CASE REPORT

Prevascular femoral hernia and its relation with inferior epigastric vessels: a rare presentation of the femoral hernia sac

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SUMMARY

A 61-year-old man presented to the emergency department, with a 2-week history of a painful lump on his right groin. A diagnosis of an irreducible right femoral hernia was made. As such, an urgent operation was carried out on the same day, and the patient was found to have a rare prevascular femoral hernia in which the sac was lying over the femoral vessels and split by the inferior epigastric vessels into 2 components resembling 2 trouser limbs. The hernia sac presented in a different and challenging way that necessitated meticulous dissection and full orientation of the anatomy of the femoral triangle. Complete dissection and control of the inferior epigastric vessels, and complete reduction of the sac followed by repair with a prosthetic mesh plug were performed successfully. The patient was discharged home the next day.

BACKGROUND

Prevascular femoral hernia is a rare variant of femoral hernia that surgeons should be aware of. Powell *et al*¹ reported its incidence as being 16% of all femoral herniae and it is not often reported in the literature.

What makes our case report of great interest and importance is that it describes an atypical relation of the prevascular femoral hernia sac with the inferior epigastric vessels. The sac in our case was split by the inferior epigastric vessels into two limbs distally. The medial limb ran covered the femoral vein and lateral limb was overlying the femoral artery.

We believe that surgeons should be aware of this atypical presentation in order to perform a complete and successful repair of such prevascular femoral hernia.

CASE PRESENTATION

A 61-years-old man presented to the emergency department, with a painful irreducible right groin swelling for 2 weeks. There was neither vomiting nor abdominal distension reported. He had also been opening his bowels normally. Apart from this, his occupation required lifting of heavy weights, and his other medical and social histories were not remarkable. General physical examination was unremarkable. Local examination revealed a moderate sized 5×5 cm irreducible right femoral hernia, a small reducible left inguinal hernia and a very small reducible umbilical hernia.

INVESTIGATIONS

Routine preoperative investigations were performed including blood tests and ECG, which were normal. X-ray of the abdomen was performed, showing no sign of bowel obstruction.

TREATMENT

An urgent repair under general anaesthesia was performed on the same day. Skin and subcutaneous tissue were opened through a right low inguinal incision. A hernia sac protruding from below the inguinal ligament, and below and lateral to the pubic tubercle, was identified ([figure 1](#)). The sac was dissected from anterior, medial and lateral adhesions surrounding it. The sac was found lying in front of the femoral vessels ([figure 2](#)) and split into two parts. The medial part of the sac was lying over the femoral vein, and the lateral part was lying over the artery and extending lateral to it ([figure 3](#)). Careful meticulous dissection of the two parts of the sac posteriorly from the femoral vessels was performed as deeply as possible into the pre-peritoneal space. The two parts were separable distally and were now freed from the surrounding structures and lifted upward ([figure 4](#)). Proximally, the two parts were split by the right inferior epigastric vessels. Dissection of the sac from the inferior epigastric vessels followed by their ligation allowed reduction of the whole sac to the abdomen ([figure 5](#)). A prolene mesh plug was inserted in the femoral canal and fixed into two points posteriorly to the pectineal ligament medially and laterally, and anteriorly to the inguinal ligament into two representative points ([figure 6](#)). A figure of eight stitch using number 1 Ethibond suture between the inguinal ligament and pectineal ligament was tied to strengthen the repair ([figure 7](#)). The operation was completed by closure of the wound in layers. The patient was discharged home on the following day, with no morbidity.

OUTCOME AND FOLLOW-UP

No further follow-up was arranged.

DISCUSSION

Femoral hernia is an uncommon hernia with an incidence of between 2% and 8% of all types of herniae.¹ Within the category of femoral hernia, there are various types such as Hasselbach's hernia, Laugrier's hernia, Serafini's hernia and Cloquet's hernia, as described by Papanikitas *et al*.² A prevascular femoral hernia is a type of femoral hernia in

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Figure 1 Femoral hernia sac identified.

Figure 4 The two limbs of the sac were freed and lifted.

Figure 2 The hernia sac lay in front of the femoral vessels.

Figure 5 The sac was reduced back into the abdomen.

which the neck lies anterior to the femoral vessels. Powell *et al*¹ describe its incidence as being 16% of all femoral herniae. As these herniae are rather rare, a preoperative diagnosis is seldom considered.³ In order to fully understand this form of hernia, a thorough knowledge of the anatomy of this region is of prime importance.

An American general surgeon, Moschcowitz,⁴ in 1912, was the first to describe this rare variant of femoral hernia. In his case report, he mentioned that the relation of the deep epigastric artery with this form of femoral hernia is extremely

important. He described that the position of the deep epigastric artery depends on where the hernia begins: if the hernia originates on the outer side of the deep epigastric artery, then the artery is pushed towards the median line; if it originates on the inner side, then the artery is pushed towards the outer side.

What makes our case report interesting is the atypical relation of the prevascular femoral hernia sac to the inferior epigastric vessels. An extensive literature search has been conducted and

Figure 3 The hernia sac was split into two parts.

Figure 6 A prosthetic mesh plug was inserted in the femoral canal.

Figure 7 Closure of the femoral canal with a stitch.

there is no such earlier description of a prevascular femoral hernia. As mentioned before, the hernia sac in our case was split by the inferior epigastric vessels into two limbs distally. The medial limb ran covered the femoral vein and the lateral limb was overlying the femoral artery.

It is worth mentioning that there are three approaches described for open femoral hernia repair: Lockwood's infringuinal approach, Lotheissen's transinguinal approach and McEvedy's high approach. The transinguinal approach dissects through the inguinal canal and can lead to inguinal hernia occurrence by weakening this important structure. The infringuinal approach exposes the femoral canal from below and is preferred in elective repair, while the high pre-peritoneal approach is preferred in the emergency setting—when strangulation is suspected—allowing better access to the peritoneum and small bowel for possible resection if required.

In this case report, although it was performed as an emergency, we chose the low approach as neither clinical evidence of bowel obstruction nor strangulation was suspected. However, we still recommend the high pre-peritoneal approach in cases where strangulation of the bowel might be involved.

A review by Williams *et al*³ revealed that mesh-plug prosthetic repair is a safe option in repairing prevascular femoral herniae.

Their study revealed that, over a period of 15 months to 9 years, there was no recurrence. In this case, the patient had a double repair using mesh plugs and suture repair to strengthen this weak point and minimise any chances of recurrence. To date, as far as we are aware, the patient has not had a recurrence of his femoral hernia.

The described variation in the relation between inferior epigastric vessels and prevascular femoral hernia might not be of great importance if the high approach technique is performed. However, we believe that awareness of this variation is crucial in performing a complete repair of the hernia in the low approach. Incomplete dissection can result in missing the lateral part of the sac, which will definitely lead to hernia recurrence, and might also be associated with increased risk of bleeding by pushing the sac against these vessels.

Learning points

- ▶ Male patients can have a femoral hernia as well.
- ▶ Prevascular femoral hernia is a rare variant of femoral hernia.
- ▶ Knowledge of the femoral triangle is the key in repairing prevascular femoral herniae.
- ▶ Mesh plug repair is a safe way to treat prevascular femoral herniae.

Competing interests None declared.

Patient consent Obtained.

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