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CASE REPORT

External anal sphincter repair by the overlapping method in obstetric anal sphincter injury syndrome

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ABSTRACT

Obstetric anal sphincter injuries (OASISs) are complications that occur during vaginal delivery. These injuries, also called third- and fourth-degree perineal tears, include the anal sphincter complex and, in more serious cases, the anal mucosa. OASIS contributes to short-term morbidities such as wound site problems and perineal pain. It is also the leading risk factor for upcoming loss of bowel control in women. Our study aimed to present the diagnosis and treatment process of our 36-year-old patient who had her first and second birth vaginally and developed OASIS in her third birth. After the third vaginal delivery, an external sphincter injury was noticed, and surgery was performed at that time, which was not successful. About 9 months have been waited for surgical treatment to be applied to eliminate the problem. For OASIS treatment, it is necessary to use the proper diagnostic methods, ensure appropriate conditions and the teamwork is required. Every vaginal delivery comes with a chance of perineal injury, and all measures should be taken to prevent it. Once it is detected, it is recommended to be treated surgically as soon as possible with the appropriate technique. If the conditions are not suitable, it should be postponed to a suitable time.

Keywords: Anal sphincter, episiotomy, fecal incontinence, injury, trauma.

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INTRODUCTION

Obstetric anal sphincter injuries (OASISs) are one of the most difficult complications that can be experienced, which significantly deteriorates the quality of life after delivery. The risk of OASIS is 6.3% in all pregnant groups compared with a 5.7% risk in the first delivery, while in multiparous women, it is 1.5%.[1] Vaginal delivery, obstetric factors, operative vaginal delivery, episiotomy, fetal macrosomia, prolongation of the second stage of birth, posterior arrival of the fetal head, and advanced maternal age are risk factors.[2,3] Obesity is not considered as a risk factor.[4] While the rate of postpartum fecal incontinence as a result of OASIS varies between 0 and 28%, this rate is between 1% and 10% without OASIS.[5,6] Perineal tears seen after vaginal birth are classified into four degrees.[7] Injury of the fourth degree is highly associated with long-term fecal incontinence. Although there is no common opinion, three subtypes have been identified for OASIS: Urgent, postpartum, and occult. A vaginal birth may be recommended to an asymptomatic patient with OASIS in her history, but the risk of recurrence is 3–5%.[8]

Maximum efforts should be made to reduce the incidence of OASIS. For this purpose, perineal massage, correct determination of the mother's birth position, sufficient knowledge of the perineal anatomy of the person giving birth, and adequately performing episiotomy are required. First birth by cesarean is preventive for OASIS, but it should be known that it is not associated with the development of incontinence in the long term.[9]

In our case, the necessary examinations were carried out to solve the problem, the diagnosis was correctly revealed, and the surgical technique applied was successful.

CASE REPORT

An informed consent was obtained from the patient for this case report. In our case, the patient who had obstetric laceration following her third delivery had no additional disease. Gas, liquid, and solid stool incontinence 5–6 times a day were evaluated in the outpatient clinic.

In the external sphincter needle, electromyography examination performed in all four quadrants, traumatic motor unit potential activity was not observed at the 6 o'clock position (Table 1). In an anorectal manometer, the response to compression pressures was observed to be very low in the external sphincter. While the normal mean anal resting pressure was between 59 and 74 mmHg, it was 24 mmHg in our patient (Fig. 1). Endoanal ultrasonography revealed defects in

Table 1: Anal sphincter electromyography. Traumatic motor unit potential activity was not observed at the 6 o'clock position

Motor nerve conduction studies

MNCS nerve	Lat ms	Amp mV	Distance mm	CV m/s	F		
					F-Min	F-Mean	F-Max
Medianus motor right							
Wrist - APB	2.67	9.9			22.7	23.0	23.2
Elbow - wrist	6.29	8.9	200	55.2			
Peroneus motor left							
Ankle - EDB	4.60	2.8					
Bl. knee ankle	10.9	2.0	305	48.4			
Ab. knee - Bl. knee	12.5	1.86	85.0	53.1			
Tibialis motor right							
Ankle Abd hal	3.35	7.4					
Pop fossa - ankle	11.5	6.0	420	51.5			

