

## Laparoscopic trans-peritoneal hernioplasty (TAPP) is useful for obturator hernias: report of a Case

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**Abstract** A 71-year-old female presented to our hospital due to pain from the right hip joint to the lower abdomen. The pain had suddenly appeared and spontaneously disappeared more than 10 times during the past 2 years. She had visited many hospitals, but remained undiagnosed. The patient underwent a computed tomography (CT) scan of the pelvis, and a soft tissue shadow was seen between the external obturator and pectineal muscles. She was diagnosed with a right obturator hernia and underwent elective repair by laparoscopic trans-peritoneal hernioplasty (TAPP). 1 year has passed since the surgery, without any recurrence of the abdominal pain. Obturator hernias are rare, and most cases are found as incarcerated hernias. It is rare to find an obturator hernia without intestinal obstruction, or with the recurrent pain as in our case. We herein report a case in which an obturator hernia was undiagnosed and intermittent pain was experienced for 2 years prior to TAPP, which appears to have successfully treated the hernia.

**Keywords** Obturator hernia · TAPP · Prosthetic mesh

### Introduction

An obturator hernia is the most common of the three types of pelvic hernias, which include sciatic hernias, obturator

hernias and perineal hernias. Obturator hernias comprise 0.074 % [1] of all hernias, and are most commonly found in thin, elderly females. Approximately 60 % of obturator hernias are found on the right side, and 6 % of cases exhibit bilateral obturator hernias [2]. Other associated inguinal hernias are not uncommon. Pelvic hernias, including obturator hernias, occur approximately six times more often in females than in males because of their broader pelvis and larger lumen of the obturator foramen [2].

Since the hernia mass is usually concealed beneath the pectineal muscle, it is difficult to palpate, and the Howship-Romberg sign is present in about 50 % of cases [3]. These factors make the early detection of such hernias difficult, and lead to a delay in treatment. However, CT scans can accurately diagnosis almost 100 % of these hernias, as long as the pelvic view is taken [4].

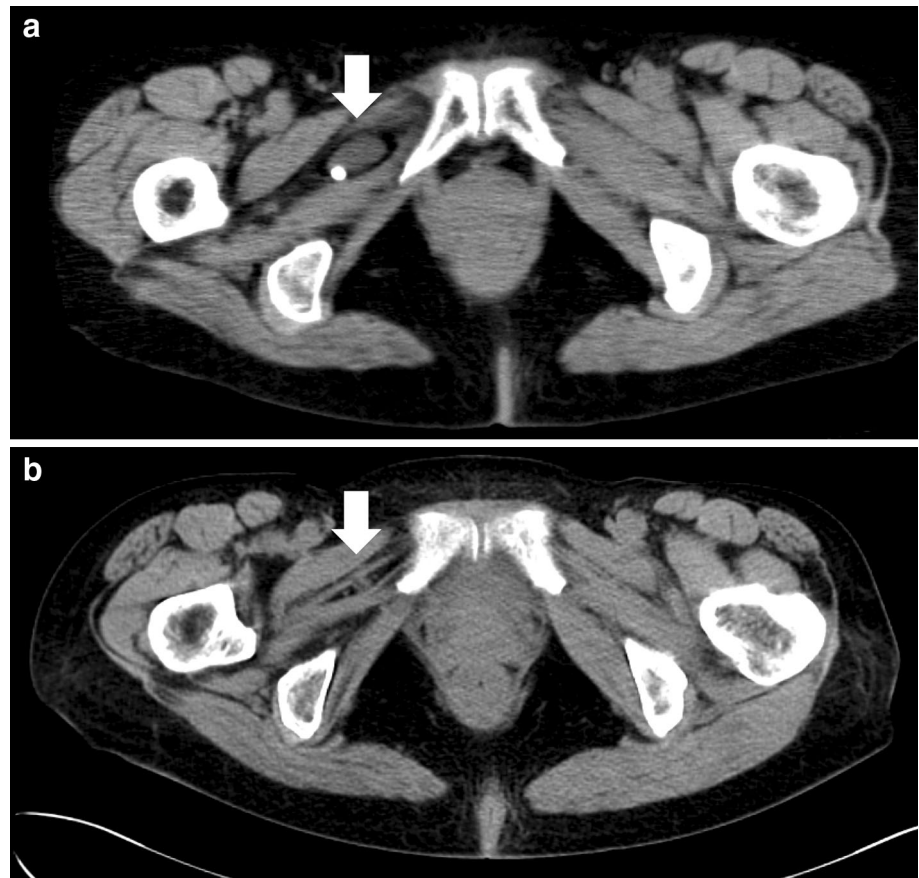
Open surgery has been the major technique used for obturator hernias in many faculties. However, the number of reports using laparoscopic techniques has been increasing. Laparoscopic techniques were reported to be associated with a lower functional loss in the lower extremities, less post-operative complications and a shorter time elapsed before returning to work than conventional methods [5].

### Case report

A 71-year-old Japanese female presented to our hospital for pain from the right hip joint to the lower abdomen. The pain had suddenly appeared and spontaneously disappeared more than 10 times during the past 2 years. She had visited many hospitals, but remained undiagnosed. The patient was a small female, of 148 cm in height, and 42 kg in weight. She had a BMI of 19.2 kg/m<sup>2</sup> and had given birth

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**Fig. 1** **a** A CT scan of the pelvis showed a soft tissue shadow between the external obturator muscle and pectineal muscle. **b** The pelvic CT scan 1 year after surgery. Nothing was observed between the external obturator muscle and the pectineal muscle

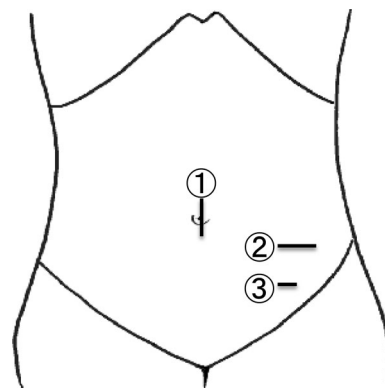


three times. She had undergone an appendectomy at the age of 21, and was diagnosed to have right coxarthrosis at the age of 45.

