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RESEARCH ARTICLE

Perineal Approach in Rectal Prolapse Surgery: Reliability of the Altemeier Procedure

Rektal Prolapsus Cerrahisinde Perineal Yaklaşım: Altemeier Prosedürü Güvenirliği

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ABSTRACT

Aim: We compared the efficacy of the Altemeier and Thiersch procedures performed in patients treated for rectal prolapse diagnosis in our clinic.

Method: Twenty-three patients who underwent Altemeier and Thiersch operation in our clinic between January 2014 and December 2016 were reviewed retrospectively. Demographic data such as age, gender, accompanying diseases, physical examination findings, anesthesia risk scores, anesthesia method, operation duration, hospitalization days, complications, and follow-up periods were noted. Assessment of quality of life was done by evaluating the Wexner incontinence score.

Results: Of the 23 patients operated for rectal prolapse, 78.2% were female (n=18) and the mean age of all patients was 65.7 years. On physical examination, anal tone was absent in 13 patients and decreased in 10 patients. The mean preoperative Wexner incontinence score was 13.9 (12-16). Mean duration of operation was 14.6 minutes in Thiersch method and 42.8 minutes in the Altemeier group. The duration of hospital stay was 4 days in the Thiersch group and 5.73 days in the Altemeier group. There were no major complications in 12 patients undergoing the Altemeier procedure. Hemorrhage developed on the anastomotic line in one patient, and wound infection developed in another patient. One patient died due to myocardial infarction on the 2nd postoperative day. Perianal abscess was detected in one patient in the Thiersch group. In the Altemeier group, the postoperative 6-month Wexner score was 9.13. A decrease in the Wexner scores of 14 patients was detected. In the Thiersch group, no decrease was detected in any of the patients compared to the preoperative period.

Conclusion: Altemier is a safe and easy procedure because it can be performed under regional anesthesia, enables resection, and has low short-term recurrence and complication rates.

Keywords: Rectal prolapse, Altemeier, Thiersch, perineal approach, Wexner score

ÖZ

Amaç: Kliniğimizde rektal prolapsus tanısı ile takip ve tedavi edilen hastalarda uygulanan Altemeier ve Thiersch prosedürlerinin etkinliği karşılaştırılmıştır.

Yöntem: Ocak 2014-Aralık 2016 tarihlerinde kliniğimizde takip edilen, Altemeier ve Thiersch operasyonu uygulanan 23 hasta geriye dönük olarak incelendi. Hastaların yaş, cinsiyet gibi demografik verileri, öz geçmişleri, eşlik eden hastalıkları, fizik muayene bulguları, anestezi risk skorları, anestezi yöntemi, ameliyat süreleri, hastanede yatış süreleri, komplikasyonları ve takip süreleri not edildi. Yaşam kaliteleri değerlendirilmesi Wexner inkontinans skoru değerlendirilerek yapıldı.

Bulgular: Toplam 23 hasta rektal prolapsusu nedeniyle ameliyat edildi. Hastaların %78,2'si kadın (n=18) cinsiyet olup, tüm hastaların yaş ortalaması 65,7 (yıl) idi. Fizik muayenede 13 hastanın anal tonusu olmayıp 10 hastada ise azalmıştı. Preoperatif Wexner inkontinans skoru ortalama 13,9 (12-16) idi. Ortalama ameliyat süresi Thiersch yönteminde 14,6 (dakika) Altemeier grubunda ise 42,8 (dakika) tespit edildi. Hastanede kalış süresi Thiersch grubunda 4, Altemeier grubunda 5,73 gün idi. Altemeier prosedürü uygulanan 12 hastada majör komplikasyon görülmedi. Bir hastada anastomoz hattında kanama, bir hastada yara yeri enfeksiyonu gelişti. Bir hasta ise postoperatif 2. gün miyokard enfarktüsü sonrası kaybedildi. Thiersch grubunda bir hastada perianal apse tespit edildi. Altemeier grubunda postoperatif 6. ay Wexner skoru 9,13 idi. On dört hastanın Wexner skorlarında azalma tespit edildi. Thiersch grubunda ise preoperatif döneme kıyasla hiçbir hastada azalma tespit edilmedi.

Sonuç: Altemeier rejyonel anestezi altında uygulanabilirliği, rezeksiyon yapılması, kısa dönem nüks oranlarının ve komplikasyon oranlarının düşük olması itibarıyla güvenli ve kolay uygulanabilir bir yaklaşımdır.

