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Peritoneal Mice – A Diagnostic Dilemma Review Article

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Abstract

Peritoneal mice also known as peritoneal loose bodies are uncommon lesions that are usually found during abdominal surgery or autopsy. They are usually asymptomatic and are incidentally detected. Peritoneal loose bodies are labelled giant if they usually measure more than 5 cm. giant PLB are extremely rare and have limited documented literature pertaining to the same. This article provides an overview of one such case of a giant PLB wherein a patient presented with upper abdominal pain and occasional vomiting. Abdominal examination revealed a freely mobile mass in upper quadrant. Ultrasonography of abdomen & CECT of abdomen revealed a well-defined 7.7×8.1×7cm mass in the right side of abdomen with necrotic areas. A provisional diagnosis of mesenteric teratoma was made. Due to a dilemma in the diagnosis a diagnostic laparoscopy was performed followed by an upper midline laparotomy which revealed an approximately 10×9cm peritoneal mouse adjacent to lower border of liver. The diagnosis was later confirmed by post-operative pathological examination. It is important to distinguish peritoneal loose bodies from neoplastic or metastatic lesions and to consider it in the differential diagnosis of a calcified abdominal mass.

Keywords: Peritoneal loose body, peritoneal mice, appendix epiploic, mesenteric teratoma.

Introduction

Peritoneal mice are mobile loose bodies present in the peritoneal cavity, rarely found during laparoscopy/laparotomy and in most cases they are small. The most common origin of loose bodies is believed to be appendices epiploic and they may be formed by accumulation of peritoneal serum to the appendices epiploic. We report a case of giant loose body of 10×9 cm, discuss the problems in the diagnosis and its management.

Case report

A 55-year-old gentleman presented with complaints of chronic upper abdominal pain and vomiting. Initially ultrasound revealed no abnormality and a tentative diagnosis of acid-peptic disease was made and treated for the same. Later on follow-up over the next 2 months he also presented with complaints of early satiety and loss of weight. Abdominal examination revealed a freely mobile mass measuring 6cm x 7cm firm to hard in

consistency, freely mobile and would change its position along with the change in posture of the patient. Ultrasonography of abdomen was found to be inconclusive even though there was mass which was clinically palpable and constantly changing its position. A CECT of abdomen was planned which revealed a well-defined 7.7×8.1×7cm mass in the right side of abdomen with necrotic areas- possibly a mesenteric teratoma. (Figure 1)

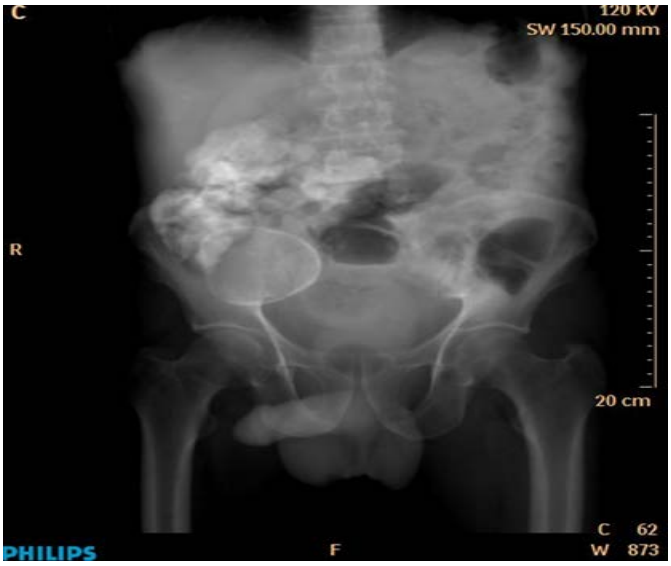

Figure 1:

A diagnostic laparoscopy was done. Laparoscopy revealed normal mesentery, bowel and Omentum. A freely mobile mass was noted in the Right paracolic gutter. Hence, we proceeded with an upper midline laparotomy was, which revealed an approximately 10×9cm peritoneal mouse adjacent to lower border of liver (Figure 2). On gross examination, it was a pale brown mass measuring 9×8×6cm which was hard in consistency with a smooth shiny surface (Figure 3). Cut section showed central necrotic area (Figure 4). Microscopically the wall composed of thick layers of fibrous tissue with areas of calcification (Figure 5).

