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Obturator Hernia in Elderly Female Patients

Erdem Barış Cartı[1], Eyüp Murat Yılmaz[1], Ahmet Deniz Uçar[2], Mehmet Yıldırım[2], Koray Kutlutürk[3]

[1]*Adnan Menderes University Department of General Surgery, Aydin/Turkey*

[2]*Bozyaka Training and Research Hospital, Department of General Surgery, İzmir/Turkey*

[3]*İnönü University Department of General Surgery, Malatya/Turkey*

Obturator hernia (OH) constitutes 0.07% to 0.4% of all intraabdominal hernias and 0.2% to 5.8% of small intestinal hernias. OH is usually seen in elderly, multiparous females and patients with a low body weight. This multicenter study includes patients who were treated in Adnan Menderes University Medical Faculty Hospital, Bozyaka Education and Research Hospital and İnönü University Medical Faculty Hospital between January 2010 and June 2015. The diagnosis of OH was made preoperatively or perioperatively in patients who underwent emergency laparotomy for the treatment of ileus. A total of 14 patients were included in this study; 3 patients were treated by laparoscopic method (transabdominal approach) under general anesthesia and 2 of these patients (66.6%) died after the surgery. A total of 7 patients were treated by laparotomy. The remaining 4 patients were treated with a minimally invasive approach by using an epidural block without general anesthesia (3 patients with Pfannenstiel and 1 patient with a median inferior incision). The overall mortality rate was 42.8%. Anesthesia and surgery types have an important effect on mortality in elderly OH patients with multiple comorbidities. Minimally invasive approach with the use of epidural anesthesia can reduce the mortality rates in patients with OH. Abdominal computed tomography is the golden standard in the diagnosis of OH.

Key words: Obturator, ileus, hernia

Obturator hernia (OH) is a pelvic type of hernia defined by protrusion of intestinal segment through the obturator foramen between the pectineus and external obturator muscles. OH is a rare type of hernia and related with high mortality and morbidity rates. OH was first described by Arnaud de Ronsil in 1724 and successfully repaired surgically by Henry Obre in 1851.[1] It constitutes 0.07% to

Corresponding author: Erdem Barış Cartı, MD, Assistant Professor, Adnan Menderes University Department of General Surgery, Şair ömer street Number: 10 Girne, Aydın/Turkey.
E-mail: erdemcarti@yahoo.com

1.4% of all abdominal hernias and 0.2% to 5.8 of small intestinal obstructions.[2] The rate of OH has increased in Asians, whereas the rates are lower in the Western populations.[3] OH is mainly seen in low-weighted multiparous elderly women.[4] The symptoms in OH are usually related with the compression of obturator nerve by hernia sac. Since the signs and symptoms of OH are nonspecific, the diagnosis can be challenging.[5] The only treatment of obturator hernia is surgical and there are several surgical methods defined in the literature such as abdominal, inguinal, retropubic, obturator, and laparoscopic approach.[6] Minimally invasive approach can be more advantageous in elderly patients since the hospital staying period and the complication risks such as postoperative pain, ileus, and pulmonary complications are decreased in this method.[7] OH has the highest mortality rate ranging between 13% and 40% among all abdominal wall hernias.

Materials and Methods

Files of 14 patients who underwent emergency surgery with the preoperative or perioperative diagnosis of OH in Adnan Menderes University Medical Faculty Hospital, Bozyaka Education and Research Hospital and Inonu University Medical Faculty Hospital between January 2010 and June 2015 were examined retrospectively. Age, sex, parity, body mass index (BMI), comorbidities, additional diseases, other signs and symptoms, test results, anesthesia and surgery types, and mortality rates were investigated retrospectively.

Statistical analysis

Statistical software (SPSS 21.0 software, SPSS, Inc., Chicago, Illinois) was used for data analyses. Descriptive analysis was done for demographic and clinical features. The results were presented as percentages for continuous variables, and number/percentage for categorical variables.