Sensory nerve conduction studies

SNCS nerve	Latenery ms	Amp uV	Distance mm	CV m/s
Medianus sensory right				
Dig II - wrist	1.44	19.0	100	69.4
Peroneus superfic sensory right				
Calf - med. dor. cutan.	2.08	20.3	100	48.1
Tib plant med sensory left				
Medial malleol - digit I				

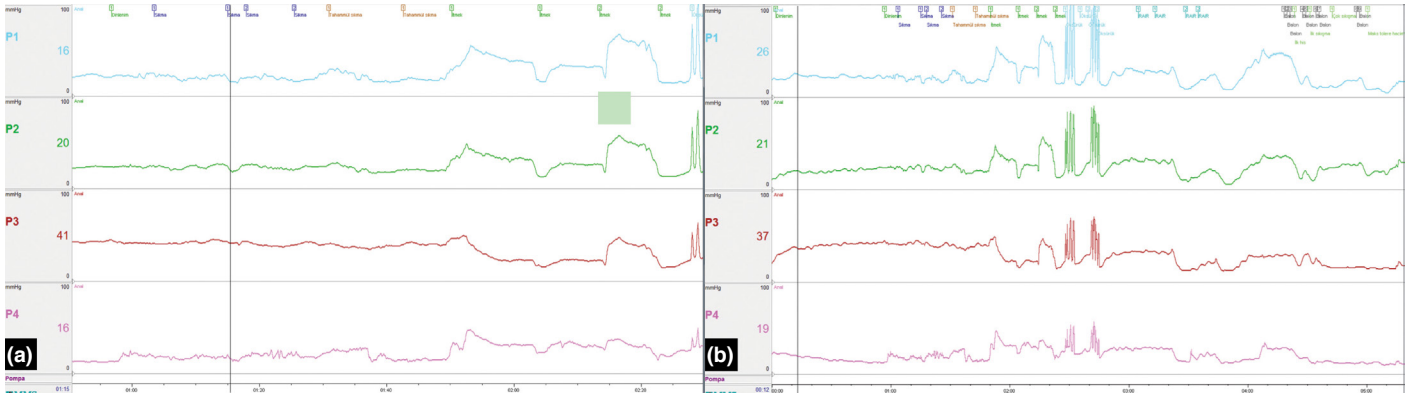

Figure 1: Anorectal manometer. In an anorectal manometer, the response to compression pressures was observed to be very low in the external sphincter. While the normal mean anal resting pressure was between 59 and 74 mmHg, it was 24 mmHg in our patient.

Figure 2: Endoanal ultrasonography revealed defects in the distal anal canal and external sphincter. The internal sphincter was normal.

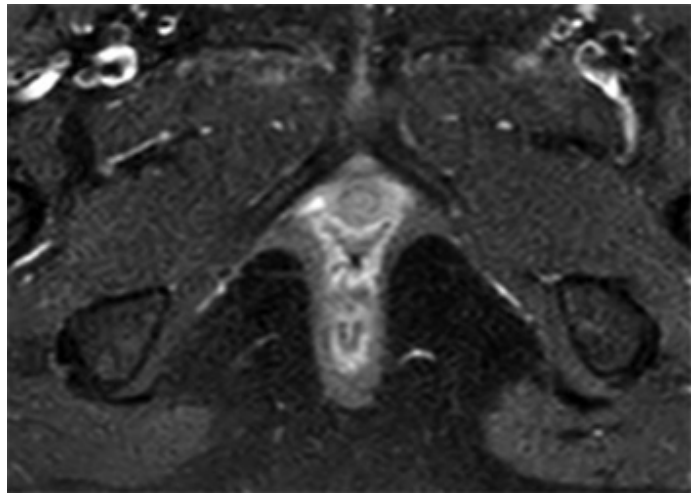

Figure 3: A magnetic resonance examination of the perianal region found no pathological signs other than a defect in the external sphincter.

the distal anal canal and external sphincter. The internal sphincter was normal (Fig. 2). No pathological signs were observed in rectosigmoidoscopy. A magnetic resonance examination of the perianal region found no pathological signs other than a defect in the external sphincter (Fig. 3).

