

First laparoscopic totally extraperitoneal repair of Laugier's hernia: a case report

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Abstract An atypical femoral hernia developing through the lacunar ligament is called Laugier's hernia. Preoperative diagnosis of these atypical hernias is very difficult because of their rarity and similar clinical appearance to conventional femoral hernias. A 52-year-old female presented with right groin swelling. During laparoscopic totally extraperitoneal (TEP) inguinal hernia repair, a hernia sac through an opening in the lacunar ligament was diagnosed and repaired with mesh covering the inguinal floor. The surgeon should be alert to the possibility of an atypical femoral hernia when examining patients with inguinal hernias. A laparoscopic approach should be chosen instead of a conventional approach for the treatment of femoral hernias because of its high diagnostic and therapeutic capacity for all types of femoral hernia, including Laugier's.

Keywords Laugier's hernia · Femoral hernia · Totally extraperitoneal repair

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Introduction

A femoral hernia is a protrusion of the peritoneal sac, which may contain preperitoneal fat or an intraperitoneal organ, through a weak transversalis fascia into the femoral ring and femoral canal, inferior to the inguinal ligament [1]. Femoral hernias are less common than inguinal hernias; the reported incidence is 2–4% of all groin hernias, and they are most commonly observed in older females [2–4]. Rarely, a femoral hernia may arise in different locations that constitute atypical pathways out of the femoral ring. If a femoral hernia develops through an opening in the lacunar ligament, it is named Laugier's hernia, Gimbernant's hernia, or a lacunar hernia (Fig. 1) [1, 5]. Compared with typical femoral hernias, Laugier's hernia is very rare and there are few reports on it [6–9]. The only satisfactory treatment for all types of femoral hernia is surgery. Here, we present a Laugier's hernia that was diagnosed and treated during totally extraperitoneal (TEP) hernia repair. To our knowledge, this is the first reported case of Laugier's hernia to be diagnosed and repaired by a laparoscopic approach.

Case presentation

A 52-year-old female was admitted to our hospital with right groin swelling and pain of 5-years duration. Her history revealed that she had a chronic cough because of gastroesophageal reflux disease and had given birth five times. Physical examination revealed a right groin swelling and pain with a positive cough impulse. The swelling was located inferolateral to the pubic tubercle on the right side in the femoral canal region and was not reducible. During examination, the swelling was thought to be a typical femoral hernia, but at surgery it was found to be an atypical Laugier's femoral hernia.

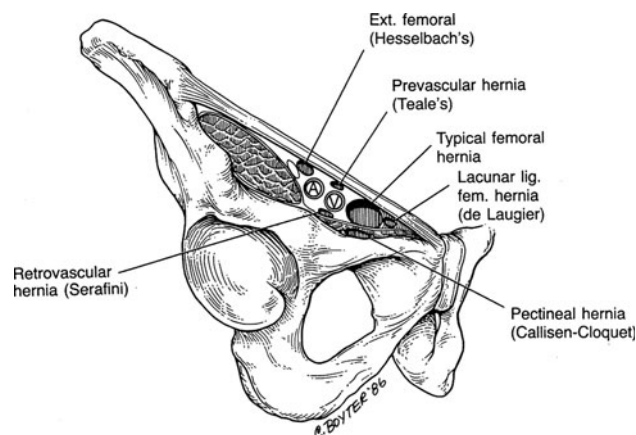


Fig. 1 Typical and atypical pathways of femoral hernia

The patient underwent laparoscopic TEP hernia repair under general anesthesia. First, the patient was given cefazolin 1 g IV, intraoperatively. Then, a 2-cm vertical incision was made over the right rectus sheath. The rectus muscle was retracted laterally and the space between the rectus muscle and posterior rectus sheath was enlarged by blunt digital dissection to enable insertion of 10-mm trocars with a balloon dissector into the preperitoneal space towards the pubic bone. After replacing the balloon with a Hasson trocar, CO₂ was insufflated to a pressure of 14 mmHg and a 30° laparoscope was introduced via the 10-mm trocar. Anatomical landmarks such as the os pubis, Cooper's ligament, and epigastric vessels were identified by laparoscopy and two trocars were introduced into the preperitoneal space midway between the umbilicus and pubis. At operation, a hernia sac through an opening in the lacunar ligament was explored during dissection of the peritoneal hernia sac. The neck of the hernia sac was located medial to the femoral vessels and passed into the middle of the lacunar ligament (Fig. 2). The hernia sac was reduced minimally and the peritoneum was retracted cranially. The round ligament, femoral ring, and all other potential hernia defects were investigated carefully, and the femoral canal was intact between the femoral vein and lateral angle of the lacunar ligament (Fig. 3) [10]. A 14 × 10 cm polypropylene mesh was inserted into the preperitoneal space, covering the inguinal floor and fixed using a tackler. The CO₂ was desufflated and the anterior rectus sheath was closed with 2-0 polyglactin. The skin was closed with 3-0 polypropylene. The patient was discharged 24 h postoperatively on a 5-day course of oral antibiotics due to urinary tract infection. There was no evidence of recurrence at 3-year follow-up.

