Unusual presentation of more common disease/injury

Incarcerated femoral hernia containing ovary and fallopian tube in a 54-year-old

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Summary

While accounting for a small proportion of groin hernias, femoral hernias have the greatest propensity to incarcerate and strangulate leading to significant morbidity and mortality. The authors present a case of a 54-year-old multiparous female presenting with a new firm painful left-sided groin lump for 1 day. Incarcerated femoral hernia was diagnosed clinically and open surgical repair was undertaken. At surgery a viable ovary and fallopian tube were found in the hernial sac and returned to the pelvis. This case emphasises the importance of awareness of the variety of pathologies that may be encountered in emergency hernia surgery and highlights the value of preoperative radiology in such cases.

BACKGROUND

Femoral hernias account for approximately 2–8% of all groin hernias. They occur four to five times more frequently in females than in males and have a peak incidence in those between 30 and 60 years old.^{1 2} Multiparity and elevated intra-abdominal pressure that occur in patients with constipation, obstructive lung disease and pregnancy issues are implicated in their aetiology.¹ Due to the narrow defect of the femoral ring and its rigid ligamentous borders, incarceration is observed far more frequently in femoral hernias than other abdominal hernia.³ We present an unusual case of a 54-year-old woman who presented to our institution with an incarcerated femoral hernia containing the left ovary and fallopian tube.

CASE PRESENTATION

A 54-year-old multiparous female presented to the emergency department with a 5-day history of colicky, severe left-sided flank pain radiating to the groin and a 1-day history of a tender lump in the left groin. She had nausea and anorexia but denied urinary frequency, dysuria or urgency. Her bowel habit was regular.

Of note in her history was that she had two episodes of spontaneously resolving ureteric colic. She was on rabeprazole (Janssen-Cilag, Bucks, UK) for oesophagitis, tramadol (Grünenthal-GmbH Aachen, Germany) for cervical intervertebral disc prolapse, fesoterodine (Pfizer, Illertissen, Germany) for stress/urge urinary incontinence and tamoxifen (Astra-Zeneca, Cheshire, UK) for severe intractable mastalgia. She was penicillin allergic and had one son who suffered from recurrent urolithiasis secondary to cystinuria. She had a 20 pack/year smoking history.

She was normotensive and afebrile at presentation. Examination revealed her abdomen to be soft with tenderness at the left renal angle and in the left iliac fossa. There was an irreducible firm tender lump palpated below the level of the left inguinal ligament and lateral to the pubic tubercle. She had haemorrhoids on per rectal examination.

INVESTIGATIONS

Her haematological and biochemical markers were all within normal range. Specifically the white cell count was 11 900/ μ l with neutrophils of 7300/ μ l, and C reactive protein was 1.7 mg/l. Urinary microscopy revealed less than 20 white blood cells and red blood cells per cm². An abdominal x-ray was unremarkable.

TREATMENT

A clinical diagnosis of a left incarcerated femoral hernia was made. She underwent an open femoral hernia repair that evening using a low approach. On opening the hernia sac a dusky ovary and fallopian tube were visualised (figure 1). Normal colour returned to both structures on releasing constriction at the neck of the hernia and they were successfully reduced back to the pelvic cavity. The hernia sac was excised and a pectineal ligament repair was performed. The patient had an uneventful recovery and was discharged on the fourth postoperative day.

OUTCOME AND FOLLOW-UP

The patient had an uneventful recovery and was discharged on the third postoperative day. To date no recurrence of her femoral hernia has been noted at 2-week and 6-month follow-up.

DISCUSSION

Femoral hernias occur when a viscus or part of a viscus (usually omentum or bowel) herniate through the femoral canal, the most medial compartment of the femoral sheath. The internal opening of this defect is known as the femoral ring.¹ This narrow space is bounded by the lacunar ligament medially, the inguinal ligament anteriorly, the pectineal ligament (Cooper's ligament) posteriorly and the femoral vein laterally. It contains lymphatics and the lymph node of Cloquet and functionally acts as a potential space that can be occupied by the dilated femoral vein at times of increased venous return.⁴

Figure 1 Intraoperative image showing fallopian tube and ovary following opening of the femoral hernia sac.

Femoral hernias can represent a diagnostic challenge. They typically present as a painless or painful groin lump, although may present simply as groin pain or with features of their complications such as obstruction. A differential diagnosis for a groin lump in females includes groin hernia (inguinal/femoral/obturator), lymphadenopathy, femoral artery aneurysm/pseudoaneurysm, abscess and subcutaneous tumour (lipoma etc).^{5 6}

The anatomical location of the ovaries and fallopian tube at a level below this aperture makes herniation of these structures through it unusual, particularly in adults.⁶ It is thought that acquired weakness in the pelvic wall in the multiparous female plays an aetiological role in the development of femoral hernias in this population.¹

The presence of ovary and/or fallopian tube in an inguinal hernia sac is relatively uncommon. In one study of 1950 groin hernia cases there were seven cases of inguinal hernias with ovary or fallopian tube as their contents, four of which were in adults.⁷ By comparison, there are only a relatively small number of reports in the world literature of femoral hernias containing ovary contents dating back to 1892. In a detailed search of the world literature, 15 cases of incarcerated femoral hernia containing fallopian tube were identified, of which six cases also contained ovary and three occurred in children.^{5 6 8–14}