Results

A total of 14 patients were included in this study. All patients were female. The mean age was 80 years (71–91). The mean BMI was 16.7 (15.2–18.8). The mean number of parity was 5.2 (2–8). OH was located on the right side in 13 patients and located on the left in 1 patient. After the failure of success with the use of intravenous hydration and nasogastric decompression, diagnostic laparotomy was performed in 6 patients with the x-ray findings of air-fluid levels and ultrasonography findings of dilatation in the small intestine. Abdominal computed tomography (CT) was performed in 8 patients. The diagnosis had been made based on CT findings and patients underwent an emergency operation (Figs. 2 and 3). In the medical history, 2 patients had an appendectomy with McBurney's incision, 1 patient was operated for a gastric ulcer with median superior incision, and the remaining 11 patients had no history of abdominal surgery. Howship-Romberg sign (pain perception at the medial site of thigh and hip that increases with medial rotation and adduction of thigh) was present in only 4 (28.5%) patients. Groin mass was encountered in 3 (21.4%) patients, which can be seen easily with the flexion, adduction, and lateral rotation of the thigh. The complaints of 4 patients (28.5%) were decreased simultaneously. Small bowel resection was performed in 12 patients who were diagnosed with strangulation. Richter hernia was diagnosed in the remaining 2 patients and primary suture was performed after the removal of an ischemic portion of antimesenteric small bowel (Table 1). A graft was used in the hernia repair in all patients. It was observed that distal ileum was always involved in all patients. A total of 7 patients were operated with the conventional technique (median superior–median inferior incision) under general anesthesia; 4 of these patients (57.1%) died after the operation. A total of 3 patients were operated with laparoscopic (transabdominal) technique under general anesthesia and 2 (66.6%) of these died. The remaining 4 patients were operated with a minimally invasive incision (3 with Pfannenstiel and 1 with a median inferior incision) under epidural anesthesia. No mortality was observed in these 4 patients (0%). Mortalities were not related to surgical complications (anastomotic leakage, intraabdominal abscess, etc.). Comorbidities and additional diseases are shown in Table 2.

Table 1 Physical examination findings

Physical examination findings	Patients (N = 14), n (%)
Noisy mechanical intestinal obstruction findings	12 (85.7)
Groin mass	3 (21.4)
Howship-Romberg finding	4 (28.5)
Weak mechanical intestinal obstruction findings	2 (14.3)
Patients having similar complaints before	4 (28.5)

Table 2 Patient characteristics, applied surgery and results

Patient	Patient age	BMI	Comorbidity illness	Anesthesia – Surgery	Result
1st patient	74	18.1	CAD, Parkinson	Epidural anesthesia – Minimally invasive incision	Cure
2nd patient	71	15.4	CVD		Cure
3rd patient	83	16.2	CAD, COPD		Cure
4th patient	91	15.6	CVD, Breast cancer		Cure
Four patients	*79.7 (71–91)*	*16.3 (15.4-18.1)*			*0 (0%) Mortality*
5th patient	86	17.1	CVD, CAD	General anesthesia – Laparoscopic intervention	Exitus
6th patient	84	16.4	CAD, DM		Cure
7th patient	76	16.8	CAD, Alzheimer		Exitus
Three patients	*82 (76–86)*	*16.7 (16.4–17.1)*			*2 (66.6%) Mortality*
8th patient	76	16.1	CVD, COPD	General anesthesia – Conventional surgery	Exitus
9th patient	82	15.2	CAD, DM		Exitus
10th patient	80	17.4	DM		Cure
11th patient	74	18.8	CAD		Exitus
12th patient	89	17.2	DM, COPD		Exitus
13th patient	76	15.8	Alzheimer, Tbc		Cure
14th patient	78	17.9	CAD, Cervix cancer		Cure
Seven patients	*79.2 (74–89)*	*16.9 (15.2–18.8)*			*4 (57.1%) Mortality*
14 patients	*80 (71–91)*	*16.7 (15.2–18.8)*			*6 (42.8%) Mortality*

CAD, coronary artery disease; COPD, chronic obstructive pulmonary disease; CVD, cardiovascular disease; DM, diabetes mellitus; Tbc, tuberculosis.

Discussion

OH is also known as the hernia of elderly women with low weight. The female/male ratio is 6/1. Wider obturator foramen and pelvic angle are the predisposing factors in the development of OH in the female patient population. Since sigmoid colon covers the foramen, OH is encountered on the right side, in general. However, bilateral OH can also be seen in 6% of cases.[8] Other predisposing factors in the development of OH can be listed as the inadequate periperitoneal fatty tissue around the vasculature in the obturator canal due to low-weight, broadened and loosened pelvis due to multiparity, increased intra-abdominal pressure due to ascites, and chronic obstructive lung disease, etc.[9]

The complaints of more than 90% of the patients at the time of admission are nausea, vomiting abdominal distension, acute intestinal obstruction, and abdominal pain.[3] Symptoms can be insignificant and the diagnosis can be delayed when the obstruction is partial (i.e., Richter's hernia). According to the literature, Howship-Romberg sign and groin mass are seen in 13% to 65% and 20% of the patients, respectively.[8,10–12] Symptoms and the physical findings of our patients were relevant to the literature (Table 2). Distal ileum is the most commonly involved segment in OH; however, the entire gastrointestinal system segments, including the stomach, colon, and even appendix can be involved (Fig. 1).[10]

OH can be diagnosed with several imaging methods such as x-ray, ultrasonography, and barium-enema; however, abdominal CT is the best method among these. Use of CT in the diagnosis of obturator hernia was first described by Meziane *et al*[13] in 1983. In recent studies, it was indicated that the diagnosis of OH can be made in 100% of cases by abdominal CT. Preoperative diagnosis was able to be made in only 10% to 30% of the cases before the routine use of CT.[14,15] Incarcerated OH diagnosis was made perioperatively during the emergency surgery for small bowel obstruction or preoperatively based on the CT examination findings.[16]

Fig. 1 Incarcerated right obturator hernia in which distal ileum was tethered.

