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Clınıcal Analysıs of Traumatıc Isolated Rectal Injuries

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ABSTRACT

In this study, we aimed to evaluate the approach to patients who applied to our clinic due to isolated rectal injury.
Patients treated for isolated rectal injury in our clinic between January 2017 and December-2021 were retrospectively reviewed.
Ten patients were examined and 7 patients were included in the scope of the evaluation. The patients were evaluated under the headings such as age, gender, injury site and whether or not diversion was performed.
All patients were male and the mean age was 26.5±9.46 years.
There were middle rectal injuries in two patients, upper rectal injuries in one patient, and lower rectal injuries in four patients. Except for one patient with lower rectal injury and no rectal contamination, the other six patients underwent diversion. One patient who underwent transanal repair was followed up with tomography in the postoperative period.
Rectal injuries are high-risk injuries due to their neighborhood in the pelvic region. Intestinal diversion is a serious option to prevent pelvic sepsis. It should not be forgotten that transanal primary repair can also be performed after the location of the injury is determined and the perirectal area is cleaned.

Keywords: Traumatic, Isolated, Rectum, Injuries

Introduction

Traumatic rectal injury is a rare clinical entity with high morbidity and mortality. Rectum is anatomically located in the pelvic area so it is protected against the trauma. Rectal injuries can be iatrogenic during endoscopic procedures or enemas. It also can happen in erotic perversions or torture-related trauma. Firearm and sharp object injuries are more common (1-2). There is no complete algorithm in surgical treatment. Treatment approaches are changing in every clinic. Various treatment alternatives are available depending on the location of injury, severity of injury, degree of contamination, the surgeon's preference, and experience (3,4). Over the past century, the mortality of rectal injuries has declined due to increased surgical experience and antibiotics. World wars also played a significant role in this. People who have been exposed to gunshot in civilian life could have mortality. But if it happened in the battlefields, mortality is higher because of higher kinetic energy and destructive power of firearms (5,6).
In this retrospective study, we aimed to review and present the patients who treated in our clinic due to isolated rectal injury.

Material and Methods

We obtained ethical approval from Malatya Turgut Ozal University Ethical Board with the number of 2022/38 at the date of 21.02.2022.
The medical records of patients treated for traumatic isolated rectal injury between January 2017 and December 2021 were retrospectively analyzed. Patients who were referred from an external center, had additional injuries, whose data were not fully available were excluded from the study. Patients were evaluated for age, gender, place of injury and with or without diversion.
Routine abdominal tomography was performed in all patients (Figure1), and after rectum cleaning in the operating room, flexible rectosigmidoscopy was performed by applying light pressure. The place of injury was measured by rectoscopy and determined as the lower, middle and upper rectum (7). The foreign body causing injury was removed from eligible patients.
The decision of opening pelvic peritoneum was done according to the condition of the injury and the contamination findings in the tomography.

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Results

During the study period, ten patients applied to our clinic with isolated rectal injury. Two patients were excluded due to referral procedures, one patient due to missing data ; seven patients were included in this study. All patients were male and the mean age was 26.5 ± 9.46 (18-43) years. Two patients had middle, one patient had upper and four patients had lower rectal injury. Diversion was not performed one patient with lower rectal injury and no rectal contamination. The other six patients underwent a diversion procedure. End colostomy was performed in one patient with smash injury. Loop-colostomy was performed in other patients. The patient, who underwent transanal repair, was followed up with tomography in the postoperative period. One patient had a stool drainage from the entrance hole in the skin on the 4th postoperative day.

The pelvic peritoneum was opened in four patients who had signs of excessive contamination in abdominal tomography and who injured more than 1/3 of the wall. For example, CT image of the patient with lead core in the rectum (Figure 1). In the other two patients, had less the contamination and loop colostomy was performed. The patients are shown in Table 1 and evaluated for ages, gender, injured rectum area and colostomy status. The mean hospitalization period of the patients was 7.85 ± 2.03 days and the longest duration was in a patient hospitalized for 11 days due to wound infection.

Dıscussıon

Rectal injuries are less common than transabdominal organ injuries because of the anatomical location. The rectum could be damaged with high pressure trauma or a trauma must be exposed directly to the anal area. Rectal injuries are increasing with undesirable social events such as terrorism or war. On the other hand, iatrogenic perforations may occur in anorectal interventional procedures such as colonoscopy or prostate biopsy (8).

Diagnosis is usually easy, but in some cases it is doubtful. Perianal – perirectal injuries should be considered as a differential diagnosis that should be kept in the mind in case of a mental illness such as schizophrenia or mentally retarded persons (9,10). Diagnosis can be made easier with a comprehensive anamnesis and a simple digital rectal examination.

Sexual assaults can lead to rectal injuries in children more than in adults. In adults, especially fragile objects that cannot be removed after inserting various objects through the anal canal may cause rectal perforations. In the literature, there are also cases of rectum perforation after rectal compressor air delivery due to torture or joking with friends. Patients who admit as a result of self-harm for sexual reasons may delay admission to the hospital because of fear of environmental reactions; Even if they apply, they can give wrong anamnesis. As a result of all these, they may present with peritonitis (11,12). In such a situation, the method of treatment changes.

