‘Peritoneal Mice’ A Peritoneal Loose Body in Pelvic Cavity of 70 Years Old Man, An Incidental Finding- A Case Report

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Abstract: Peritoneal loose bodies, or peritoneal mice, are rare asymptomatic lesions that are usually found as an incidental finding during abdominal surgery or autopsy. Giant peritoneal loose bodies are rare. Giant loose bodies, measuring more than 5 cm, are rare and only a few cases are reported in the literature. These bodies are usually infarcted appendices epiploicae, which become detached and appear as a peritoneal loose body in the abdominal cavity. We present a rare case large peritoneal loose body “peritoneal mice” found during a laparoscopic abdominal surgery in a 70 years old male patient. Usually these peritoneal loose bodies are left untreated until complication arises.

Keywords: Appendices epiploicae , boiled egg , fat necrosis , Peritoneal loose body

1. Introduction

Peritoneal loose bodies are rare in occurrence. They are found incidentally at laparotomy or autopsy by accident and often they have no clinical relevance, whereas sometimes they become symptomatic. Exact etiopathogenesis is not known but the most common origin of these bodies are infarcted appendices epiploicae that get detached and lie loose in the peritoneum and get saponified and later calcification occur[1,2]. These loose bodies are usually incidental findings that do not require any specific treatment until they become complicated [3-6].

They are usually small sized, like peas (1-2 cms). The loose body measuring more than 5cm are even rarer and termed as Giant loose body[3,7]. Here we are reporting a case of peritoneal loose body in 70 yrs old patient.

2. Case Report

A 70 years old male was admitted in casualty ward with complaints of acute abdominal pain, vomiting, and not passing flatus or feces since 2-3 days. Patient had history of past abdominal discomfort. On general physical examination patient was afebrile, moderately built, moderately nourished. Laboratory investigations showed normal haemoglobin value, raised total leukocyte count, raised blood urea and creatinine and urine examination were within normal limit. USG abdomen showed mass in pelvic cavity. On laparoscopic exploration a well defined egg like structure was identified in pelvic cavity. This egg like structure and part of omentum preserved in 10% formalin solution was sent in two containers for histopathological evaluation.

Histopathological examination

On gross histopathologic examination, the peritoneal loose body was oval in shape with boiled egg appearance, measuring 5 cm diameter, well circumscribed, unencapsulated. External surface was smooth shiny, white in colour. On cut section single calcified core identified which was hard in consistency, peripheral part was firm (Figure a and Figure b). Microscopic examination of egg like structure revealed dystrophic patchy calcification, with psammomatous body formation and concentric laminar pattern seen and part of omentum showed fat necrosis. (Figure c and Figure d)

3. Discussion

Peritoneal loose bodies are rare. They are also called peritoneal mice . There is limited information about the incidence of peritoneal loose body. Peritoneal loose body is more common in males. The incidence rate ratio between male and female is 18:4. The age span of patients at the time of diagnosis ranges from 2 months to 79 yrs and the majority occurs between 50 -70 yrs old. Most loose body ranges from 5 to 25 mm in size and generally do not cause any symptom. When the maximum diameter reaches more than 50 mm, they can be called giant peritoneal loose bodies. The largest peritoneal loose body measured 95×86 mm and was reported by Mohri et al. [8] in 2007.

In our case the peritoneal loose body size was 5cm diameter and cause acute abdominal discomfort .This type of study was also observed by various authors [Table no.1]

Littre in the year 1703 was the first to report a case of peritoneal loose body. Though the exact pathogenesis is unknown, it was Virchow (9) who proposed the sequential changes of the peritoneal mice, in his study in the year 1863.

Epiploic appendages referred as appendices epiploicae are 1-2 cm thick and 0.5 to 5 cm long, supplied by one or two small colonic end arteries and small draining vessels [10].Patterson in 1933 suspected that ischemia as a result of torsion or inflammation is dominant etiological factor that led to infarction or amputation.
Harrigan first described free-lying appendix epiploicae [11]. The term loose body implies something which has worked free from the lining of abdomen, resembling the loose bodies found in joints [12]. Exact etiology is not known. Possible sources include: (1) appendix epiploicae, (2) omentum [13], (3) autoamputated adnexa, or (4) fat tissue in the pancreas [5]. The most common source is appendix epiploicae. It is believed that the process is sequential. First, chronic torsion of the appendix epiploicae occurs, and the blood supply is shut off, followed by saponification and calcification of fat tissue. Finally, the appendix epiploicae detaches from the colon due to atrophy of the pedicle and becomes a peritoneal loose body.

Many authors suggest that once an appendix epiploicae gets saponified and calcified the exudative serum fluid (rich in protein) accumulates around it and, because of increased temperature in the peritoneal cavity, it gives the appearance of a boiled egg. 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 [14].

In our case histological finding suggest that peripheral white part is formed by deposition of peritoneal serum and central yellowish part is formed by saponified and calcified appendices and giving the appearance of boiled egg. The differential diagnosis associated with peritoneal loose body include the following: (1) benign disease: leiomyoma, rhabdomyomas, teratoma, and fibroma; (2) malignant disease: colorectal cancer, ovarian cancer, and metastases; (3) calculous disease: urinary stones, gallstones, and appendix stones; (4) tubercular granuloma; and (5) others: calcification of lymph nodes, lymphoma, and foreign bodies. CT and MRI can be performed to distinguish peritoneal loose bodies from other lesions [13].

