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## Symptomatic giant peritoneal loose body in the pelvic cavity: A case report

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## ABSTRACT

**INTRODUCTION:** Giant peritoneal loose bodies (gPLB) occur rarely and therefore only few have been described. Often they are found incidentally and have no clinical relevance, whereas symptomatic forms may require surgical removal.

**PRESENTATION OF CASE:** We report the case of a male patient suffering from abdominal discomfort with alternating localizations for several years, actually presenting with a proctitis. With elevated inflammatory markers, a conspicuous resistance in the lower abdomen and in order to evaluate further affection of the colon, an abdominal CT-scan was performed. It revealed a spherical mass in the lesser pelvis. A colonoscopy confirmed the proctitis, showing no further pathologies. Due to the symptoms and the uncertain entity of the mass, a diagnostic laparoscopy was performed and a boiled egg-like structure (diameter 5.2 cm) was removed. The patient recovered well and was free of symptoms.

**DISCUSSION:** The patient had two potential reasons for his symptoms, one of them being a suspected leftover foreign body years after an appendectomy. The proctitis was treated conservatively but without complete remission of the abdominal discomfort. Therefore, a diagnostic laparoscopy was performed and the mass turned out to be a gPLB.

**CONCLUSION:** To obtain a fast diagnosis and to perform an adequate conservative or surgical therapy, the knowledge about the rare entity of a gPLB is necessary. An exact anamnesis, clinical examination and the knowledge about the diagnostic values of radiological and endoscopic investigations are crucial.

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## 1. Introduction

A peritoneal loose body (PLB), also referred to as a “peritoneal mouse” [1], is a rare finding. Especially its “giant” form (gPLB) with a diameter >5 cm has rarely been described in the literature though this phenomenon has been known for over 300 years [2,3,4]. Although a gPLB can cause symptoms like abdominal and/or pelvic pain or discomfort with alternating localization [5], intestinal obstruction [6] or urinary retention [7], it is mostly detected incidentally at radiological examination, laparoscopy/laparotomy or autopsy [1]. Moreover, it is often misinterpreted as an intraabdominal tumor or foreign body, and overstated surgical procedures are carried out [8].

*Abbreviations:* PLB, peritoneal loose body; gPLB, giant peritoneal loose body.

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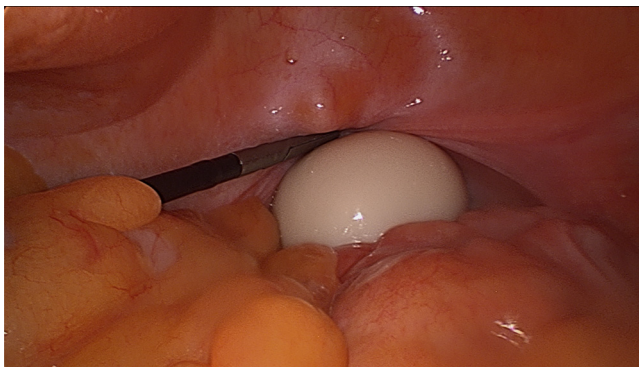
## 2. Case report

We report the case of a 52-year-old male patient presenting with acute anal and abdominal pain and constipation for 3 days. He additionally suffered from chronic intermittent abdominal discomfort with alternating localizations for many years. Beside concomitant hepatic steatosis, arterial hypertension and chronic lumbar pain, an open appendectomy was performed at patient's age of 23 years.

On clinical examination, the patient was tender in the lower abdomen without guarding or other signs of peritonitis and a solid mass could be palpated in the lesser pelvis. Rectal examination showed slight skin erythema and was painful. A conventional abdominal X-ray showed no abnormalities. Blood samples showed white blood count of 20 G/l and C-reactive protein of <5 mg/l. The patient was admitted in suspicion of proctitis and an abdominal CT scan was planned for the following day to further evaluate abdominal pathologies, e.g., colitis or intrabdominal tumor. An intravenous antibiotic therapy with amoxicillin/clavulanic acid was initiated. The following day C-reactive protein rose to 38 mg/l while white blood count still was elevated with 15 G/l. The CT-scan of the abdomen revealed a proctitis as well as a spherical mass in the

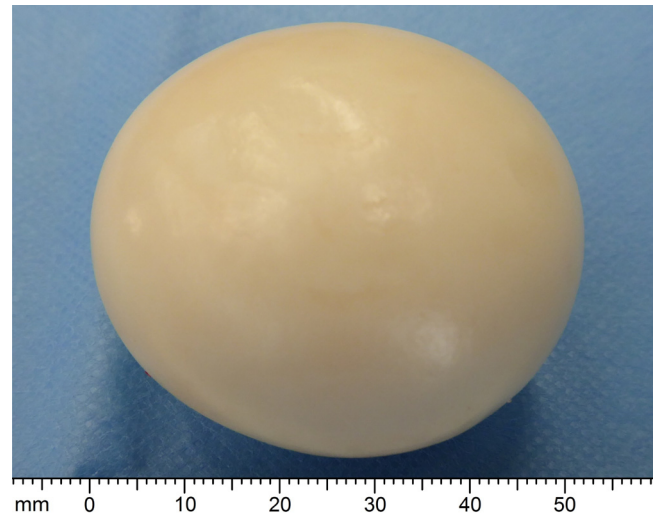


**Fig. 1.** CT-scan (coronal plane) showing a spherical mass (arrow) in the true pelvis with central calcifications, surrounded by soft tissue and lacking obvious connection to other organs.



