

A Giant Peritoneal Loose Body- An Enigma Behind Overstated Treatment-Case Report and Review of Literature

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Abstract

A peritoneal loose body also called as 'peritoneal mouse' is a rare clinical entity usually found on incidentally on radiological examinations and laparotomy. Giant peritoneal loose body again rare finding with size more than 50mm, presents with different symptoms according to its location in the pelvic cavity. In this report, presenting a giant peritoneal loose body in the pelvic cavity mimicking as pelvic soft tissue tumor on radiological examination and leads to overstated surgical procedure (exploratory laparotomy). This is a case of 55-year-gentleman presented with lower abdominal pain (intermittent type) and irritative voiding symptoms and diagnosed as pelvic soft tissue mass (rhabdoid tumor on preoperative fine needle aspiration cytology) and later exploratory laparotomy revealed a free-floating egg like structure with approximately size of 6x4 cm present in the pelvis and reported as giant peritoneal loose body on post operative biopsy. Giant peritoneal loose body can present as pelvic tumor in preoperative period on radiological examination and it can lead to overstated open surgical procedure, usually can be managed with laparoscopic approach.

1. Introduction

Peritoneal loose bodies are rare clinical entity usually found incidentally during radiological examination, laparotomy or autopsy [1]. The peritoneal loose bodies having less clinical relevance can present as asymptomatic or with some specific symptoms [2]. Usually, the peritoneal loose bodies are present within the size of 0.5 cm - 2 cm. The giant peritoneal loose

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bodies (more than 5 cm) are very rare and can present as pelvic mass on radiological examination and only a few cases have been described in the literature [3]. We report one interesting case of giant peritoneal loose body along with comprehensive review of previous literature.

2. Case Presentation

A 55-year-old man known to have diabetes mellitus type II and hypertension presented to our hospital with history of intermittent lower abdominal pain, dysuria (burning sensation while passing urine) and he used to take analgesics for pain. He had no other relevant gastrointestinal symptoms. He had no significant weight loss, altered bowel habits and no bleeding per rectum. Clinical examination at presentation showed a good general condition. He had no fever, and vital signs were within normal limit. On abdominal examination no visible or palpable lump was present. Digital rectal examination showed no bleeding per rectum or no mass per rectum. Baseline blood investigations showed only normal total liver function tests and renal function tests. In laboratory tests his white blood cells and platelets were $8.46 \times 10^9/L$ and $213 \times 10^9/L$ respectively. The chest X-ray was normal. Gastroscopy showed esophageal mucosal erosions and gastritis.

Abdominal computed tomography (CT) (FIG. 1) revealed a round soft-tissue hypo dense shadow measuring about 5 cm \times 6 cm mass with a smooth edge in the pelvic cavity situated in retro-vesicle space. A few specks of circular calcification were observed. Present but were less obvious. A contrast-enhanced scan revealed slight delayed contrast-enhancement in the lesion area. With these findings it was diagnosed as pelvic soft tissue sarcoma arising from retro peritoneum. CT guided FNAC showed it as rhabdoid tumor. On exploratory laparotomy there was a whitish an oval shaped egg like hard mass (FIG. 2) present in pelvic cavity with freely mobile detached from all surrounding structures. It was extracted from peritoneal cavity and rest of the intra-peritoneum was examined.



FIG. 1. CECT abdomen showing 5 cm \times 3 cm \times 4 cm well-defined hypo dense lesion in the right side of the pelvis in the superior aspect of rectovesical space with adhered to with ileal loops and urinary bladder.



FIG. 2. Showing intra-op egg-like structure (peritoneal loose body).

The gross specimen cut section (FIG. 3) revealed a central 1.5 cm-diameter nucleus of a creamy, cheese-like material surrounded by white-to-yellow lamellar structures. On pathological examination it was mentioned that, the concretion consisted of central necrotic fatty tissue surrounded by many layers of concentrically laminated, eosinophilic, acellular, fibrous material with scattered blue-to-black lakes of microcalcifications. Postoperative histopathological report came out as Giant peritoneal loose body (an infarcted and calcified appendix epiploeca). The postoperative course was uneventful.



FIG. 3. Cut section of a giant peritoneal loose body size 5.2 cm × 4 cm (PLB) showing dense sheets of calcified layers with fibrosis central saponification.