After applying saline infusion to the area corresponding to the perineal body projection, the vaginal orifice was spaced with a Weitlander retractor, and the image was optimized. The injury area was reached with a transverse incision of approximately 4 cm. Both legs of the external sphincter, which stood apart from each other at 12 o'clock in the lithotomy position, were revealed using a needle-tipped cautery, paying attention to the fact that the integrity of the anal and vaginal mucosa was not disturbed. The internal sphincter was observed to be intact. 4/0 polydioxanone monofilament was used according to the strength and properties of the tissue. In the lithotomy position, the right arm of the external sphincter was approximated on the left arm with five separated sutures. The reconstruction was completed by sitting the tip of the right external sphincter to the left external sphincter body with separated sutures. The operation was terminated by approximating the subcutaneous area with 3/0 multifilament sutures and the skin with 4/0 absorbable monofilament sutures (Fig. 4). The patient stated that her anal incontinence decreased significantly during the control examination, and her quality of life improved. In the anal endosonographic examination performed at the 12th week postoperatively, it was shown that the integrity of the external sphincter was complete, and the mean anal resting pressure increased to 58 mmHg.

DISCUSSION

Anal sphincter injuries are often encountered in our clinic with a high vaginal birth rate. Most cases are in the urgent group, and successful repairs are performed simultaneously. Inadequate conditions and surgical experience, the presence of patient-related negativities cause the repair sometimes to fail.

After the examinations, in our case with Grade 3a perineal injury, many factors are responsible for the failure of surgical intervention. The most important thing is that it was done during the night shift hours when optimum facilities were unavailable, and the need for consultation was not met. Knowing that there is a chance of waiting for definitive repair and deciding accordingly is the most appropriate way to solve the problem. Surgical treatment for OASIS is the gold standard. End-to-end or overlapping repair should be performed at the earliest stage when it is detected after birth. If operating room

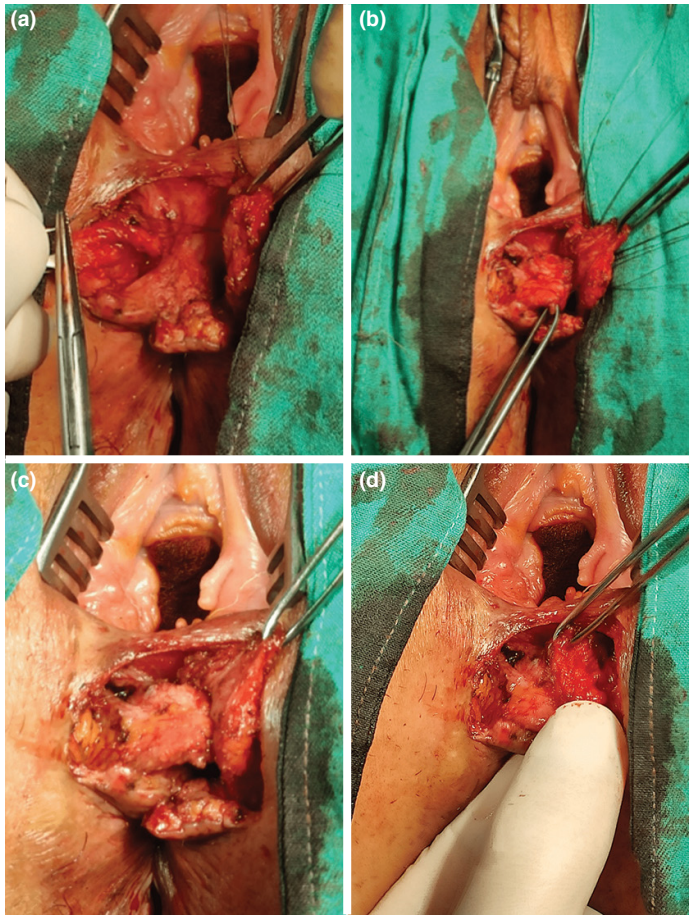

Figure 4: External anal sphincter repair by the overlapping method. **(a)** The injury area was reached with a transverse incision of approximately 4 cm. Both legs of the external sphincter, which stood apart from each other at 12 o'clock in the lithotomy position, were revealed using a needle-tipped cautery, paying attention to the fact that the integrity of the anal and vaginal mucosa was not disturbed. **(b)** 4/0 polydioxanone monofilament was used according to the strength and properties of the tissue. In the lithotomy position, the right arm of the external sphincter was approximated on the left arm with five separated sutures. **(c)** The reconstruction was completed by sitting the tip of the right external sphincter to the left external sphincter body with separated sutures. **(d)** After the repair, sphincter integrity is checked by finger examination.