**Fig. 2.** Intraoperative view during laparoscopy showing the freely floating, glistening gPLB in the lesser pelvis.

lesser pelvis (Fig. 1). An additional colonoscopy showed, beside a proctitis, no evidence of a tumor or inflammatory bowel disease. No further information about the intraabdominal mass could be gained. By then, the patient's general condition improved significantly under the antibiotic therapy while the abdominal discomfort persisted. Due to the chronic abdominal discomfort for years and the finding in the CT-scan, we decided to perform a diagnostic laparoscopy (Fig. 2), presuming a calcified foreign body, left over after the appendectomy nearly 30 years ago.



**Fig. 3.** gPLB after extraction from the abdominal cavity, measuring 5.2 × 4.5 × 4.2 cm with a white, shiny surface.

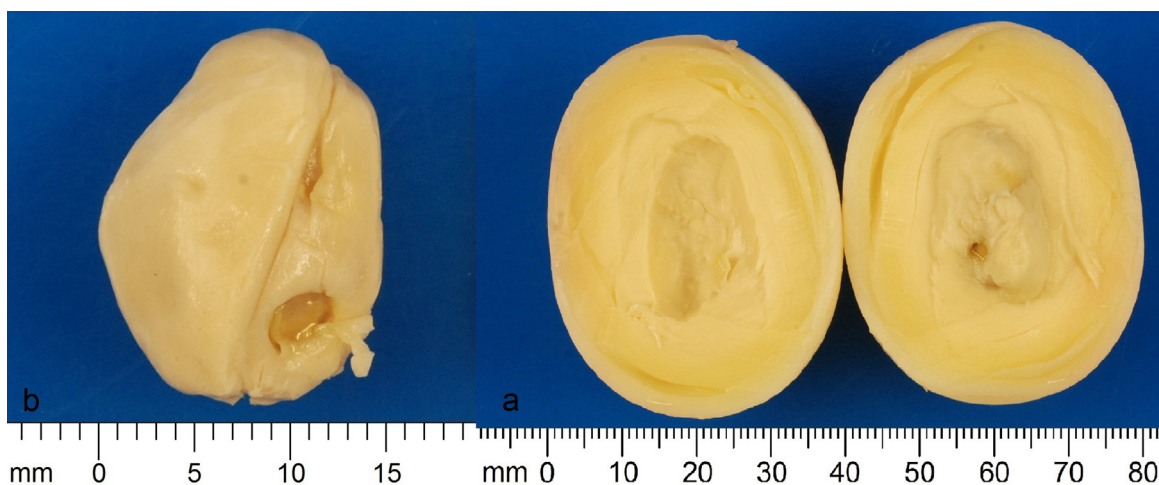
On laparoscopy, a hard loose object with the appearance of a billiard ball or boiled egg was found in the lesser pelvis. On manipulation, it freely floated through the abdominal cavity without any connection or adherence to the surrounding tissue. Finally, that gPLB was extracted through a small infraumbilical laparotomy (Fig. 3). After an uneventful postoperative course, the patient was discharged from the hospital after 3 days in excellent condition. Six weeks postoperatively, the patient's chronic symptoms have completely disappeared.

### 3. Discussion

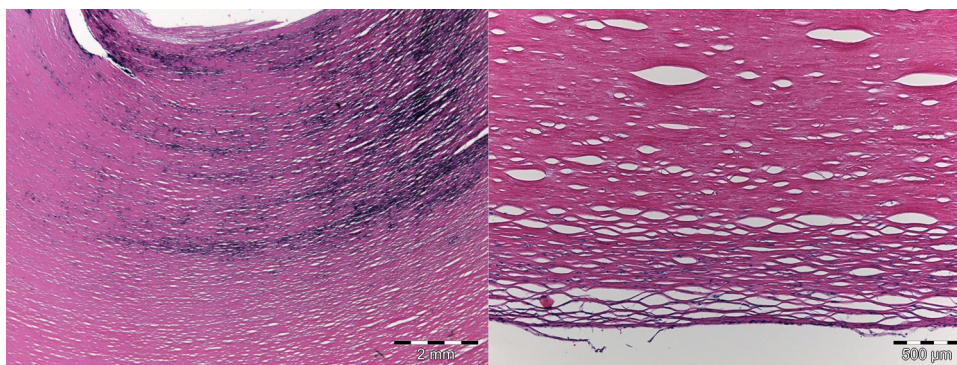
The clinical manifestation of a PLB is rare and has not been often described. Usually, PLBs are very small, not exceeding 2 cm of diameter [9] and therefore the uncommon diameter above 5 cm is considered as “giant” [10].

