ORIGINAL ARTICLE

Diagnosis and treatment of obturator hernia

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Abstract. Obturator hernia is a rare type of hernia, but it is a significant cause of intestinal obstruction due to the associated anatomy. Correct diagnosis and treatment of obturator hernia is important, because delay can lead to high mortality. Twelve patients with obturator hernia were managed during a 11-year period, including 11 women and 1 man with a mean age of 82 years. We compared our experience with the previously published data to establish standards for the diagnosis and treatment of this hernia. All 12 patients presented with intestinal obstruction. The median interval from admission to operation was 2 days. The Howship-Romberg sign was positive in 5 patients. A correct diagnosis was made in all 8 patients who underwent pelvic CT scanning. Surgery was performed via an abdominal approach (n = 7) or an inguinal approach (n = 5). The hernial orifice was closed using the uterine fundus (n = 6), a patch (n = 5), and direct suture (n = 1). Mean follow-up time was 33 months, and no recurrence has been detected. The poor physical condition of patients might have led to a delay in diagnosis and treatment. In troubled patients with nonspecific intestinal obstruction, CT scanning is useful for the early diagnosis of obturator hernia. Correct CT diagnosis of obturator hernia allows us to select the inguinal approach combined with patch repair, which is minimally invasive surgery. (Keio J Med 51 (3): 129–132, September 2002)

Key words: obturator hernia, diagnosis, treatment, CT (scanning)

Introduction

The obturator foramen is the largest foramen in the body, being formed by the rami of the ischium and the pubis. The obturator canal is 2–3 cm long and 1 cm wide, and it contains the obturator nerve and vessels.[1] Obturator hernia was first described in 1724, and was recently reported to account for 0.05–0.14% of all hernias and 0.2–1.6% of all small bowel obstruction.[2,3] A total of 600 cases were detected by a search of the English literature from 1980 to 1992.[2] There are three stages of obturator hernia.[1] The first stage is the entrance of preperitoneal tissue into the pelvic orifice of the obturator canal, while the second stage involves the development of a dimple in the peritoneum overlying the canal. The third stage is the onset of symptoms produced by entrance of an organ into the canal. The hernia sac may contain the small bowel, large bowel, omentum, fallopian tube, or appendix.[1] In more than half of all patients with obturator hernia, the presenting symptom is partial small bowel obstruction.[1]

We compared our experience with the previously published data to establish standards for the diagnosis and treatment of this hernia.

Patients and Methods

Twelve patients with obturator hernia were managed at Shizuoka Red Cross Hospital during an 11-year period from September 1991 to February 2002 (Table 1). Their clinical records were retrospectively reviewed to determine the age, gender, body weight, height, previous illnesses, history of delivery for women, symptoms, operative details, and postoperative course.

The mean age was 82 years (range: 68–95 years). There were 11 women and 1 man. The mean weight was 33 kg (range: 25–48 kg), the mean height was 144 cm (range: 138–148 cm), and the mean body mass index (BMI) was 15 (patient range: 13–19; normal range: 18–26). The mean number of deliveries for women was 3.1 (range: 0–6).

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Table 1 Clinical and Surgical Details in 12 Patients

Patient No	Age/ Gender	CT	HRS	Preoperative diagnosis	Interval (days)			Operative approach	Anesthesia	Stage		Bowel obstruction	Bowel resection
					A	B	C			right	left		
1	92/F	Yes	Positive	Yes	0	1	1	Inguinal	Lumbar	–	3	Partial	No
2	90/F	Yes	Positive	Yes	1	0	0	Inguinal	Lumbar	3	–	Partial	No
3	87/F	Yes	NA	Yes	1	1	1	Inguinal	Lumbar	3	–	Partial	No
4	85/F	Yes	Negative	Yes	6	1	1	Inguinal	General	–	3	Complete	Yes
5	95/F	Yes	NA	Yes	6	0	0	Inguinal	General	3	–	Partial	No
6	76/F	Yes	NA	Yes	6	4	3	Abdominal	General	2	3	Complete	Yes
7	84/F	Yes	NA	Yes	0	2	0	Abdominal	General	2	3	Partial	Yes
8	84/F	Yes	NA	Yes	3	14	7	Abdominal	General	3	0	Complete	Yes
9	68/F	No	Positive	Yes	9	28	–	Abdominal	General	2	3	Partial	Yes
10	73/F	No	Positive	Yes	3	15	–	Abdominal	General	0	3	Partial	No
11	76/F	No	Positive	Yes	677	6	–	Abdominal	General	3	0	Partial	No
12	73/M	No	NA	No	10	2	–	Abdominal	General	3	0	Partial	No

HRS; Howship-Romberg sign. NA; Data was not available. Interval A; Interval from the onset of symptoms to admission. Interval B; Interval from admission to operation. Interval C; Interval from CT to operation.

