

# A Rare Richter's Variety of Strangulated Left Femoral Hernia - A Case Report

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## ABSTRACT

Femoral hernias are rare types of groin hernias with female predominance, with the majority of such hernias are on the right side. Femoral hernias tend to become incarcerated due to its narrow opening. It can present as Richter's variety of femoral hernia with or without features of intestinal obstruction and can rapidly progress to strangulation with fatal outcome. Early diagnosis and surgical management are of paramount importance.

**Keywords:** Femoral hernia, Richter's Hernia, Strangulation.

## INTRODUCTION

Femoral hernias are a rare type of groin hernias and account for less than 5% of all abdominal wall hernias with a female predominance of 2:1. Approximately 60% of femoral hernias are on the right side, 30% on the left side, and 10% are bilateral.<sup>[1]</sup> Femoral hernias tend to become incarcerated due to narrow and rigid opening of the femoral ring and, strangulation of the bowel occurs, therefore requiring early diagnosis and emergency surgery. Around 40% of femoral hernias are strangulated on examination.<sup>[2]</sup> The Most accepted theory for the development of femoral hernia is 'acquired theory' with a general clarification that increased intraabdominal pressure leads to stretching of the femoral ring due to dilated femoral vein.<sup>[3]</sup> The femoral ring is bordered anteriorly by the inguinal ligament, posteriorly by the iliopectineal ligament, medially by the lacunar ligament and by femoral vein laterally. The diagnosis of femoral hernia usually requires a thorough clinical examination in the majority of cases. But, in some cases, it is difficult to differentiate the femoral hernia swelling with other causes of groin swelling, in such instances radio imaging with Computed Tomography (CT) provides a better anatomical understanding of groin anatomy and helps to establish the diagnosis in these patients.<sup>[4]</sup>

## CASE REPORT

A 75-year-old female patient presented to the Emergency Department (ED) with complaints of pain abdomen associated with vomiting and

constipation for three days. On examination, her Pulse Rate (PR) was 100 beats per minute, Blood Pressure (BP) was 90/52 millimeter of mercury, and the respiratory rate (RR) was 20 per minute. On local examination, the abdomen was soft, and no guarding or rigidity was present. There was minimal abdominal distention present. There was a lump present in the left groin area just below the inguinal ligament in the inner part of the thigh of size 1x1 cm, which was tender, non-reducible, with no cough impulse present. X-ray abdomen showed few air-fluid levels suggestive of small bowel, and laboratory investigations were unrevealing. A provisional diagnosis of femoral hernia was made clinically. Ultrasonography abdomen (USG) revealed dilated small bowel loops up to 3 centimeters in size with no inter bowel free fluid present. Because of the above findings on clinical and radiological examination, the patient was planned for emergency surgery.

McEvedy's high approach technique was used, keeping in mind the viability of bowel. On examination of the area posteroinferior to the inguinal ligament, sac was identified, which contained soft structure suggestive of the bowel. A gentle maneuver for reduction of hernia was tried but failed. Subsequently, we planned to open the peritoneum. On opening the peritoneum, about 200 cubic centimeters of serous fluid was aspirated. On further examination, it was found that a part of the ileal circumference on its antimesenteric border was herniating through the femoral ring. This part was gently reduced back into the abdominal cavity. On examination of the herniated bowel, the size of the content was about 2 centimeters with gangrenous changes present in an area of about 2X2 centimeters only on the antimesenteric part of the intestine. The herniated part of ileum was approximately 50 cm proximal to the ileocaecal junction. Small bowel

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proximal to it was grossly dilated and distal to it, the gut was collapsed. Herniated bowel was reduced carefully, and resection of gangrenous bowel with functional end to end stapled anastomosis was done. The femoral ring was closed with Prolene 2-0 sutures by approximating inguinal ligament anteriorly and Cooper's ligament posteriorly. Postoperative recovery was uneventful, and the patient was discharged from hospital on 11<sup>th</sup> Postoperative day. The patient is still in follow up, and after six months, she is doing well.



**Figure 1: Gangrenous part of ileum**



**Figure 2: Femoral ring**

## DISCUSSION

A femoral hernia is a hernia through an orifice of exit in the femoral canal; the term was first used by Lytle in England.<sup>[5]</sup> It is most common in women, and most of the femoral hernias are present on the right side. Most frequent complications of femoral hernia are irreducibility, followed by intestinal obstruction and strangulation.<sup>[6]</sup> The content of hernia varies from the stomach, small intestine, and appendix, ectopic testis to fallopian tubes.<sup>[7-9]</sup> In 1778, August Gottlob Richter gave the first scientific description of Richter type of hernia, and presented it as – the “small rupture.” But, Sir Frederick Treves was the one who, in 1887, gave an excellent overview of this type of hernia and coined the term “Richter's Hernia.” His work provided a modern

understanding of this variety of hernia. Only a few occasional cases are reported so far.<sup>[10]</sup> The precondition for the formation of Richter's hernia is the size and consistency of hernial sac opening. This should be wide enough to allow part of the circumference of the bowel but small enough not to let the entire loop of bowel. The margins of the orifice are firm, which exerts direct pressure on the bowel wall and also hinder its blood supply. Another factor which leads to rapid progression to strangulation is the anatomical condition of the bowel wall, that the antimesenteric border of the bowel wall receives blood supply from end arterioles. All these preconditions for formation of Richter's hernia can be seen in femoral hernia, where the femoral ring is a small and rigid structure providing ideal conditions for the formation of Richter's variety of hernia. Because only part of wall circumference is involved and the lumen is mostly spared, the alarming features of intestinal obstruction may not come sooner and the patient may only present with vague pain abdomen with or without history of tender non- reducible groin mass, making diagnosis difficult in early stages.<sup>[11,12]</sup> A strangulated femoral hernia is a life-threatening condition, and a delay in diagnosis may lead to septicemia and shock, which may endanger patients' life. Patients may present with a variety of clinical presentations, varying from a groin lump to features of intestinal obstruction; therefore every patient must be evaluated and examined thoroughly to establish the diagnosis of a femoral hernia. Due to the high chances of strangulation, all patients with femoral hernia must undergo surgery; in surgery, selection of the approach, whether Trans- inguinal (Lotheissen's), infra-inguinal (Lockwood's), or high approach (McEvedy's) depends on the clinical presentation of the patient. In a study conducted by Berliner et al. they recommended repair of a reducible femoral hernia by using an inguinal approach and for irreducible hernia with infra-inguinal approach.<sup>[13]</sup> In 2008, Stoikes also described a laparoscopic approach to treat femoral hernias using TEP or TAPP.<sup>[14]</sup> It should also be taken into consideration that if bowel strangulation is suspected, a high approach should be considered, which allows to check the viability of bowel and, if needed, to perform resection and anastomosis of the bowel, as in this particular case. The use of mesh plug is unquestionably a better option while repairing a femoral hernia, but in case of strangulation use of mesh should be avoided to prevent infection and repair related failure.<sup>[15]</sup> Therefore it is better to use McEvedy's high approach technique of approximating the inguinal ligament and cooper's ligament, like we did in this particular case scenario.

## CONCLUSION

Femoral hernias are rare types of hernias, and often undergo strangulation, and patients with a femoral hernia should undergo urgent surgery; to prevent strangulation. It can present as Richter's variety with or without features of intestinal obstruction and rapidly progress to strangulation; therefore, early diagnosis and emergency surgery are of paramount importance to prevent a fatal outcome. A surgeon must know anatomy related to femoral hernias and its surgical management.

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