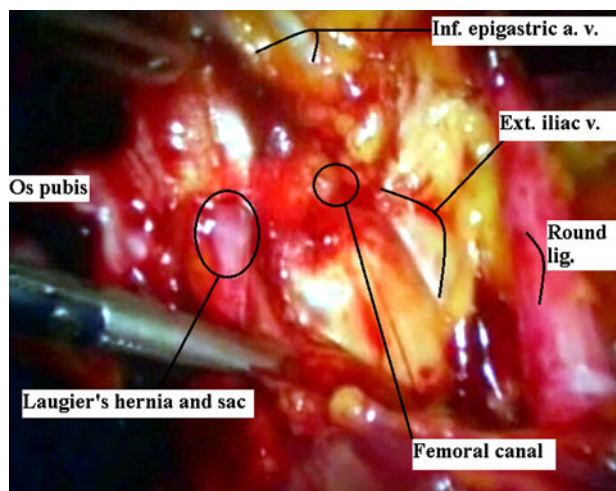


Fig. 2 On exploration, the neck of the hernia sac passed into the middle of the lacunar ligament near to femoral canal

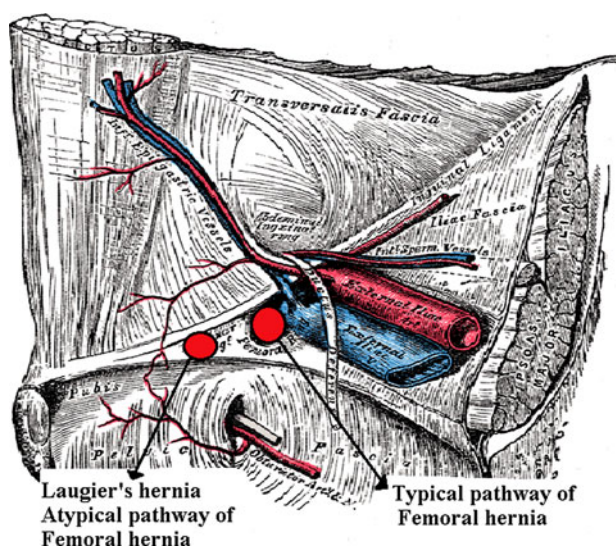


Fig. 3 Posterior view of inguinal region, atypical pathway of femoral hernia: Laugier's hernia and typical pathway of femoral hernia

Discussion

Femoral hernia may arise in different locations (Fig. 1), developing through the lacunar ligament (Laugier's hernia), through the pectineal fascia (Callisen-Cloquet hernia), or in relation to the femoral vessels—lateral femoral hernia (Hesselbach's hernia), prevascular (Teale's hernia) or retrovascular (Serafini's hernia) [1, 5]. Herniation of the peritoneal sac through the lacunar ligament was first described by Henrie de Laugier in 1833 [1, 5, 7].

The preoperative diagnosis of these atypical femoral hernias is difficult due to their rarity and clinical appearance, which is similar to conventional femoral hernias

[6, 11]. In our case, we thought that the swelling was a femoral hernia preoperatively, but it was diagnosed as a Laugier's hernia at laparoscopy during TEP inguinal hernia repair. Laugier's hernia is so rare that there are only four published studies, which include nine cases. This rarity may be due to its mistaken identification as a typical femoral hernia. In an article about interligamentous hernias, Burton [6] reported six Laugier's hernias (0.13%) in 4,400 herniorrhaphies. Additionally, the literature contains three other case reports on Laugier's hernia [7–9].

There is no convincing explanation for the formation of femoral hernias. However, a defective femoral canal and peritoneal formation during embryogenesis of the femoral area, or acquired weakness of the lacunar ligament may be responsible for the genesis of femoral herniation [5, 7, 12]. In this context, our patient's chronic cough and multiparity may have helped in the development of herniation via a congenital or acquired weakness of the lacunar ligament.