Results

Clinical presentation

The median interval from the onset of symptoms to admission was 7 days (range: 0–677 days). All 12 patients presented with intestinal obstruction. One patient had a palpable mass located medial to the femoral artery (Table 1, Patient No. 1), while the Howship-Romberg sign was present in 5 patients. There was a history of previous attacks and subsequent remission in 5 patients. Eleven patients had concomitant medical problems on admission (Table 2), and their poor physical condition might have led to a delay in diagnosis and treatment. None of the patients had undergone previous abdominal surgery.

Table 2 Concomitant Medical Problems in 12 Patients

Disease	No.
Presence (n = 11)	
Hypertension	5
Kyphoscoliosis	4
Lung disease	3
Ischemic heart disease	1
Cardiac arrhythmia	1
Arthritis	1
Cerebral vascular disease	1
Duodenal ulcer	1
Absence (n = 1)	
Total	17

Computed tomography

A correct diagnosis was made in 11 patients (11/12, 91%). All 8 patients who underwent pelvic CT scanning received a correct diagnoses (Fig. 1A, 1B). In the remaining 4 patients who did not undergo pelvic CT, the correct diagnosis was made in 3 because of the Howship-Romberg sign. In one patient (Table 1, Patient No. 12), the diagnosis was not made before surgery for acute intestinal obstruction.

Operative findings

The median interval from admission to operation was 2 days (range: 0–28 days). The median interval from CT to operation (n = 8) was 1 day (range: 0–7 days). After CT scanning, a delayed operation was performed for two patients (Table 1, Patient No. 6 and 8). One patient (Table 1, No. 6) complained of an abdominal mass at for right lower quadrant and was initially scheduled to receive surgery ascending colon cancer, but CT failed to show ascending colon cancer and revealed the presence of obturator hernia. The patient underwent surgery for obturator hernia on the initially planned day. Patient (Table 1, No. 8) at first refused all treatment for intestinal obstruction, but consented later. The patient underwent surgery on the consented day.

Surgery was performed via an abdominal approach (n = 7) or an inguinal approach (n = 5). The hernial sac contained the small bowel in all 12 patients (stage 3 hernia). Nine patients had evidence of partial bowel obstruction. The hernia was on the right side in 10

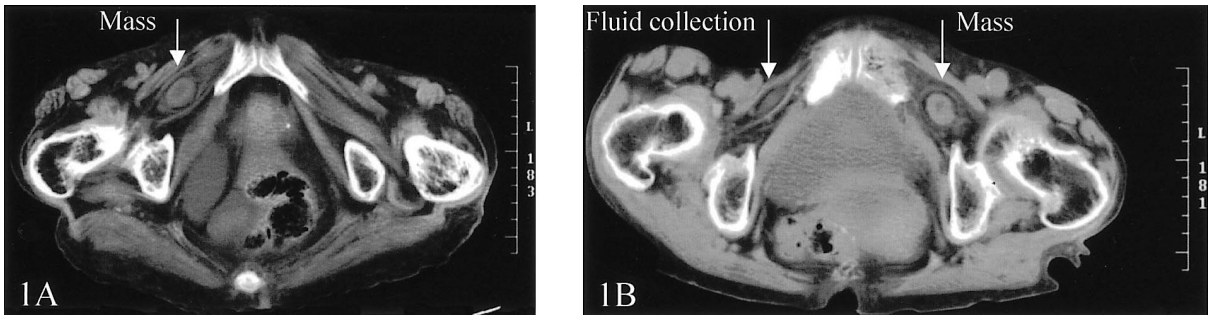

Fig. 1 Computed tomography of strangulated obturator hernia. (A) Computed tomography (Table 1, Patient No. 4) reveals a mass lying between the obturator externus and pectineus muscles. (B) Computed tomography (Table 1, Patient No. 6) reveals a mass on the left side and a fluid collection on the right side.

patients and on the left side in 6 patients. In 3 of the 7 patients who were operated on via an abdominal approach, bilateral obturator hernias were detected. In these 3 patients, one each of the hernias was stage 2 and stage 3, respectively. Small bowel resection was performed in 5 patients. The hernial orifice was closed using the uterine fundus (n = 6), a patch (n = 5), and by direct suture (n = 1).

Morbidity and mortality

The mean hospital stay was 30 days (range: 8–50 days). Postoperative complications included wound infection (n = 2) and pneumonia (n = 1). The patient complaining of postoperative pneumonia died 2 months after surgery, and had a history of emphysema and required postoperative ventilation (Table 1, Patient No. 12). No recurrence has been detected with the mean follow-up of 33 months (range: 1–125 months) for the surviving 11 patients.