Anahtar Kelimeler: Rektal prolapsus, Altemeier, Thiersch, perineal yaklaşım, Wexner skoru

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Introduction

Rectal prolapse, defined as the protrusion of the rectum from the anal canal, is a severe problem suffered by children and frequently by the elderly. The condition reduces quality of life due to accompanying complaints including the anal protrusion itself, and urinary, flatal, and/or fecal incontinence.[1] Rectal prolapse and mucosal prolapse may be encountered in clinical practice as intussusception or complete rectal prolapse. Choosing the correct approach to managing this condition is important because it occurs more frequently in older people, who usually also have comorbidities.[2,3] Surgical treatment of rectal prolapse can be primarily classified into abdominal and perineal approaches. Another classification may be between methods with and without resection. First applied in 1889 by Mikulicz and popularized in the 1970s by Altemeier, perineal rectosigmoidectomy enables resection using a perineal approach.[4,5] The Thiersch method, on the other hand, is based on reduction of prolapsed rectum followed by repair of the anal canal.[6]

In this study, we compared the effectiveness of the Altemeier and Thiersch procedures in patients followed and treated in our clinic for rectal prolapse.

Materials and Methods

After obtaining approval of the Hitit University Faculty of Medicine Ethics Committee (approval number: 2017/58, date: July 24, 2017) and informed consent of all patients, our retrospective analysis included 23 patients who underwent the Altemeier procedure or Thiersch operation in the Hitit University Faculty of Medicine Department of General Surgery between January 2014 and December 2016. Demographic data including age and gender and the patients' medical history, comorbidities, physical examination findings, anesthesia risk score (ASA), anesthesia method used, surgery time, length of resected segments, hospitalization time, complications, and follow-up time were noted. Life quality assessment was done using the Wexner incontinence score.[7] Assessment of Wexner incontinence score was based on patients' scores before treatment and at 6 months after surgery. Follow-up Wexner assessments were conducted in person or by telephone for patients who were otherwise unreachable. All patients underwent cross-sectional examination by computed tomography to identify any additional intraabdominal pathology and were examined by colonoscopy. All operations were performed by the same surgical team. In all operations based on the Altemeier procedure, ultrasonic vessel sealing equipment was used and all anastomoses were made one by one and in single layers using an atraumatic round needle with 3-0 polyglactin suture. Patients were parenterally fed for the first 3 days after surgery, then oral intake was initiated on day 4 and supported by enteral feeding. For all surgeries based on the Thiersch operation, circular polypropylene mesh was placed, starting at 12 o'clock and advancing clockwise 360° back to the starting point, under regional anesthesia with patients in lithotomy position. Postoperatively, all patients were given regular food on the same day as the operation.

Statistical Analysis

The obtained data were entered in SPSS 22.0 statistics software and the mean, standard deviation, frequency, minimum and maximum values were calculated. A t-test was used for comparing the two groups. $P<0.05$ was regarded as statistically significant.

Results

Our retrospective analysis included the data of 23 patients who were followed and operated for rectal prolapse in our clinic between January 2014 and December 2016. Fifteen patients underwent the Altemeier procedure and eight underwent the Thiersch operation. Eighteen of the patients were female and five were male. The age average was 65.7 years (59-76 years). According to preoperative anesthesia risk assessment, two patients were ASA II, 13 were ASA III, and eight were ASA IV. While 18 patients were operated under spinal anesthesia, two were given epidural anesthesia and three were given general anesthesia (Table 1).

According to the patients' histories, seven had previous cerebrovascular disease with sequellae, two were operated for cranial malignancy, one had myopathy, and one had spinal cord injury. Eleven of the patients had previous abdominal surgery for various causes, and four had undergone repeated abdominal surgeries.

In preoperative colonoscopic examinations, solitary rectal ulcer was detected in four patients. Physical examination revealed no anal tone in 13 patients and reduced tone in 10 patients. Average preoperative Wexner incontinence score was 13.9 (range, 12-16).

The mean operation time was 14.6 minutes (13-16 minutes) in patients undergoing the Thiersch method and 42.8 minutes (32-64 minutes) in the Altemeier group. In patients undergoing the Altemeier procedure, the mean specimen excised during surgery was 31.27 cm (22-42 cm). Mean hospitalization time was 4 days (1-8 days) in the Thiersch group and 5.73 days (2-10 days) in the Altemeier group, with no significant difference between the groups. Mean postoperative follow-up time was 6.73 months (0-12 months). While no major complications were encountered in 12 of the patients with Altemeier procedure, one patient had local anastomotic bleeding on the day of surgery,

which was controlled by primary suturation under local anesthesia. Another patient had perianal infection starting on postoperative day 3 which was controlled by antibiotherapy, and this patient experienced no anastomosis problems. One patient died due to a sudden myocardial infarction on the postoperative day 2 in spite of anticoagulant prophylaxis. Perianal abscess developed in one patient from the Thiersch group and was treated with drainage and antibiotherapy. Hematoma secondary to hemorrhage at the suture line developed in one patient in the same group, but was controlled without surgical intervention.

