Case Report

Strangulated Femoral Hernia Containing Gangrenous Appendicitis: Report of a Case

Second Department of Surgery, Osaka City University Medical School, Osaka, Japan
Department of Surgery, Goshi Hospital, Hyogo, Japan
Masashi TAKEMURA, Koji IWAMOTO, Shisei GOSHI, Harushi OSUGI and Hiroaki KINOSHITA

Abstract

The patient was a 79-year-old woman with a hard mass apparent in the right groin. Computed tomography (CT) revealed a water density mass of $4 \times 3$ cm in the right inguinofemoral region. The mass protruded from the abdominal cavity through the medial side of the femoral artery and showed a small amount of untrapped air. Inguinal approach revealed the gangrenous appendix in femoral hernia sac, and appendectomy and McVay repair were performed. She was discharged from hospital 7 days postoperation after an uneventful recover. Femoral hernia has a high incidence of strangulation. Signs of intestinal obstruction do not precede intestinal necrosis, when Mekel's diverticulum or appendix is strangulated. Therefore, precise diagnosis of hernia content is essential in deciding urgency for operation in femoral hernia.

key words: Strangulated femoral hernia, Gangrenous appendicitis

Introduction

Only four cases of strangulated femoral hernia containing appendix have been found in Japanese literature so far. Here, we report a case of this condition.

Case report

Case: A 79-year-old woman was admitted to our hospital with a painful mass in the right groin at midnight January 8, 1996. There was an elastic hardened mass with tenderness in the right groin covered by uninflamed skin, but no signs of intestinal obstruction. The abdominal examination revealed normal bowel sounds and a soft, no tenderness, without palpable masses.

Laboratory data on admission: Laboratory data on admission revealed no leucocytosis with WBC of 6900/mm³ and CRP level of 0.4 mg/dl.

Abdominal X-ray photograph: Erect abdominal X-ray showed a small amount of intestinal gas without air fluid levels (Fig. 1).

CT findings of lower abdomen: CT, taken in the morning on January 9, revealed water density mass of $4 \times 3$ cm in diameter in the right inguinofemoral region, which protruded into the subcutaneous layer from the abdominal cavity through anteromedial side of the right femoral artery, including a luminal structure with some entrapped gas (Fig. 2). The ultrasonography was not performed, preoperatively.

Operative findings: With diagnosis of strangulated femoral hernia containing appendix, the operation was performed. Right inguinal canal was opened through horizontal incision in the right groin (inguinal approach). The hernia sac presented caudal to the iliopubic tract and was fixed. Opening the sac following dissection of the iliopubic tract revealed a gangrenous but
not perforated appendix and a small amount of accumulated dark red fluid. Appendix was incarcerated only partially. Appendectomy was performed. High ligation of the hernia sac was performed and the hernia hilum was closed with suturing arches of transversalis abdominis and Cooper's ligament (McVay's method).

Pathological findings: The pathological diagnosis of the resected appendix was acute gangrenous appendicitis.

Postoperative course: She discharged from hospital on 7 days after the operation.

Discussion

Femoral hernia was not seen often and has always presented more difficulty in diagnosis than other types of groin hernia. Femoral hernia is much more common in elderly women, male cases comprising only 3%\(^1\). The average patient age was reported to be 70.2 years in Japan\(^2\). The femoral hernia was seen equally in the right and left side\(^3\).

Femoral hernia was reported to be more likely to cause strangulation than any other type of inguinal hernia because of hernia hilum is tight\(^4\). Incidence of femoral hernia strangulation reached 61%\(^1\). In cases treated by emergency operation, contents of the femoral hernia were the small intestine and omentum in order of frequency\(^2,3\). Therefore, the most common condition of femoral hernia is associated with intestinal obstruction caused by intestinal strangulation. The second is caused by incarcerated omentum, which is not associated with the risk of intestinal obstruction or peritonitis. Among patients without signs of intestinal obstruction, Richter hernia can be present. Only a part of intestine circumferentially is not likely strangulated in the femoral hernia by anatomical characteristic, but the Meckel's diverticulum (Littre hernia) or appendix can be
Strangulated Femoral Hernia Containing Gangrenous Appendicitis: Report of a Case

Table 1  Reported cases of strangulated femoral hernia containing appendix in Japanese literature.

<table>
<thead>
<tr>
<th>Case No</th>
<th>Age</th>
<th>Sex</th>
<th>Site</th>
<th>Operative method</th>
<th>State of appendix</th>
<th>Postoperative complication</th>
<th>Hospital stay after operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>79</td>
<td>M</td>
<td>Right</td>
<td>Appendectomy</td>
<td>Gangrenous</td>
<td>Unknown</td>
<td>10 days</td>
</tr>
<tr>
<td>2</td>
<td>61</td>
<td>F</td>
<td>Right</td>
<td>McVay repair</td>
<td>Suppurative</td>
<td>None</td>
<td>9 days</td>
</tr>
<tr>
<td>3</td>
<td>65</td>
<td>F</td>
<td>Right</td>
<td>Appendectomy</td>
<td>Gangrenous</td>
<td>Wound infection</td>
<td>40 days</td>
</tr>
<tr>
<td>4</td>
<td>83</td>
<td>F</td>
<td>Right</td>
<td>McVay repair</td>
<td>Suppurative</td>
<td>None</td>
<td>10 days</td>
</tr>
<tr>
<td>5 (Our case)</td>
<td>79</td>
<td>F</td>
<td>Right</td>
<td>Appendectomy</td>
<td>Gangrenous</td>
<td>None</td>
<td>7 days</td>
</tr>
</tbody>
</table>

strangulated. In these conditions, necrosis and perforation of the intestine may develop without any preceding signs of intestinal obstruction. Accordingly, precise diagnosis of femoral hernia content is essential in deciding urgency for operation. If a luminal structure which was finished as blind wedge in hernia sac is showed at preoperative CT or US, it strongly suggests strangulation of appendix.

In Japan, only four cases of strangulated femoral hernia containing appendix have been reported so far. Patients with this condition were three women and one man with mean age of 72 years. All cases have no signs of bowel neither obstruction nor niveau formation. In three of the previous four cases, the emergent operation was performed. All cases were performed appendectomy and McVay repair (Table 1). Nagasawa reported the usefulness of preoperative ultrasonography for diagnosis of this condition. However, none of these cases made correct diagnosis of an incarcerated structure. In our cases, preoperative CT showed 4 cm diameter mass in the right inguino femoral region leading to abdominal cavity and including some gas. The mass contained a small round component of approximately 1 cm diameter, which was strongly suspected to be the appendix.

Conclusion

In conclusion, preoperative CT may provide accurate information for diagnosis for this particular condition. From our experience, we suggest immediate diagnosis by CT and operation for unreducible femoral hernia, even if signs of intestinal obstruction are absent, we believe it is essential for considering incarceration of the appendix for right side hernia.

References

1) Hirashima T, Yamashiro M, Nakayama N et al.: The plan of treatment of inguinal and femoral hernia in adult and elderly patients. Syokakigeka 1985; 8: 1337-1344