Discussion

More than 90% of patients with obturator hernia present with intestinal obstruction that causes pain, nausea, and vomiting.[2] One third of the patients have a history of previous attacks of small bowel obstruction.[1] The symptoms of obstruction may subside initially, because transient herniation can resolve spontaneously. Obturator hernia occurs most commonly in debilitated elderly people, because of loss of the protective fat in the obturator canal.[4] Women are affected 6–9 times more often than men, because of their broader pelvis and larger obturator canal.[5,6] Chronic lung disease, constipation, kyphoscoliosis and pregnancy can all predispose to herniation by increasing the intra-abdominal pressure.[7] Herniation is more frequent on the right side, because the sigmoid colon tends to prevent it on the left. These characteristic clinical features of most previous series corresponded to those of our series. There was only one made case of man in our series, who underwent emergency surgery for acute intestinal obstruction, and died of pneumonia 2 months after surgery (Table 1, Patient No. 12).

Obturator hernia seldom causes swelling in Scarpa's triangle as it is located deeply between the pectineus and adductor longus muscles.[1] Palpation from the rectum or vagina can confirm the presence of an obturator hernia, if the suspicion is already in the examiner's mind. However, physical findings of obturator hernia are relatively nonspecific, and the chronic pain is sometimes misinterpreted as rheumatoid arthritis.[4] Preoperative diagnosis is often delayed, and is made correctly in only 10–30% of cases.[1,6] Herniography revealed 15 obturator hernias in 850 patients with groin pain, but could not be used as an indicator for surgery because the detected hernias were mostly unrelated to the patient's symptoms.[8]

Recently, diagnosis has been successfully achieved by CT scanning, which can clearly demonstrate an obturator hernia as a low-density mass lying between the obturator externus and pectineus muscles.[9] CT was performed in 8 patients with 100% accuracy in our series. We recommend that in debilitated elderly multipregnant women troubled with intestinal obstruction, CT scanning should be carried out first. Because of many medical problems in such patients, other examinations may be too hard and invasive to carry out.

The Howship-Romberg sign is pain extending down the inner surface of the thigh to the knee, which is caused by hernial irritation of the anterior division of the obturator nerve.[6] Flexion of the thigh relieves the pain, while extension, adduction, or medial rotation exacerbates it. The Howship-Romberg sign is pathognomonic of obturator hernia and is present in 25–50% of patients.[1,2] However, the Howship-Romberg sign lately tended to be neglected in our series because of early diagnosis by CT. Before relying on CT diagnosis,

the positive Howship-Romberg sign (n = 3) was more frequently observed in our series since more careful attention might have been paid in patients troubled with nonspecific intestinal obstruction.

The Hannington-Kiff sign refers to an absent adductor reflex in the thigh.[10] A difference compared with the opposite side and a normal ipsilateral patellar reflex are indicators of compression of the obturator nerve. The Hannington-Kiff sign is more specific than the Howship-Romberg sign, but less widely known.[10] Physical examination failed to detect the Hannington-Kiff sign in our series. It is important to keep these traditional signs in mind before undertaking CT.

Strangulation of the herniated viscus eventually occurs and surgical intervention is the only effective treatment. The surgical approach is selected depending on the preoperative diagnosis, with the abdominal approach being most often favored when the diagnosis is unclear. The retropubic approach, obturator approach, and inguinal approach can all give a good result, if a correct diagnosis is made before surgery.[11] Laparoscopic surgery has recently made its debut, but technical complications occurred in 5.3% of patients.[12] Direct suture of the fascial defect is considered sufficient for small hernias, but primary closure of larger defects is difficult because the foramen is bordered by bone and spanned by the obturator membrane.[13] The reported techniques for closure include flaps of periosteal fascia, use of the bladder wall or uterine fundus, and patching with Marlex or Teflon.[14] CT definitely detected obturator hernia in 8 patients from our series. Five of these 8 patients had surgery via the inguinal approach combined with patch repair under lumbar anesthesia (n = 3) or general anesthesia (n = 2). Although there is generally a 6% incidence of bilateral hernia,[5] we recommend patients with obturator hernia to check the opposite site since three bilateral hernias were confirmed at operation via the abdominal approach in our series.

Half of the patients required bowel resection in the previously reported series, because obturator hernia is associated with bowel strangulation.[15] After rupture of a strangulated bowel and the onset of peritonitis, the hernial sac should be opened to avoid abscess formation, as the recurrence rate for unclosed defects is relatively low (10%).[16] Five patients (5/12, 41%) required bowel resection in our series. We found the trend toward bowel resection correlated with the prolonged interval from the onset of symptoms to admission and those from admission to operation. However, CT findings failed to reveal the severity of bowel obstruction or the indication for bowel resection in our series. The Howship-Romberg sign did not correlate with bowel resection, either. Namely, patient with this negative sign (n = 1) received bowel resection, whereas only one bowel resection was required in patients with this positive sign (n = 5). Because data regarding the Howship-Romberg sign was not fully available in our series, we need to investigate more cases to assess the significance of the Howship-Romberg sign.

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