conditions are not optimal, emergency repairs can be extended for up to 12 h.[10] In addition, there is no difference in success rates between the immediate repair or the repair performed by waiting up to 12 h and the repair performed by waiting up to 1 year.[11] Rectal examination is critical to understand whether the anal sphincters and mucosa are intact. With the index finger in the vagina, the thumb should be placed on the anus, and sphincter integrity should be felt over the perineal body. 3rd and 4th degree tears should be performed electively, at the most appropriate time, in the operating room, under appropriate light, with sufficient area cleaning. The second-generation cephalosporin (cefoxitin), or in case there is an allergy to beta-lactam, clindamycin should be administered as a single dose.[12] Absorbable, synthetic, braided, and multifilament polyglactin (polyglactin) material is preferred in most centers. The material's tensile strength lasts 2–3 weeks, it is hydrolyzed in 75–90 days and completely absorbed. A systematic review in 2010 showed that once the repair is done using absorbable material, less pain is experienced in the first 3 days postpartum, less analgesia is needed in the first 10 days, and fewer sutures are required for dehiscence.[13] In our clinic, 2/0 or 3/0 polydioxanone monofilament suture material is preferred because it carries less risk of infection, is absorbed in a longer time, and causes less tissue reaction. The aim of sphincter repair should be to create a 2 cm thick, 3 cm long muscle cylinder for the anatomical and functional anal canal.[14] Optimal repair includes multilayer closure. External sphincter repair is performed after both ends are effectively mobilized with four or five sutures one by one. The integrity of the torn anal mucosa should preferably be maintained with continuous 3/0 or 4/0 absorbable suture material. It is vital to repair the internal anal sphincter as a separate layer in achieving anal continence, and 3/0 absorbable sutures should be used. Repair should be done by approximating the interrupted external anal sphincter in the form of end to end or in the form of overlapping methods. 3/0 absorbable suture material with a single or double needle is appropriate. In the 2013 meta-analysis, it was found that incontinence symptoms were found to be less in the overlapping technique, but no statistical difference was found. Again, there was no difference in terms of perineal pain, dyspareunia, and quality of life at the 6th week, 3rd, 6th, and 12th months after the repair.[15] There is no clear evidence to suggest the superiority of one technique over another. End-to-end repair for partial injuries is universally the first choice. Complications of Grade 3 and 4 injuries include detachment, infection, and symptoms of pelvic floor dysfunction. The incidence of infection is 20%, and the rate of detachment is 25%. It is believed that the sphincter repair technique does not affect the incidence of infection.

In our patient, 4/0 polydioxanone monofilament was preferred for external sphincter repair. The size of the repair region and the strength of the tissue were important factors in the decision of suture material. It was thought that it would be more comfortable for the patient and would be absorbed in a shorter time.

An optimal period of time for surgery should be determined and if possible, should be done to each patient as soon as possible. In addition, proctological diagnostic methods such as anal electromyography, anal manometry, endoanal ultrasonography, and defecography should be found and used in every center with a high annual vaginal delivery rate.

Our case has been beneficial as being a decent example of making a repair appropriately to the literature with the proper technique. To gain a standard clinical practice, the example is essential. The more accurate and frequent the surgical technique is performed, the lower the error rate and the higher the success rate.

CONCLUSION

The greater the happiness experienced for a mother reunited with her baby at the end of the birth, the more unfortunate the development of anal continence due to the developing perianal injury. It is the professional responsibility of every clinician to keep this fact in mind, take all necessary measures, and mobilize all kinds of possibilities.

Statement

Informed Consent: Written informed consent was obtained from patient who participated in this study.

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Author Contributions: Concept – SA; Design – SA; Supervision – FA; Resource – SA; Materials – SA; Data Collection and/or Processing – SA, EÇ; Analysis and/or Interpretation – SA, EÇ; Literature Search – EÇ; Writing – SA; Critical Reviews – FA.

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