3. Discussion

Giant peritoneal loose bodies are rare to occur with only few reports in the literature [4,5]. The peritoneal loose bodies are usually present in smaller in size (5 mm - 2 cm), however, some can reach a diameter of 5 cm - 10 cm and termed them as Giant peritoneal loose body [6]. The first case of peritoneal loose body (PLB) was reported by Littre in 1703. The majority of peritoneal loose bodies are asymptomatic, but a small proportion of giant peritoneal loose bodies may cause symptoms like abdominal pain, bowel obstruction, urinary retention or urinary frequency [7,8]. The presentation of giant peritoneal loose body can vary according to their position and patients can be subjected to overstated surgical procedures. Like in our index case the patient presented with lower abdominal pain and on imaging it was reported as pelvic soft tissue mass and overstated to exploratory laparotomy.

Matsubara et al reviewed total 20 cases of giant peritoneal loose bodies and reported in the literature that peritoneal loose bodies were more common in men, with male: female incidence of 17:3. The majority of the patients were aged >50 years. In addition, most cases shared a distinct histological characteristic, namely calcified necrosis of fat tissue with hypo cellular fibro lamellar tissue and numerous micro calcifications [9].

Exact pathogenesis is not known, but some previous literature shows that it was due to chronic torsion of appendix epiploica with loss of blood supply with saponification and calcification of fatty tissue with atrophy of pedicle [10]. It ultimately presents as free mobile mass of various sizes in the peritoneum. The egg-like appearance is due to high temperature in the peritoneum. The largest peritoneal loose body that has been reported was PLB of size measuring 10 cm × 9.3 cm × 7cm [11].

Some previous studies even mentioned that the multiple peritoneal loose bodies can present simultaneously [12]. In one case report, it was reported that the growth of peritoneal loose body was very slow. In previous studies some other underlying causes like an auto-amputated adnexa [13,14] uterin leiomyoma [15] infrected omentum or fat tissue necrosis in the pancreas [16] can also causes this clinical condition. In one case report it was reported that PLB arising from previously conservatively managed ectopic pregnancy [17]. The peritoneal loose body, which is formed by an organized fat necrosis, can have vary in position in the peritoneum due to lack of fixed attachment but most of the time present in the pelvic cavity due to gravity effect and its free mobile nature and can be extracted by laparoscopic approach [18].

Usually, the giant PLB presents as asymptomatic and found incidentally on imaging. The symptoms that have been mentioned in the previous literature range from abdominal discomfort, pain and intermittent constipation to small bowel obstruction [19,20], urinary retention, frequency and infections.

The diagnosis is very challenging in view of various types of presentation and rarity of the lesion. Computed tomography (CT) is helpful preoperative imaging modality to diagnose these giant peritoneal loose bodies, showing a concentric round or oval-shaped, well-defined mass with central calcification surrounded by peripheral soft tissue [21,22]. Magnetic resonance Imaging (MRI) shows a low-intensity mass on both T1 and T2 weighted images, which makes it difficult to discriminate from other

pelvic tumors. Sometimes when the diagnosis is in doubt, serial follow up images may be required because the position of peritoneal loose body may vary due to its free mobility.

On cyto-pathological examination peritoneal loose body appears as a core of necrotic, calcified fat laminated by layers of a cellular hyalinized fibrous tissue [23,24]. In some circumstances, giant PLB presenting in retro vesical pouch can appear as pelvic soft tissue tumor on preoperative imaging and can lead to overstated procedures.

Like in our index case initially it was reported as pelvic soft tissue tumor in preoperative period on imaging and fine needle aspiration cytology (FNAC) revealed it as a rhabdoid tumor and exploratory laparotomy was done to extract the giant peritoneal loose body.

Differential diagnosis can be in wide list, and it includes benign disease like a leiomyoma, teratoma and foreign body and malignant conditions like to malignancy like colorectal cancer, ovarian cancer, pelvic soft tissue tumor, retroperitoneal tumor, lymphoma, and metastases [25].

Considering the presentation of peritoneal loose bodies, usually no treatment is required if they are smaller in size and asymptomatic. But some Giant peritoneal loose bodies having size of more than 5 cm, can present with symptomatic and require surgical extraction. In many previous reports the removal of peritoneal loose body is recommended by the laparoscopic exploration [26]. Even when there is a pelvic mass of unknown origin with doubtful diagnosis of peritoneal loose body, the laparoscopic approach is recommended for extraction. It is important for radiologists and clinicians to be aware of this rare entity and its characteristic features to establish the correct diagnosis.

4. Conclusions

Management of giant PLB requires a multidisciplinary approach. To avoid unnecessary overstated surgical procedures exact preoperative imaging findings as well as cyto-pathological findings should be reported in the preoperative period. Sometimes when the diagnosis is in doubt, serial follow up images may require in preoperative period because the position of peritoneal loose body may vary due to its free mobility.

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