Femoral hernia strangulation is a significant problem, requiring emergency surgery in up to 36% of cases [13]. Atypical femoral hernias always have a small hernia neck and sac, and contain preperitoneal fat or omentum, which causes signs of peritoneal irritation [6, 9, 14]. Nevertheless, strangulation is possible in a Laugier's hernia, as in a typical femoral hernia, although Kumar [9] reported the only case of an obstructed Laugier's hernia.

Although many surgical procedures for femoral hernias have been developed, the best management of femoral hernias remains controversial. Recently, the use of laparoscopic TEP femoral hernia repair has gained popularity [14]. The laparoscopic approach is suitable and feasible, because all potential inguinal hernia defects, including atypical femoral hernias, are readily visualized and repaired without additional procedures, as in our case, while this is very difficult with a conventional surgical approach. The posterior view laparoscopic approach is better and easier than the anterior view for finding all types of inguinal hernia [16, 17]. The laparoscopic approach should be considered a good surgical option in female patients with femoral hernia [18]. To our knowledge, this is the first reported case of Laugier's hernia to be diagnosed and repaired by a laparoscopic approach.

In conclusion, the surgeon should be alert to the possibility of atypical femoral hernias while examining patients with

an inguinal hernia. The laparoscopic TEP approach should be chosen over the conventional approach in appropriate patients for treating all types of femoral hernia, including Laugier's hernia, because the posterior view laparoscopic approach has high diagnostic and therapeutic capacity.

References

- Skandalakis LJ (1996) Modern hernia repair, the embryological and anatomical basis of surgery. Parthenon, New York, pp 147–161, plate 1–60
- Sandblom G, Haapaniemi S, Nilsson E (1999) Femoral hernias: a register analysis of 588 repairs. *Hernia* 3:131–134
- Rutkow IM (1998) Epidemiologic, economic, and sociologic aspects of hernia surgery in the United States in the 1990s. *Surg Clin North Am* 78(6):941–951
- Read RC (2003) Recent advances in the repair of groin herniation. *Curr Probl Surg* 40:13–79
- Keynes G (1932) Prevascular femoral hernia. *Br J Surg* 20:55–57
- Burton CC (1951) Interligamentous inguinal hernia; classification and statistical study of 117 hernias. *Ann Surg* 134:119–126
- Musgrove JE, McKee GH (1964) Hernia through Gimbernant's ligament. *Canad Med Assoc J* 90:134–135
- Noda H, Kohno A, Osawa J, Nomi S, Arii S, Shinoda M, Murakami J (1977) Gimbernant hernia (hernia through the lacunar ligament)—a case report. *Nippon Geka Hokan* 46:770–772
- Kumar SKL (1999) Obstructed laugier's hernia. *Med J Armed Forces India* 55(4):371–372
- Standring S (2005) Gray's anatomy, 39th edn. Churchill Livingstone Elsevier, London, p 1103
- Papanikitas J, Sutcliffe RP, Rohatgi A, Atkinson S (2008) Bilateral retrovascular femoral hernia. *Ann R Coll Surg Engl* 90(5):423–424
- Skandalakis JE, Colborn GL, Skandalakis LJ (1997) The embryology of the inguinofemoral area: an overview. *Hernia* 1:45–54
- Dahlstrand U, Wollert S, Nordin P, Sandblom G, Gunnarsson U (2009) Emergency femoral hernia repair: a study based on a national register. *Ann Surg* 249(4):672–676
- Lane DA, Edwards GE (1962) A case of strangulated prevascular femoral hernia. *J Ir Med Assoc* 50:107–109
- Garg P, Ismail M (2009) Laparoscopic total extraperitoneal repair in femoral hernia without fixation of the mesh. *JLSLS* 13(4):597–600
- McCormack K, Wake B, Perez J, Fraser C, Cook J, McIntosh E, Vale L, Grant A (2005) Laparoscopic surgery for inguinal hernia repair: systematic review of effectiveness and economic evaluation. *Health Technol Assess* 9(14):1–20
- Yalamarthi S, Kumar S, Stapleton E, Nixon SJ (2004) Laparoscopic totally extraperitoneal mesh repair for femoral hernia. *J Laparoendosc Adv Surg Tech A* 14(6):358–361
- Simons MP, Aufenacker T, Bay-Nielsen M et al (2009) European Hernia Society guidelines on the treatment of inguinal hernia in adult patients. *Hernia* 13(4):343–403