Figure 2:

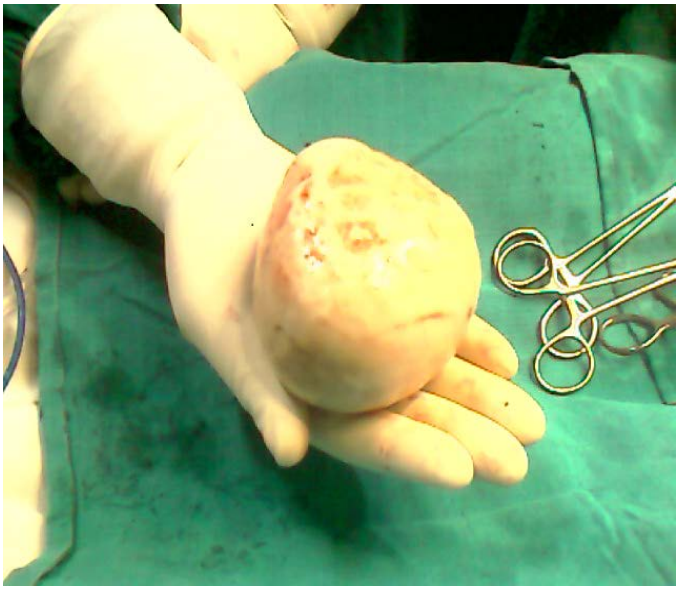

Figure 3:

Discussion

Peritoneal loose bodies are usually found in the peritoneal cavity and are accidentally diagnosed during surgeries or at autopsy [1–10]. Even though they are present in the peritoneal cavity they rarely present with symptoms [19]. Epidemiologically they have an increased incidence in males with a ratio of 17:3 [19].

These loose bodies generally resemble one another quite closely, being white or pale grey with a smooth, glistening surface and a rubbery consistency [11]. The exact pathogenesis of loose bodies has not been described completely, however the current hypothesis suggests that the source of these loose bodies might be from appendices epiploicae [11-14]. Appendices epiploica are fat containing structures present along the antimesenteric tenia of the colon along the entire length, but their physiological importance has not been clearly defined [15-17]. These appendix epiploica undergo torsion along its own axis and thus becomes ischemic, it saponifies and calcification of fat occurs over due course of time and the pedicle atrophies. Finally, the appendix epiploica detaches from the colon and becomes a peritoneal loose body [1-10]. During the stage of torsion, the symptomatology mimics that of acute appendicitis and hence diagnosis can often be challenging in early stages [20]. Once an appendix epiploica gets saponified and calcified the exudative serum fluid which is rich in protein accumulates around it. With time, the size of the peritoneal body increases because of a gradual deposition of body serum at the periphery. Sometimes the free peritoneal body attaches to the omentum and receives a blood supply from it (a parasitized peritoneal body). Other origins of loose bodies, especially calcified free bodies, are believed to be from uterine myoma, lymphatic glands in the mesentery, echinococcal cysts, urinary stones, foreign bodies and ovarian tumours [1, 3, 5, 6, 11]. Clinically they can be asymptomatic or can present with symptoms of intestinal obstruction or urinary disturbances due to mass effect [20]. Histologically, these bodies consisted of laminated strands of fibrinoid substance. Our histological findings suggest that deposits of peritoneal serum to the dropped appendix epiploica form the outer layer of a giant loose body.