The PLB within the peritoneal cavity is supposed to emerge from a spontaneously distorted and consequently infarcted epiploic appendix. It then detaches from the serosa (corresponding visceral peritoneum) and undergoes a process of saponification and calcification [11]. Autoamputated parts of the greater omentum [12] or the adnexa [13] are discussed as well. The subsequent growth of the PLB is explained by an established theory: the deposition of intraabdominal fluids on its surface and its interaction with the surrounding peritoneum are supposed to cause the characteristic histopathological structure. Just like in our case, a necrotized and calcified central piece of fat tissue with an outer concentrically organized fibrosis, consisting of countless layers like can be observed (Figs. 4 and 5).

A giant PLB in particular can cause acute, as well as chronic symptoms like mentioned in the introduction above [5–7] and reported in our own case. Nevertheless, it normally hasn't got any clinical significance and is detected incidentally at radiological examination, laparoscopy/laparotomy or autopsy [8]. Therefore, it is normally not necessary to conduct a surgical intervention when a gPLB is only detected radiologically without concomitant symptoms. An important issue is to define its entity and to distinguish it from other manifestations, presenting with similar symptoms and imaging results, e.g., a benign or malignant intrabdominal tumor, tuberculous granuloma [2] or, as in our case, from a leftover foreign body [14]. As suggested by some authors [2,15], repeated radiological investigations, e.g., sonography in varying patient's body positions could be helpful to make the correct diagnosis. Allam



**Fig. 4.** Cross section of the gPLB after longitudinal slice (a) and nucleus (b): the outer layers were yellow to white, homogenous and had a lamellar, rubber-like texture. The calcified nucleus had a very hard consistency.



**Fig. 5.** Histological examination: the histology showed a calcified necrosis of fat tissue (nucleus) with hypocellular fibrolamellar tissue with numerous microcalcifications (outer layers).

et al. additionally reported a case where a PLB could be distinguished from a malignant tumor by  $^{18}\text{F}$ -FDG PET-CT [10]. It might also be affirmed by a detailed patient's history, confirming recurring abdominal discomfort in alternating abdominal locations, corresponding to our patient's history.

The patient described in our case had two potential reasons for his abdominal symptoms at the same time, i.e., proctitis and the gPLB which was initially suspected to be a leftover foreign body as he had an appendectomy many years before. After the proctitis was treated conservatively for some days without complete remission of the chronic abdominal discomfort and a colonoscopy showed no further findings, we decided to perform a diagnostic laparoscopy and to remove the presumed foreign body. The fact that the patient's persistent and chronic abdominal symptoms completely dissolved following his surgery they certainly can be ascribed to the gPLB. In case of an incidentally diagnosed intraabdominal suspicious unknown mass, a PLB has to be taken into consideration. Therefore, consciousness of this seldom formation is crucial. An extensive and exact anamnesis, a thorough clinical examination and a profound radiological understanding of (g)PLBs is essential to get to a correct diagnosis. If the patient has no symptoms and the diagnosis of a (g)PLB with an unmistakable radiological finding is clear, particularly the small asymptomatic PLB is not an indication for further intervention. However, a symptomatic patient with (g)PLB should always receive a surgical treatment. To evaluate the necessity for a surgical removal of an asymptomatic gPLB, further investigations about the coherence of the (g)PLB's

size and the occurrence of symptoms are required to recommend a surgical treatment in general for PLBs exceeding 5 cm.

#### 4. Conclusion

An interdisciplinary management together with an experienced radiologist is crucial because depending on the right diagnosis, the appropriate choice between conservative or surgical therapy has to be made. As the occurrence of a (g)PLB is very rare and often leads to uncertainty about the right diagnosis, we would advice to perform a diagnostic laparoscopy if there is any doubt about its entity following adequate imaging.

#### Conflicts of interest

The authors have no conflicts of interest.

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#### Ethical approval

Ethical approval not necessary.

**Consent**

We obtained a written consent by the patient.

**Author contribution**

A. Elsner: Author of manuscript.

M. Walensi: Review of manuscript, graphical draft.

M. Fünfschilling: Pathologist, pathological examination an input from pathological point of view.

R. Rosenberg: Review and correction of manuscript.

R. Mechera: Conception and review of manuscript; responsible surgeon.

**Guarantor**

R. Mechera.

**Disclosure summary**

Nothing to declare.

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