients except five, had regained both fecal and gas continence. Five women also improved following biofeedback therapy. Anaraki et al.⁽²³⁾ performed sphincteroplasty and perineoplasty with skin advancement flap to reform the perineal body in 19 women with traumatic cloacal defects. Significant improvement in FI scores (decreased from 12.7 to 2.6), quality of life (increased from mean of 45 to 95), dyspareunia (decreased from mean of 5 to 0.8) and sexual function satisfaction (increased from mean score of 0.2 to 4.7) in these patients encouraged them to recommend this technique as an effective surgical method. Their complication rate was 15.7% (wound infection in 2 patients, rectovaginal fistula in one patient), which was managed conservatively. In the current study, although the FI score was significantly improved (decreased from 14.12 to 2.28), the complication rate was higher (85.7%).

Conclusion

Although the small sample size and absence of long-term results were limitations of this study, the satisfactory preliminary results encourage us to consider that combined repair of anal sphincters, perineal body, superficial transverse perineal muscles, and bulbospongiosus muscles may improve surgical outcomes in patients with OASIS.

Ethics

Ethics Committee Approval: The study was approved by the İnönü University Local Ethics Committee (approval number: 2017/12-6).

Informed Consent: Consent form was filled out by all participants.

Peer-review: Externally peer-reviewed.

Authorship Contributions

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

Conflict of Interest: There is no conflict of interest.

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