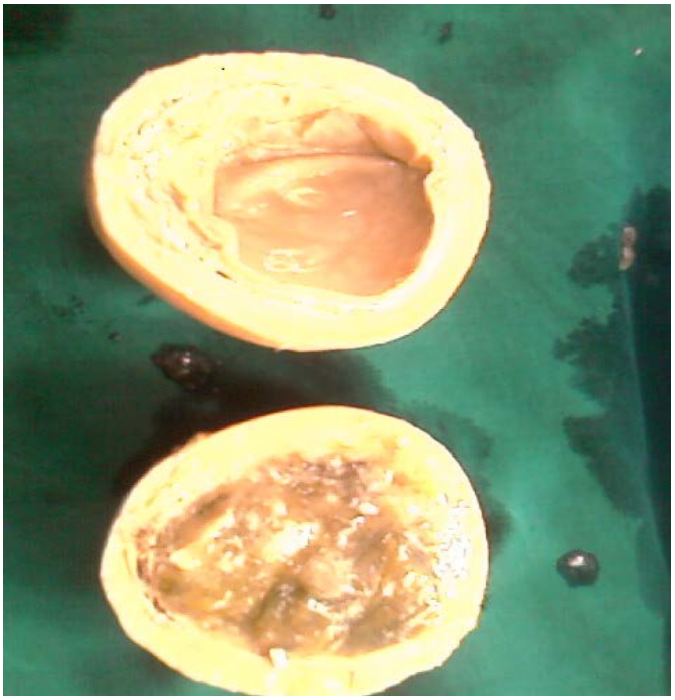

Figure 4:

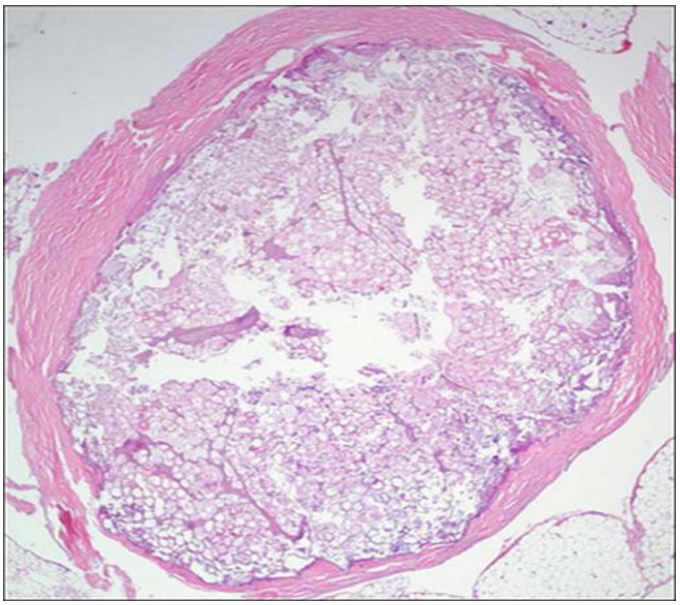

Figure 5:

The differentials to peritoneal loose bodies include leiomyoma, fibroma, desmoid tumours, teratoma, metastatic lesions of ovarian cancer, urinary stones, gallbladder stones, appendix stones, calcification of lymph nodes, mesentery cysts etc. [18]. Generally, CT

and MRI are useful for differentiating these lesions. Abdominal CT shows well-defined oval or round soft tissue masses with central calcification, usually located in the abdomen, with a distinct fat plane around the mass separating it from adjacent organs [21].on magnetic resonance imaging (MRI) examination, PLB appears as a well-defined, low-intensity mass on both T1- and T2-weighted images [22]. A study done by Talha Allam [20] demonstrated the use of 18-FDG PET CT to differentiate between metastasis due to malignancies (which are FDG positive) and peritoneal bodies (which are FDG negative). However, in our case, accurate diagnosis could not be obtained by these methods. Pre-operative diagnosis of these lesions is difficult, because most of the time these lesions are asymptomatic and found during routine exploration of the abdomen for some other pathology. When marked calcification in the pelvis is detected using different imaging methods, one should take account into the possibility of giant loose bodies.

Conclusion

Peritoneal loose bodies are rare and in most of the cases, small in size. However, giant loose bodies are very rare and only a few cases have been reported in the literature. The current hypothesis on their pathology is uncertain. Pre-operative diagnosis of these lesions is difficult and a high index of suspicion should be kept in any symptomatic patient with a mobile lesion in the abdomen or a calcified lesion in the pelvis on X-ray. CT, MRI are useful for differentiating these lesions however they can be indecisive at times. Laparoscopy offers best bet on diagnosis as well as for treatment but larger lesions as reported may require mini laparotomy.

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