Assessment of anal tone by physical examination in the Altemeier group revealed no changes in tone in two patients, while 13 patients had increased tone at 6 months compared to the preoperative assessment, and full tone recovery was noted in three patients (Figures 1, 2, 3, 4). Mean Wexner incontinence score among patients in the Altemeier group at postoperative 6 months was 9.13 (6-16). Fourteen patients had reduced Wexner scores. One patient had no change in Wexner score but was not included in analysis due to mortality. Evaluation of eight patients in the Thiersch group showed no reduction in Wexner incontinence score at postoperative 6 months compared to preoperative scores (Table 1).

Table 1. Patients' demographic characteristics

	Altemeier procedure (n=15)	Thiersch procedure (n=8)
Age (years)	65.33±4.9	64.88±1.5
Sex (male/female)	4/11	1/7
ASA score		
ASA II	0	1
ASA III	11	6
ASA IV	4	1
Anesthesia method		
Spinal	13	5
Epidural	1	1
General	1	2
Surgery duration (minutes)	42.8 (min: 32, max: 64)	14.6 (min: 13, max: 16)
Wexner score		
Preoperative	13.93±1.29	15±1.15
Postoperative	9.13±2.79	15±1.2
Hospitalization time (days)	5.73 (min: 2, max: 10)	4 (min: 1, max: 8)
Follow-up time (months)	6 (min: 0, max: 12)	6.8 (min: 0, max: 12)

ASA: Anesthesia risk score, Min: Minimum, Max: Maximum

Discussion

Complete rectal prolapse is defined as the protrusion of the full-thickness rectum from the anal channel. Unlike the less severe forms, mucosal and internal prolapse, surgical treatment is unavoidable in complete prolapse.[1] As in other pelvic floor diseases, patients often have other accompanying health conditions, and it is more common among older adults.[2,3] Considering the presence of comorbidities and their frequency in the elderly, it is clear that surgical interventions introduce important risks for the patients

Figure 1. Preoperative appearance of a patient who will undergo the Altemeier procedure

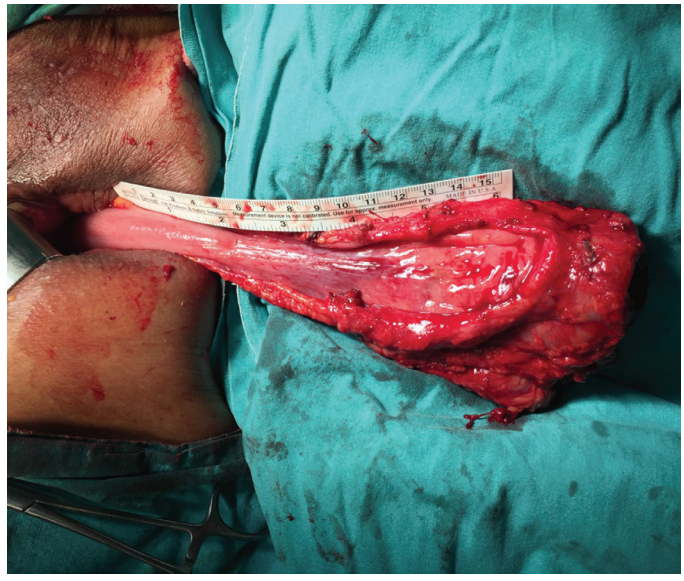

Figure 2. Bowel segment of patient undergoing the Altemeier procedure prepared for resection

and therefore, the correct approach should be selected with due diligence.[3,6] Of the 23 patients in our study, two were diagnosed with grade 2 prolapse while the rest were diagnosed with complete rectal prolapse. Both of the grade two patients underwent repair by Thiersch method, whereas the Altemeier procedure was preferred exclusively for patients with complete rectal prolapse.

Figure 3. Postoperative appearance of a patient who underwent the Altemeier procedure

Figure 4. Postoperative month 3 appearance of a patient who underwent the Altemeier procedure

Surgical treatment of rectal prolapse is based on two approaches, abdominal and perineal.[8,9] Many surgeons prefer the abdominal approach, and laparoscopic surgical procedures have been in the forefront in recent years.[10] However, the abdominal approach usually requires general anesthesia, especially when performing laparoscopic surgery. In our series, 18 patients received spinal anesthesia and two had epidural anesthesia before surgery, whereas only three had general anesthesia. Of the three patients operated under general anesthesia, two underwent the Thiersch method and one patient underwent the Altemeier procedure. The latter patient was initially given spinal anesthesia, but insufficient effect required general anesthesia.

