

## Case Report

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# Novel use of a uterine patch repair of an obstructed obturator hernia

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### Abstract

We report the case of a female in her nineties who developed a small bowel obstruction secondary to an obturator hernia. Our case describes reduction and repair of the hernia by utilising the uterine cornu as a patch to the obturator canal. This technique has a decreased risk of infection compared to synthetic mesh repair, and reduces the risk of early recurrence that would be seen with reduction of the hernia alone.

**Abbreviations:** CT: Computed Tomography.

### Introduction

Obturator hernia occurs when intra-abdominal tissue herniates through the obturator canal [1]. Obturator hernias are rare hernias comprising 0.07-1% of hernia presentations in the Western world, and are a rare cause of bowel obstruction [2-5]. They are reported in literature to be the cause of as few as 0.4% of all small bowel obstructions [2-4]. Obturator hernias typically occur in elderly females, with greatest incidence in the seventh and eighth decade of life [3-6]. Presentation is often vague, resulting in considerable delay from onset of symptoms to surgical intervention. Delayed diagnosis coupled with often poor baseline function and comorbidities is thought to result in the associated high morbidity rate, of up to 70% [3,6,7]. Typical surgical intervention is through midline laparotomy and reduction of hernia alone, or with repair of hernia defect often through primary suture repair or with synthetic mesh placement [2,8].

We report a case of a female in her nineties who developed a small bowel obstruction secondary to an obturator hernia in

which the uterine cornu was used to patch the hernia defect. This approach to repair is hypothesised to have a lower risk of infection than that seen with synthetic mesh placement, and a lower risk of recurrence seen with reduction of hernia alone without repair [9].

### Case presentation

A woman in her nineties initially presented to a rural hospital with acute on chronic back pain. She denied previous abdominal surgeries and her only medical comorbidities were chronic back pain, gastro-oesophageal reflux disease and hypertension. She was multiparous and reported a loss of 15-20 kilograms secondary to reduced oral intake in the months prior to presentation. On admission she had opened her bowels in the emergency department, denied abdominal pain and had a soft and non-tender abdomen.

Due to her atypical presenting complaint, there was no initial concern for bowel obstruction. She was initially admitted

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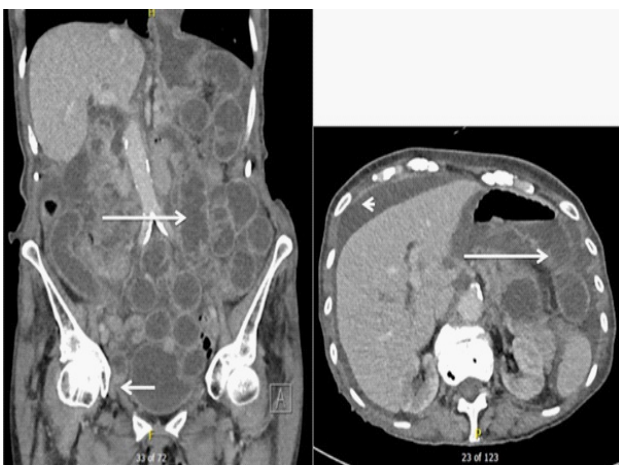
for analgesia for acute on chronic back pain. On review of this patient on day 2 of admission, she remained haemodynamically stable but had developed nausea and vomiting and her bowels had not opened since presentation. She continued to pass flatus. Her abdomen was soft but grossly distended and generally tender on palpation, with inaudible bowel sounds. There were no appreciable inguinal or femoral hernias. The Howship-Romberg sign could not be decisively elicited due to patient's underlying chronic back pain and sciatica.

A Computed Tomography (CT) scan was performed of her abdomen and a right sided obturator hernia causing a high grade small bowel obstruction was demonstrated. There was an associated moderate volume of ascites, although no features of small bowel compromise were evident (Figure 1).

