Obturator Hernia- usefulness of CT scan in diagnosis

CHUN-LIN HUANG  YU-BUN NG  I-LI LIN  WEN-PIN CHEN  JOSEPH-HANG LEUNG

Department of Radiology, Chia-Yi Christian Hospital

Obturator hernia is rare. It often occurs in elderly, emaciated women. This problem is usually resolved only by surgery. Because of the lack of obvious external manifestations, non-specific symptoms and signs, and lack of clinical suspicion, the preoperative diagnosis is often elusive. Delayed diagnosis and treatment of this condition usually leads to a high mortality rate. With the use of CT scan, 7 cases of obturator hernia were diagnosed accurately before the operation. Prompt diagnosis and subsequent surgery of obturator hernia could have a good clinical result and reduce the mortality rate.

Key words: Computed tomography (CT); Obturator hernia

Obturator hernia is a rare condition. It is often seen in elderly, chronically ill, and thin women. Due to non-specific signs and symptoms, the diagnosis and treatment of this condition are usually delayed, which has led to high mortality rate. We reported 7 cases of obturator hernia that were diagnosed correctly by computed tomography (CT) before surgery.

MATERIALS AND METHODS

From 2001 to 2004, 7 cases of obturator hernia were diagnosed and treated in our hospital. CT scan (pre and post contrast medium) of abdomen including pelvic area was performed in all 7 patients before surgery. Based on the CT scan findings (incarcerated bowel in the obturator foramen), they were diagnosed as obturator hernia. All 7 patients received operation later. Their age, gender, body weight, delivery history, previous operation history, clinical symptoms, operative findings and postoperative course were all recorded.

RESULTS

The clinical characteristics of the 7 patients were summarized in Table1. All patients were women with a mean age of 78 years (range from 64-86 years) and mean body weight of 38.8 Kg (range from 32-48 Kg). No patients had previous history of abdominal surgery. Howship-Romberg’s sign only existed in one patient. The other six patients presented with abdominal pain, fullness or vomiting and signs of intestinal obstruction. The clinical diagnosis of obturator hernia was not made in all 7 patients before CT scan examination.

Based on the CT scan finding which showed an incarcerated bowel in the obturator foramen, all 7 patients were diagnosed as obturator hernia before surgery. Right side obturator hernia outnumbered left side hernia (R: L = 5:2). Six patients had associated CT scan findings of small bowel obstruction. Abnormal extra-luminal gas collection in obturator canals was noted in one patient and bowel perforation...
was impressed. Blurring of fat plane adjacent to herniated bowel was noted in four patients. Abnormal enhancement of pectineus and obturator externus muscle occurred in two patients. Non-specific mild wall thickening of the herniated bowel was noted in 5 patients. Strangulation hernia was impressed with the combined findings of small bowel obstruction, abnormal extra-luminal gas collection, local inflammation around the herniated bowel and abnormal enhancement of adjacent pectineus or obturator externus muscle. Herniated bowel between pectineus and obturator externus muscle occurred in 4 patients (Fig. 1, 2), and between superior, middle fasciculi of obturator externus muscle occurred in three patient (Fig. 3).

Six patients presenting with acute abdomen underwent surgery as soon as possible after the CT scan. The mean interval between CT scan examination and operation in this six patients was 24 hours (range from 3 to 72 hours). All 6 patients showed small bowel involvement in the hernia sac and segmental resection of small bowel was performed. Pathological findings showed ischemia change of small bowel in all 6 patients, and perforation of small bowel in 3 patients. Only one patient with positive Howship-Romberg’s sign didn’t receive the operation immedi-

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(H-R sign: Howship-Romberg’s sign)

Figure 1. Herniated bowel (arrow head) between right pectineus muscle and obturator externus muscle (arrows).

Figure 2. Herniated bowel (arrow head) between left pectineus muscle and obturator externus muscle (arrows).
ately after CT scan examination. The same attack of left inguinal pain occurred twice previously before the CT scan. The patient’s family asked for observation first rather than operation even CT diagnosis of obturator hernia was made. However another attack of left inguinal pain occurred two weeks later after the CT scan examination. So the patient agreed to receive the elective surgery 3 weeks later after the CT scan diagnosis of obturator hernia. Only hernia orifice repair was performed.

Postoperative complication occurred in two patients. One suffered from acute respiratory failure and the other got pneumonia attack after the operation. After intensive medical care, the two patients recovered smoothly. All 7 patients discharged without mortality.

DISCUSSION

Obturator hernia is a rare condition, and it was first described in 1724 by Arnaud de Ronsil at the Royal Academy of sciences in Paris [1]. Obturator hernia accounting for approximately 0.073% of all hernia had been reported by Bjork et al.[1]. It occurs most often in elderly, multiparous women. Obturator foramen is the largest foramen in the body and is covered by a fibrous-osseous membrane. Obturator canal is an opening in the superolateral part of obturator foramen. It contains obturator nerve and vessels. The canal is 2-3 cm long and 1 cm wide, and it is usually filled with fat and allows no space for hernia. The fat disappears in patients who have massive body weight loss or are very thin. In emaciated elderly people, loss of fatty tissue coupled with increased intra-abdominal pressure facilitates the formation of hernia [1-5]. Women are affected more often due to broader pelvis, larger obturator canal and multiple pregnancy. Although it is still controversial that multiparity is a significant contributory factor [6]. The female to male ratio from 9:1 to 6:1 had been reported [1, 2, 6, 7]. All seven patients in our series were female. The majority of patients are between 70 and 90 years old [6] and emaciation is characteristic of these patients. The mean age of our patients was 78 years old and the mean body weight was just 38.8 Kg. The right and left side hernia are about equally affected in male patients, but in female patients, the right side obturator hernia is involved three time as often as in the left [1, 6]. Five of seven cases in our series had right side obturator hernia. Bilateral obturator hernia occurs in approximately 6-15 % [7].