Rectosigmoidoscopy (RS) is a good method that can be used in preoperative diagnosis. However, it should be ensured that there is no injury to the bone structures in the pelvis. Otherwise, RS may lead to serious pathologies in the patient. It should be kept in mind that additional organ damage may also occur in firearm-related anorectal injuries. If there is no urethral injury, the bladder should be controlled with a urinary catheter (6,13,14).

We also performed RS for all patients following manual rectal cleaning under operating room conditions. This procedure is particularly useful for determining the injury focus. We think that low pressure application during this procedure will prevent possible deterioration in the injury. At the same time; Rectal cleaning for RS can provide an advantage for transanal repair and follow-up without colostomy.

In the literature; Loop colostomy and end colostomy are available options for isolated rectal traumas. End colostomy is preferred to prevent complications due to continuing the passage. On the other hand, successful treatment results without opening a stoma have been reported (1,15). As a matter of fact, we achieved successful results in one of our patients with the approach without colostomy. Loop colostomy was the most common procedure that we preferred in the presented cases.The reason for end colostomy that was preferred in one patient was because of the wall integrity of the rectum is severely impaired and we thought that it was the presence of excessive contamination in exploration, tomography findings and the contamination may increase when the passage continues.

The prospective study by Stone et al. marked a turning point in the view of colorectal injuries, and it was suggested that colon injuries without some risk factors can be successfully treated with primary repair procedures (16). In the first intervention of the patient, it is essential to ensure the continuity of the lumen with the least damage. If the sphincters in the anal region of the patient will not be damaged during the intervention, the mucosa of the rectum should be primarily repaired. In this way, whether the colostomy is an end or a loop, contamination from the rectum to the surrounding tissues is minimized. Thus, the possibility of perianal abscess and perianal fistula development in the patient decreases. After the

Table 1: Demographic Data of Patients, Injury Sites and Colostomy Status

	Gender	Age (Year)	Injury Site	Colostomy Type	Length of Hospital Stay (Day)	Colostomy Closure Time (Week)
Patient 1	M	19	Lower rectum	None	5	--------
Patient 2	M	43	Middle rectum	Loop Colostomy	9	8
Patient 3	M	35	Middle rectum	Loop Colostomy	8	11
Patient 4	M	18	Upper rectum	Loop Colostomy	7	10
Patient 5	M	28	Lower rectum	Loop Colostomy	9	11
Patient 6	M	24	Lower rectum	Loop Colostomy	6	Other center
Patient 7	M	19	Lower rectum	End Colostomy	11	10

Fig. 1. CT image of the patient with lead core in the rectum

procedures in the anorectal region are completed, it should be checked whether the patient needs diversion. Loop colostomy may be preferred if mucosal continuity can be achieved in the area of injury in the rectum. In this way, even if there is a small amount of distal passage, the possibility of pelvic sepsis is low. However, if mucosal continuity cannot be achieved, there should be no transition to the distal. Therefore, end colostomy should be performed (8,17,18).

The infective capacity of iatrogenic rectal injuries is low due to preoperative bowel cleaning. Extent of trauma in the injured area, presence of additional trauma, the degree of fecal transmission, delay in diagnosis and treatment have an impact on prognosis (19).

In the literature some publications suggesting that the fecal contents remaining in the distal rectum are effective in the formation of sepsis. The fecal load of the distal segment should be relieved as much as possible. Although there are opposing views regarding bacterial load, it is a generally accepted common view (1,6,8,20). The most effective method for distal washing; Perioperatively, controlled washing is performed following anal dilatation in the lithotomy position. Care should be taken to avoid intra abdominal contamination during this procedure. Manual rectal cleaning can also be performed while performing anal dilatation (6).

Pararectal or presacral drainage is extremely important to remove pelvic fecal contamination from the abdomen. The drainage to be provided with small incisions from the anococcygeal area provides both washing and draining. Resection of the coccyx to achieve more effective presacral drainage is controversial. Some surgeons claim that better drainage can be provided, while others argue that it paves the way for osteomyelitis. In cases where presacral drainage is not preferred, it is imperative to place an abdominal drain into the pararectal area and take the pelvic contamination out of the abdomen (6,21,22).

There are some limitations and strength of our study that should be mentioned. The first limitation is its retrospective nature and there may be some missing data during the study period. The second one is relatively low number of sample size. The main strentgh was that all cases were evaluated and managed in our clinic with the same surgeon team. The follow-up data were retrieved from one hospital database.

In our study, five patients had stab wounds and two of them had foreign body in rectum with isolated rectal injuries.

As a result; primary repair is the first choice in patients with less intraperitoneal tissue injury, no additional injury and hemodynamic stable patients. Diversion ostomies are more valuable in extraperitoneal injuries, independent of primary

repair. It should be kept in mind that transanal primer repair can be performed depending on the degree of rectal contamination. Treatment plans vary depending on the location of the injury, its severity, the degree of contamination, the surgeon's preference and experience.

Ethics Committee Approval: The ethical approval was obtained from Malatya Turgut Ozal University Ethical Board with the number of 2022/38 at the date of 21.02.2022

Informed Consent: Informed consent forms were approved by the patients for the surgical intervention and subsequent care, information was provided, and permissions were obtained for the use of their data.

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