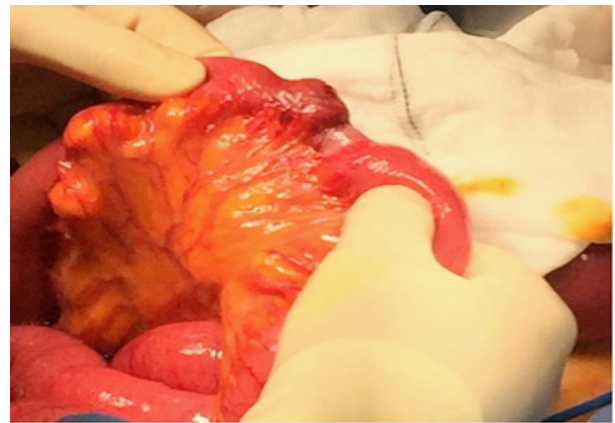
Biochemical analysis of blood for electrolytes, renal and liver function revealed potassium 4.6 mmol/L (3.5-5.2 mmol/L), chloride 104 mmol/L (95-110 mmol/L), creatinine of 106 umol/L (40-100 umol/L), total bilirubin 19 umol/L (<20 umol/L), conjugated bilirubin <4 umol/L (<4 umol/L), white cell count  $13.0 \times 10^9/L$  ( $3.5-11 \times 10^9/L$ ) and normal liver function tests.

The patient was resuscitated with intravenous fluid, and booked and consented for urgent surgery. A lower midline laparotomy was performed and a right sided obturator hernia containing the antimesenteric wall of viable small bowel was identified (Figure 2). The bowel was easily reduced with gentle traction of the small bowel, and the transition point was clearly evident at this level (Figure 3). The uterus was gently retracted into the pelvis, and the cornu of the uterus was used as a patch repair by suturing it to the defect with 3-0 prolene.

The patient was returned to the surgical ward for monitoring. She was managed with analgesia, strict electrolyte maintenance and replacement, slow diet upgrade as tolerated and multidisciplinary input from the allied health team. She was discharged to her own home on post-operative day 8. She is now well, independent, and has resumed daily activities.



**Figure 1:** Axial and coronal views of the pre-operative Computed Tomography (CT) scan, demonstrating a dilated small bowel loops (long arrow), free fluid above the liver (arrowhead) and a loop of small bowel protruding into the obturator canal (small arrow).



**Figure 2:** Intraoperative photo of small bowel showing small bowel reduced from inside the hernia canal.

### Discussion

Obturator hernias are a rare type of hernia reported to comprise between 0.05 and 1.4% of all hernias in the Western world and are a rare cause of bowel obstruction [1-4]. They occur when abdominal contents herniate through the obturator foramen [1-4]. They are reported in the literature to be the cause of as few as 0.4% of all small bowel obstructions [1-4]. Up to 80% of patients with obturator hernias will present with small bowel obstructions and 30% of patients reporting recurrent episodes of symptoms suggestive of spontaneously resolving bowel obstruction [1-4]. Diagnosis is often challenging and, as a result, often occurs intraoperatively during exploratory laparotomy for non-resolving small bowel obstructions. Diagnosis can be difficult due to vague presenting symptoms and limited examination findings, with most patients presenting with a bowel obstruction without an obvious cause [1,4]. It has historically been reported in literature that only 10% of patients are diagnosed pre-operatively, but with increasing utilisation of CT preoperative diagnosis is increasing, with reported sensitivity of CT scans at 78-100% in detecting obturator hernia [3-6,9]. It has been reported that the implementation of preoperative CT scans reduces bowel resection rates and improves mortality associated with an obturator hernia [5].