While the finding of an ovary in a groin hernia is rare, clinical suspicion warrants prompt assessment and intervention. The ovary is quite sensitive to ischaemia.^{15 16} Should it tort or become incarcerated in a femoral hernia sac, a delay in diagnosis may necessitate its resection.⁶ This may subsequently impact upon fertility in women of childbearing age. Unfortunately in the majority of cases, this finding is only diagnosed at surgery as in many cases the preoperative imaging of a clinically incarcerated femoral hernia is considered unnecessary. Ultrasonography of a

suspicious groin lump and pelvis will readily identify the location of the ovaries and Doppler ultrasound may identify reduced blood flow and thus could be considered a valuable preoperative investigation in women of childbearing age presenting with femoral hernia provided it caused no delay in the timing of surgery. While cross-sectional imaging with CT may be similarly helpful in identifying a groin hernia containing an ovary its use is not routine in investigation of such a groin lump.¹⁷

Operative management of a femoral hernia that is known to contain an ovary follows the same principles of surgery for any other femoral hernia. Various techniques exist to close the defect at the femoral ring including mesh plug repair, which is considered to have the lowest recurrence rate, and Cooper's ligament repair.¹ Viability of the ovary should be tested by releasing constriction at the neck of the hernia and a salpingo-oophorectomy should be performed if the ovary cannot be preserved.

There is little evidence suggesting a role for resection of a viable healthy ovary in the postmenopausal population in this situation, perhaps as it is rarely performed due to the increased operative time required and potential additional morbidity. Of note, one study in the paediatric population demonstrated two cases of macroscopically viable ovaries with microscopic evidence of infarction on biopsy.¹⁸ While oophoropexy has an established role in the prevention of recurrent ovarian torsion occurring in situ, there is at present no evidence to suggest a higher risk of torsion in cases where an ovary has been previously incarcerated in a groin hernia. Another worthwhile consideration raised by this case is whether the possibility of oophorectomy should be routinely discussed during the process of informed consent, preoperatively in women undergoing femoral hernia repair.

Learning points

- ▶ An appreciation of the broad variety of pathologies that may be encountered in groin hernias is important to preoperative planning.
- ▶ While an incarcerated hernia is primarily a clinical diagnosis, preoperative imaging may identify patients whose hernias have unusual contents.
- ▶ Ovarian torsion may complicate an incarcerated hernia in females, an important consideration in those with painful hernia.

Competing interests None.

Patient consent Obtained.

REFERENCES

1. **Hachisuka T**. Femoral hernia repair. *Surg Clin North Am* 2003;**83**:1189–205.
2. **Stagnitti F**, Toccaceli S, Spaziani E, *et al*. The femoral hernia: problems in emergency surgery. *G Chir* 2006;**27**:290–4.
3. **Sorelli PG**, El-Masry NS, Garrett WV. Open femoral hernia repair: one skin incision for all. *World J Emerg Surg* 2009;**4**:44.
4. **Lytle WJ**. Inguinal anatomy. *J Anat* 1979;**128**(Pt 3):581–94.
5. **Ichinokawa M**, Okada T, Sasaki F. Incarcerated femoral hernia with ovary and fallopian tube torsion in an infant: a rare occurrence. *Pediatr Surg Int* 2008;**24**:1149–51.
6. **Alzarraa A**. Unusual contents of the femoral hernia. *ISRN Obstet Gynecol* 2011;**2011**:717924.
7. **Gurer A**, Ozdogan M, Ozlem N, *et al*. Uncommon content in groin hernia sac. *Hernia* 2006;**10**:152–5.
8. **Almond TH**. Inclusion of the ovary in a femoral hernia. *Can Med Assoc J* 1963;**89**:1153.
9. **Atmatzidis S**, Chatzimavroudis G, Dragoumis D, *et al*. Incarcerated femoral hernia containing ipsilateral fallopian tube. *Case Report Med* 2010;**2010**:741915.
10. **Keasling JE**. Incarcerated femoral hernia containing an ovary. *J Am Med Assoc* 1959;**170**:2184–5.
11. **Kotlinska MA**, Ragg JL, Poole DR, *et al*. Groin swelling: unexpected findings. *J Obstet Gynaecol* 2009;**29**:562–3.
12. **Maylard AE**. Strangulated Hernia of the Left Ovary in the Femoral Region. *Br Med J* 1892;**1**:761–2.
13. **Tsushimi T**, Takahashi T, Gohra H, *et al*. A case of incarcerated femoral hernia in an infant. *J Pediatr Surg* 2005;**40**:581–3.
14. **Ay A**, Agac Ay A, Kaptanoglu B, *et al*. Femoral hernia containing strangulated ileum along with the uterus and both ovaries: a first case report. *Hernia* 2011;(In Press)
15. **Anders JF**, Powell EC. Urgency of evaluation and outcome of acute ovarian torsion in pediatric patients. *Arch Pediatr Adolesc Med* 2005;**159**:532–55.
16. **Yamashita Y**, Sowter M, Ueki M, *et al*. Adnexal torsion. *Aust N Z J Obstet Gynaecol* 1999;**39**:174–7.
17. **Suzuki S**, Furui S, Okinaga K, *et al*. Differentiation of femoral versus inguinal hernia: CT findings. *AJR Am J Roentgenol* 2007;**189**:W78–83.
18. **Merriman TE**, Auldish AW. Ovarian torsion in inguinal hernias. *Pediatr Surg Int* 2000;**16**:383–5.

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