Her abdomen was flat, and no muscular defense, Blumberg's sign or Howship-Romberg sign was observed. A computed tomography (CT) scan of the pelvis showed a soft tissue shadow between the external obturator muscle and the pectineal muscle (Fig. 1a). There was no connection between the soft tissue shadow and the small intestine. No signs of ileus were observed. Based on the CT scan and the clinical findings, her pain was considered to be due to a right obturator hernia. Since intestinal obstruction was not observed, she underwent elective laparoscopic trans-peritoneal hernioplasty (TAPP).

The laparoscope was inserted by an umbilical port, and two working ports were placed in left lower abdomen (Fig. 2). The laparoscopic evaluation showed a hernia sac without an incarcerated small intestine in the right obturator foramen (Fig. 3). A large sheet of prosthetic mesh was placed in the preperitoneal area to cover the internal inguinal ring, lacuna vasorum and obturator foramen.

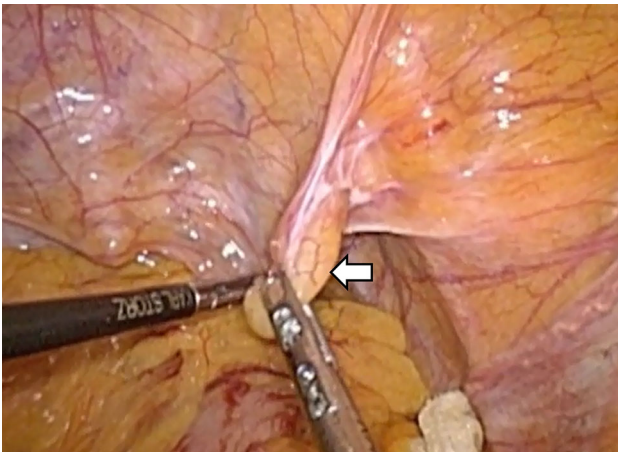
The patient's postoperative course was satisfactory. 1 year has passed since the surgery, without a recurrence of the abdominal pain, and the soft tissue shadow which was seen in the preoperative CT scan has disappeared (Fig. 1b).



**Fig. 2** The laparoscope was inserted via an umbilical port (①), a 12 mm trocar (②) and 5 mm trocar (③) were placed as working ports in the left lower abdomen

## Discussion

Laparoscopic surgical procedures for inguinal hernias have been well established and reported [6, 7], but their usefulness in the treatment of an obturator hernia remains unclear, since these hernias often present in emergency situations. In many facilities, open surgery is still performed to resect the incarcerated bowel that deemed non-



**Fig. 3** The *arrow* shows the hernia sac, which was in the right obturator foramen. There were no hernial contents inside the hernia sac

viable. However, laparoscopic surgery can be performed for obturator hernias, as well as inguinal hernias [8–13].

The preoperative diagnosis of an obturator hernia is usually challenging, since the clinical signs and symptoms are nonspecific. The Howship-Romberg sign is only present in 30–50 % [4, 10] of patients, and palpable masses are detected in less than 20 % [8, 14, 15] of patients. Delays in surgical intervention can contribute to increased need for intestinal resection and perioperative mortality.

The use of preoperative CT has been reported to help decrease the rate of intestinal resection, perioperative mortality [14] and to lead to fewer postoperative complications [10]. However, there have been some reports that there was no benefit in using CT [10, 16]. Nasir et al. [10] suggested that these controversial reports might be due to the low number of cases in each study, which were underpowered to detect the benefit of CT, and the association between delayed CT and a delayed diagnosis. Although there may be some controversial reports, we suggest performing CT scans for patients with abdominal pain without any obvious cause, since it is difficult to diagnose an obturator hernia without CT. The preoperative diagnostic rate was 90 % when the CT was performed, while it was only 5 % without CT [10]. An early diagnosis may lead to early treatment, which can improve the patient outcome.

A previous study reported that bilateral obturator hernias were seen in 6 % of cases, while the association with an inguinal hernia was uncommon [2]. However, recent reports in which laparoscopic surgery was performed showed that 63 % of the patients had bilateral obturator hernias, and 88 % had other associated inguinal hernias [11]. The laparoscopic approach helps complete the examination of the femoral and obturator canals.

Obturator hernias have been reported to recur in about 10 % of all cases if the hernia orifice is left untreated [17]. There are many methods to close the hernia orifice, including simple peritoneal closure, and the use of prosthetic mesh. A large prosthetic mesh can repair all defects, including all inguinal and pelvic hernias, whether existing or potential.

Intestinal obstruction is seen in 88 % of patients, which is usually due to a strangulated hernia [3]. This makes the laparoscopic approach difficult. However, 71 % of the elective cases were treated successfully with a laparoscopic approach in one study [13].

For a complete cure, complete closure of the hernia orifice and an examination for other associated hernias are necessary. TAPP enables both complete closure of the hernia orifice and a thorough examination for other hernias.

As most patients with obturator hernias are elderly and have many kinds of comorbidities, the laparoscopic approach is one of several safe and minimally-invasive methods that can be performed when an emergency operation is not needed.

**Conflict of interest** Yasunori Otowa and co-authors have no conflicts of interest.

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