Moreover, it is well known that a history of previous abdominal surgery makes it difficult, if not impossible, to use the abdominal approach in rectal prolapse surgery, or at the very least results in prolonged surgery time.[9] Because this patient group are at higher operative risk due to old age, comorbidities, or surgical history, this extended surgery time may cause further problems. In our series, the average surgery duration for Altemeier procedure was 42.8 minutes; the main reason for this was that four patients had longer surgery time due to previous Thiersch operation history. The average duration for the rest of the patients was about 35 minutes. The average duration when applying the Thiersch method was significantly shorter (14.6 minutes).

Surgical treatment of rectal prolapse is also classified according to the presence or absence of resection. Recurrence risk in methods not including transabdominal or transperineal resection is higher than in methods with resection.[9,11] In patients with such high risks, the Altemeier procedure allows for resection under regional anesthesia without an abdominal incision. In the resections done in our patients, the average specimen size was 31.27 cm. This resective approach also eliminated the solitary rectal ulcers that had been identified in four patients in colonoscopy. Furthermore, the ease of implementation under regional anesthesia is important because these patients are already in a high-risk group, and a minimally invasive approach reduces the need for postoperative intensive care.[3] Indeed, although 11 of our patients had ASA 3 and 4 had ASA 4, none required monitoring in the intensive care unit. The exposure provided by perineal resection also enables levatoroplasty to be performed during the operation.[4] We did not perform levatoroplasty in any of our patients to ensure standardization of the procedure; however, considering that we have easily made colo-anal anastomosis by mobilizing the sigmoid colon very proximal of the rectosigmoid intersection during the procedure, there was a suitable field of view in which we could have easily performed levatoroplasty.

Fewer complications are seen in the perineal approach compared to abdominal procedures.[5,12,13] One of our patients in the Altemeier group had anastomotic bleeding which was prevented with a simple intervention, and one patient had local infection which could only be controlled with antibiotherapy. One patient was lost due to acute myocardial infarction. Perianal abscess developed in one patient from the Thiersch group and was treated with drainage and antibiotherapy. Hematoma secondary to hemorrhage at the suture line developed in one patient in the same group, but was controlled without surgical intervention. Although it is a method requiring resection and has longer average surgery time, there was no significant difference in terms of complications between the patients in Altemeier procedure group and those in Thiersch method group.

Another advantage of the Altemeier procedure is that over time the anal tone can increase relative to the preoperative period. Although such a result is not expected in abdominal rectosigmoid resections or fixation procedures, no improvement in incontinence is generally seen in the Thiersch method.[1,2] Of our patients who underwent the Altemeier procedure, tone remained the same in two and increased in 13 patients.

Wexner incontinence scores were significantly lower at 6-month follow-up compared to preoperative feedback. In the Thiersch group, none of the eight patients evaluated at postoperative 6 months had reduced Wexner incontinence scores compared to the preoperative period.

The limitations of our study include the absence of anal manometry technique in the diagnosis and treatment of the disease due to unavailability of that technology. In addition, our follow-up period was not long enough to enable us to determine the long-term risk of recurrence. Follow-up of these patients is ongoing and evaluations are in progress to obtain long-term results. As anal manometry measurements could not be taken because of technical reasons, tone was evaluated by physical examination and quality of life assessment was done using Wexner incontinence score.

The Altemeier procedure is a reliable and easily applicable method because it is performed under regional anesthesia, enables resection and levatoroplasty, and causes lower rates of short-term recurrence and complications. It is an important alternative approach that should be considered for patients who cannot undergo or are contraindicated for resection or rectopexy by the currently popular laparoscopic approach, and for recurrent cases, as illustrated in this study.

Ethics

Ethics Committee Approval: The study was approved by the Hitit University Faculty of Medicine Ethics Committee (approval number: 2017/58, date: July 24, 2017).

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

Peer-review: External and internal peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: İ.T.Ş., M.K., Concept: İ.T.Ş., M.K., Design: İ.T.Ş., M.K., Data Collection or Processing: İ.T.Ş., M.K., Analysis or Interpretation: İ.T.Ş., M.K., Literature Search: İ.T.Ş., M.K., Writing: İ.T.Ş., M.K.

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