Morbidity and mortality rates associated with small bowel obstructions secondary to an obturator hernia are high (with mortality rates recorded of up to 70%), this is presumed secondary to delay in diagnosis and treatment [3-7]. Obturator hernias are more frequent in elderly patients over the age of 70, and in women compared to men (9 fold increased risk) [1,3,4,7]. They can occur bilaterally in 15% of cases and more commonly occur on the right side compared to the left, and it is speculated that this occurs as the left obturator foramen is commonly covered by the sigmoid colon [3,4,5,7]. It is hypothesised that the increased prevalence in women is due to the wider female pelvis, and thus more horizontally orientated obturator canals with a more triangular opening [3,7]. Risk factors for development of an obturator hernia include malnutrition, perineal weakening, triangular shaped obturator canal, advanced age, and previous pregnancy [3,4,6]. It is typically seen in elderly multiparous women after rapid weight loss results in loss of protective fat and connective tissue from the obturator canal [1,3,4].

The classical sign of an obturator hernia described in literature is the Howship-Romberg sign which is reported to be present in up to 50% of patients [3-5]. The Howship-Romberg sign is ipsilateral medial thigh or knee pain and results from irritation and compression of the obturator nerve, and pain is elicited by extension, abduction and internal rotation of the hip [6,7].

Surgical intervention is the only available treatment option for obturator hernia [1]. Lower midline laparotomy is the favoured surgical technique for repair as it allows for adequate access and view of obturator canal, obturator nerves and vessels, particularly in patients where there is concern for ischaemic bowel [1,2]. It also facilitates safe resection of bowel which is required in up to 80% of cases [3,7]. Longer duration of symptoms prior to surgical intervention is associated with higher resection rates [3,7].

There are numerous described surgical techniques for treatment of an obturator hernia [2,4]. The hernia can be reduced without closure of defect, with a low reported recurrence rate of only 10% [2,8]. This is often preferred if there is concern for potential damage to obturator nerves or vessels with attempt at closure [2,8]. Other methods include primary closure of the obturator defect through suture repair, or with the use of mesh or organs to close the defect [1,2,8]. Open, laparoscopic and inguinal approaches have all been described in literature [1,2,8]. Laparoscopic repair is favoured in select patients as it has the lowest rates of major complications and shorter hospitalisation lengths, with the totally transabdominal preperitoneal repair being favoured over the extraperitoneal approach due to the ability to assess viability of potentially incarcerated organs [1,10]. Mesh repair over reduction of hernia alone is favoured when appropriate due to lower rates of early recurrence [8]. In patients with peritonitis, typically a midline laparotomy incision is utilised as it allows prompt release of obstruction, peritoneal lavage and sufficient access for bowel resection if required [8]. Prosthetic mesh placement is often contraindicated in patients requiring bowel resection due to infection risk from operative field contamination [8]. The inguinal approach is limited to cases with confirmed preoperative diagnosis and is inappropriate in a patient where it is suspected bowel resection will be required due to limitations in ability to assess bowel viability [6]. A case series from Tokyo Metropolitan Geriatric Hospital reported use of uterus to repair hernia defect in 20 patients from 1968 to 1999 [11]. A recent article described the technique of a uterine flap as a novel way to repair an obstructed obturator hernia [12]. A recent systematic review has reported recurrence rates after mesh repairs at 2%, compared to 4% for patients where a tissue patch has been performed, and 10% for suture repair [13].

### Conclusion

Obturator hernia, although rare, is an important cause of small bowel obstruction particularly in elderly women with high associated morbidity and mortality resulting from delayed diagnosis. Clinicians should remain vigilant to the vague presenting symptoms of obturator hernia, and consider early CT imaging in all at-risk patients, particularly elderly females with recent weight loss. Open patch repair utilising the uterine cornu is a simple yet effective method of repairing obturator hernias, with

lower reported recurrence rates than suture repair and should be considered in patients in which operative field contamination makes synthetic mesh utilisation inappropriate. Early diagnosis and treatment is an important factor in minimising morbidity and mortality, thus obturator hernia should be considered as a differential diagnosis in high risk individuals presented with signs and symptoms of bowel obstruction.

### Declarations

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