The clinical course is usually manifested by recurrent bouts of intestinal obstruction with crampy abdominal pain, nausea and vomiting [1-5]. 0.4-1.6% mechanical small bowel obstruction due to obturator hernia had been reported [2, 4, 6]. Thigh or knee pain in the affected side or peritonitis without a history of previous operation may be encountered. Because the signs and symptoms are not specific in obturator hernia and the hernia itself is often not detectable on physical examination, the diagnosis of obturator hernia is difficult. Sometimes the hernia may be felt as a tender swelling in region of obturator foramen on vaginal or rectal examination. Howship-Romberg’s sign, which refers to ipsilateral groin pain radiating down to thigh due to irritation of obturator nerve, is a characteristic sign of obturator hernia. The referred pain is relieved by flexion of the thigh and aggravated by extension, abduction and medial rotation [6], but it is present in only 15-50% [1, 2-4, 6, 7] patients of obturator hernia and often misinterpreted as arthritis in elderly patients. This sign was noted in only one patient in our series. Hannington-Kiff sign is considered more specific than Howship-Romberg’s sign in diagnosing obturator hernia. It manifests as loss of thigh adductor reflex in the presence of a positive patellar reflex [8].

The hernia orifice is small, so incarcerated hernia results in interrupted blood supply and causes ischemia change of bowel loop. The bowel becomes edematous, infarction, leading to gangrene and perforation. Hernia sac contained small bowel in most cases, especially ileum and occasionally large intestine, omentum, fallopian tube or appendix [1, 7]. The hernia sac contained ileum in all 7 patients of our
cases and small bowel gangrene change was noted in 6 patients.

Plain radiographs often show nonspecific findings of small bowel obstruction and seldom helpful in diagnosing obturator hernia. Noticing gas shadow in the obturator foramen area may be helpful. Barium enema or small bowel series can be helpful if a bowel loop is in the obturator canal, but barium study is more time consuming in diagnosing case of acute abdomen and retained barium in bowel loop may increase the risk of subsequent operation. Ultrasonography is useful and reliable in diagnosis of obturator hernia [9, 10], but it is often limited by the relative inaccessibility of this deep region and operator-dependent. The use of CT scan in detecting obturator hernia was first reported by Meziane et al in 1983 [3]. The common CT scan finding is low density mass between obturator externus and pectineus muscle. The low density mass may contain air density in some cases and apparently different from the opposite side [5]. Associated bowel loop dilatation in the abdomen is common. Since the use of CT scan, pre-operative diagnosis rate was improved from 43% to 90% in some report [2]. Using CT scan, all 7 patients in our series could be correctly diagnosed before surgery. CT scan can accurately diagnose not only obturator hernia but also other condition of bowel obstruction.

Three types of obturator hernia have been described: hernia between the pectineus and obturator externus muscle (most common as in our series), hernia between the superior and middle fasciculi of the obturator externus muscle, and hernia between the external and internal obturator membranes (less common) [7].

Surgery through midline incision is preferred for obturator hernia because it gives the best exposure, allows reduction of hernia content and facilitates bowel resection if necessary. Resection of the involved portion of bowel is sometimes required because of gangrenous change or perforation. Six cases in our series received segmental bowel resection due to ischemia change and 3 cases had bowel perforation. The mortality rate of patients with obturator hernia is still high. Reported mortality ranged from 12-70% [1,6,8]. The high mortality is often related to delayed diagnosis, treatment and the debilitated physical condition of the patients. In our series, CT scan was obtained in all 7 patients and proper diagnosis was made before surgery. Post-operative complication occurred in two patients. One patient had pneumonia attack and another patient suffered from acute respiratory failure, but the two patients recovered smoothly after intensive medical care. No mortality occurred in all 7 patients.

CONCLUSION

Obturator hernia, although rare, is a well-documented problem. In many elderly, emaciated, debilitated and ill women, symptoms and signs of small bowel obstruction without previous abdominal surgery history and pain along the ipsilateral thigh and knee (Howship-Romberg’s sign) probably indicated an incarcerated obturator hernia. CT scan is useful in the early diagnosis. Prompt diagnosis and early surgery can reduce the mortality rate and produce good clinical result.

REFERENCE

利用電腦斷層攝影診斷閉孔赫尼亞的好處

黃駿麟 吳汝濱 林怡里 陳文彬 梁恆
嘉義基督教醫院 影像醫學科

閉孔赫尼亞並不常見，主要發生在年紀大且身體瘦弱的女性。因為在臨床症狀的表現上並
無特異性，術前的診斷相當困難，而延遲診斷及延遲開刀的結果，常造成病患的高死亡率。利
用電腦斷層掃描檢查可以提供早期的診斷，使病患能及早接受手術治療，而獲得較好的結果。
最近三年有7位閉孔赫尼亞的病患在本院接受手術治療，所有病人在手術前均接受電腦斷層掃
描檢查並得到術前診斷，後來接受手術治療均獲得良好結果。

關鍵詞：電腦斷層；閉孔赫尼亞