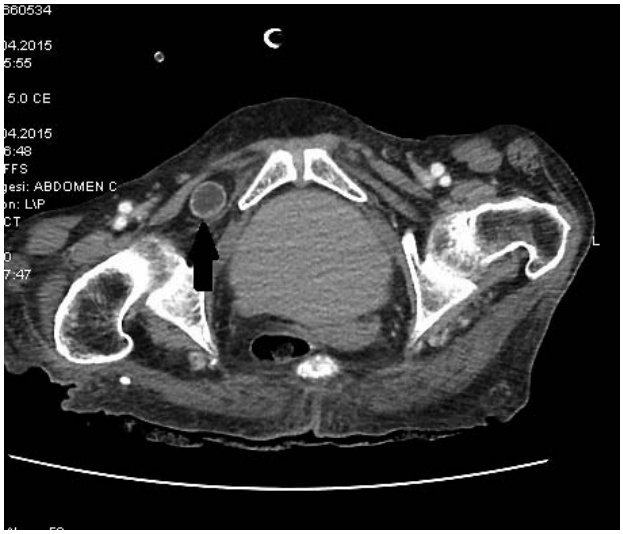

Fig. 2 Intestinal segment herniating to obturator canal.

Herniated intestinal segment can be seen in obturator canal, between pectineus muscle and external obturator muscle in CT images.[2,4] CT is a very useful tool in the diagnosis of OH and it can also be helpful in determination of severity of OH.[17] The diagnostic value of CT in OH is between 80% and 100%, and it is accepted as the gold standard in the diagnosis of OH.[10,18] OH was diagnosed preoperatively in 8 patients with CT while the remaining 6 patients were diagnosed during surgery. Positive predictive value of CT in our series was 100%. The first study about the diagnostic value of abdominal CT in OH identification was published in 1999 by Yokoyama *et al*.[15] They concluded that abdominal CT is useful in early diagnosis, but morbidity and mortality were not reduced with the use of CT in the diagnosis of OH.[15] Nasir *et al*[11] also concluded that abdominal CT is definitely useful in the diagnosis of OH and it helps to decrease the rate of postoperative complications. However, CT didn't reduce the postoperative mortality rates.[11] There are several studies indicating that using CT in the diagnosis of OH reduces the mortality rate since early diagnosis and early intervention can be made with the use of CT.[5,10] The rate of strangulation was reported as 25% to 100% in the literature in patients with OH.[19]

Fig. 3 Incarcerated intestine at the obturator canal and dilated proximal segments.

In this retrospective multicenter study including 14 OH patients, it was observed that small bowel short segment ischemia was developed in 12 patients (85.7%) without severe intra-abdominal peritonitis, while the remaining 2 patients were diagnosed as Richter hernia. The mortality ratio was reported as 11% to 70% in elderly patients with comorbidities.[3,15,20] The total mortality rate was 42.8% in our series. Three (37.5%) of the 8 patients who had an early diagnosis with abdominal CT died, while 3 (50%) patients who had the diagnosis after laparotomy died. Early diagnosis with CT did not reduce the rate of ischemic bowel (Table 3). We think that high mortality rates are related to the additional comorbidities in elderly patients not related to the delay of the diagnosis. General anesthesia and conventional surgery were performed in 7 patients and 4 (57.1%) of them died during the postoperative period. General anesthesia and laparoscopic surgery were performed in 3 patients and 2 (66.6%) of them

Table 3 Computed tomography and preoperational findings

	Patients, n	Mortality, n (%)	Ischemic bowel, n (%)
Diagnosis with preoperative CT	8	3 (37.5)	8 (100)
Diagnosis with diagnostic laparotomy	6	3 (50)	4 (66.6); remaining 2 were Richter hernia
Total	*14*	*6 (42.8)*	

died during the postoperative period. The remaining 4 patients were operated with a minimally invasive incision (>5 cm) under epidural anesthesia and postoperative epidural analgesia was performed. No mortality was observed in this group (Table 2). We can assert that type of surgery and anesthesia type has an important effect on mortality in elderly patients with multiple comorbidities. Further studies are necessary in order to make a conclusion about the effects of surgery and anesthesia choice on mortality in these elderly patients with OH.

Conclusion

The choice of anesthesia and surgery can reduce the mortality rates in patients with OH, indicating that the high mortality rates in elderly patients with OH are related with additional comorbidities. Abdominal CT is the golden standard in the diagnosis of OH with a high diagnostic value.

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