

# Small Bowel Obstruction Secondary to Obturator Hernia Preoperatively Diagnosed by Ultrasound

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To the Editor: A frail 74-year-old woman visited the emergency department with a chief complaint of “intermittent abdominal pain for 6 days and vomiting for 2 days”. She described her symptoms as a colicky lower abdominal pain that occurred 6 days ago, recurred several times, and resolved spontaneously, but progressed to severe and sustained pain with vomiting 2 days before visiting the hospital. The lower abdominal pain also radiated down to the right medial thigh. Physical examination of the abdomen revealed distention, with intestinal pattern and positive bowel sounds. Tenderness on the lower abdomen was identified, which radiated to the right medial thigh. There was no palpable mass in the abdominal or groin area.

Ultrasonography (US) of the abdomen (Philips iU22 System, Philips, Bothell, WA, USA) showed dilated and hyperperistalsis small bowel with accumulation of large quantities of fluid. Findings were in accordance with a diagnosis of small bowel obstruction. Since the patient complained right medial thigh pain, we took a quick look of this area before ending the scan. On axial scan of the right inguinal region, a hypoechoic mass was incidentally discovered by low-frequency convex probe (C5-2) [Figure 1a]. With high-frequency linear probe (L9-3), the mass with US features of edematous intestinal wall was more clearly depicted, and we found that it was deep to the pectineus muscle and common femoral vessels [Figure 1b and 1c]. The diagnosis of small bowel obstruction secondary to obturator hernia was established. The subsequent computed tomography (CT) also demonstrated a small bowel loop herniating through the obturator foramen, lying between the pectineus and obturator muscles [Figure 1d]. The patient had laparotomy, and a hernia sac containing peritoneum and small intestine passing below the superior pubic ramus was discovered, which confirmed the diagnosis made by US and CT. The hernia was then successfully reduced, and the defect closed with simple suture. The bowel wall showed no signs of ischemia and resection was not necessary. The patient was discharged without complication 6 days later.

The symptoms of obturator hernia are similar to other etiologies of intestinal obstruction. As the hernia content may reduce into the peritoneal cavity spontaneously, the symptoms may be intermittent. On physical examination, it is difficult to palpate the hernia sac as it is usually concealed beneath the pectineus muscle. The only meaningful sign seems to be Howship-Romberg sign, which refers



**Figure 1:** Abdominal ultrasonography and computed tomography of the patient. (a) On axial scan of the right inguinal region, a hypoechoic mass (white arrow) was incidentally discovered by low-frequency convex probe. (b) The mass had features of edematous intestinal wall (white arrow) and was deep to the pectineus muscle. The upper boundary of the obturator hernia could not be seen because it was obscured by acoustic shadow from the pubic ramus (white arrowhead). (c) The hypoechoic mass (white arrow) was much deeper in relation to the common femoral vessels (white arrowhead). This distribution differentiates it from a femoral hernia. (d) Axial computed tomography demonstrated a small bowel loop (white arrow) herniating through the right obturator foramen and lying between the pectineus and external obturator muscles.

to pain along the distribution of the obturator nerve caused by compression of the hernia sac,<sup>[1]</sup> as exhibited in our case. However, it presents in only 15–50% of the patients<sup>[1]</sup> and is almost neglected

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or misinterpreted as pain caused by osteoarthritis, a common ailment in the elderly.

Despite the confusing clinical features, the obturator hernia is no longer a diagnostic challenge given the broad use of US and CT. Due to its advantages of being cost-effective and widely available, US is considered the first choice among diagnostic imaging methods.<sup>[2]</sup> Although low-frequency convex probes can demonstrate the mass around the inguinal area, using a high-frequency linear probe (which has been proved successful in the diagnosis of acute appendicitis) can be of great utility in making the definite diagnosis. As in this case, the linear probe demonstrated that the hypoechoic mass was, in fact, edematous intestine wall deep to the pectineus muscle [Figure 1b]. It is much deeper in relation to the common femoral vessels [Figure 1c]. This distribution immediately differentiates it from a femoral hernia, which occurs through a space bounded laterally by the femoral vein. On longitudinal scan, the upper boundary of the obturator hernia cannot be seen because it is obscured by the acoustic shadow of pubic ramus [Figure 1b]. The main disadvantage of US is its efficacy is mainly dependent upon the operator's experience, who may miss the diagnosis by not scanning the inguinal and femoral region or not observing the mass properly with the different types of probes.

The only treatment for an obturator hernia is surgery, which includes laparotomy and laparoscopic surgery. As the mortality of obturator hernia is the highest among all abdominal wall hernias (13–40%),<sup>[3]</sup> timely and correct preoperative US diagnosis is essential for early

surgical intervention and thereby, minimizing morbidity and mortality.

In conclusion, a high suspicion for an obturator hernia should be raised when assessing an elderly and frail woman presenting with intermittent symptoms of intestinal obstruction and medial thigh pain. In this setting, operators of US should scan the inguinal and femoral region, even though it is not specifically requested by the clinician. If any positive findings are discovered, combined use of high-frequency linear probes can result in more detailed anatomical information that is crucial in making the correct diagnosis.

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### Conflicts of interest

There are no conflicts of interest.

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