4. Conclusion

Peritoneal loose bodies are rare and in most of the cases smaller in size. Even though giant loose bodies are very rare and a few cases were reported in the literature. They should be considered in the differential diagnosis of a mobile lesion in the pelvis and abdomen. Histopathological confirmation is mandatory so as to rule out calcified intraabdominal masses. A diagnostic laparoscopy can be done for removal of symptomatic peritoneal mice to obviate unnecessary surgery and to minimize morbidity.

References


Table 1: Summary of the information of 24 cases in the literature

<table>
<thead>
<tr>
<th>Author</th>
<th>Published year</th>
<th>Gender</th>
<th>Age</th>
<th>Symptoms</th>
<th>Size of PLB (mm)</th>
<th>Weight of PLB (g)</th>
<th>Surgical methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mohri et al. [8]</td>
<td>2007</td>
<td>M</td>
<td>73 years</td>
<td>Abdominal pain</td>
<td>95 × 75 × 66</td>
<td>220</td>
<td>Open</td>
</tr>
<tr>
<td>Hedawoo and Wagh [16]</td>
<td>2010</td>
<td>M</td>
<td>65 years</td>
<td>Abdominal pain</td>
<td>95 × 86</td>
<td>-</td>
<td>Open</td>
</tr>
<tr>
<td>Bhandarwar et al. [4]</td>
<td>1996</td>
<td>M</td>
<td>65 years</td>
<td>Acute retention of urine</td>
<td>90 × 80</td>
<td>210</td>
<td>Open</td>
</tr>
<tr>
<td>Shepherd [7]</td>
<td>1951</td>
<td>M</td>
<td>59 years</td>
<td>Acute retention of urine</td>
<td>70 × 55</td>
<td>-</td>
<td>Open</td>
</tr>
<tr>
<td>Sewkani et al. [14]</td>
<td>2011</td>
<td>M</td>
<td>64 years</td>
<td>Abdominal pain</td>
<td>70 × 50</td>
<td>74</td>
<td>Open</td>
</tr>
<tr>
<td>Ghosh et al. [3]</td>
<td>2006</td>
<td>M</td>
<td>63 years</td>
<td>Intestinal obstruction</td>
<td>58 × 45 × 37 and 52 × 45 × 37</td>
<td>-</td>
<td>Open</td>
</tr>
<tr>
<td>Kao et al. [18]</td>
<td>2010</td>
<td>F</td>
<td>69 years</td>
<td>Intestinal obstruction</td>
<td>40 × 30 × 23</td>
<td>-</td>
<td>Open</td>
</tr>
<tr>
<td>Kogao et al. [19]</td>
<td>2010</td>
<td>F</td>
<td>33 years</td>
<td>infertility</td>
<td>30 × 20</td>
<td>-</td>
<td>Laparoscopy</td>
</tr>
<tr>
<td>Gayer and Petrovitch [20]</td>
<td>2011</td>
<td>M</td>
<td>59 years</td>
<td>Incidental</td>
<td>30</td>
<td>-</td>
<td>Untreated</td>
</tr>
<tr>
<td>Nomura et al. [21]</td>
<td>2003</td>
<td>M</td>
<td>63 years</td>
<td>Incidental</td>
<td>50 × 40 × 30</td>
<td>-</td>
<td>Laparoscopy</td>
</tr>
<tr>
<td>Asabe et al. [22]</td>
<td>2005</td>
<td>F</td>
<td>2 months</td>
<td>Urinary tract infection</td>
<td>30</td>
<td>-</td>
<td>Laparoscopy</td>
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<tr>
<td>Kim et al. [23]</td>
<td>2013</td>
<td>M</td>
<td>50 years</td>
<td>Incidental</td>
<td>175 × 70 × 68</td>
<td>160</td>
<td>Laparoscopy</td>
</tr>
<tr>
<td>Sahadev and Nagappa [24]</td>
<td>2014</td>
<td>M</td>
<td>52 years</td>
<td>Abdominal pain</td>
<td>70 × 60</td>
<td>-</td>
<td>Laparoscopy</td>
</tr>
<tr>
<td>Jang et al. [25]</td>
<td>2012</td>
<td>M</td>
<td>60 years</td>
<td>Incidental</td>
<td>45 × 40 × 30</td>
<td>-</td>
<td>Laparoscopy</td>
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<tr>
<td>Nozu and Okumuta [26]</td>
<td>2012</td>
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<td>67 years</td>
<td>incidental</td>
<td>40</td>
<td>-</td>
<td>Untreated</td>
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<tr>
<td>Burns and James [27]</td>
<td>1969</td>
<td>F</td>
<td>33 years</td>
<td>Incidental</td>
<td>18 × 13</td>
<td>-</td>
<td>Open</td>
</tr>
<tr>
<td>Maekawa [28]</td>
<td>2013</td>
<td>M</td>
<td>58 years</td>
<td>Incidental</td>
<td>20</td>
<td>-</td>
<td>Open</td>
</tr>
<tr>
<td>Makineni et al. [29]</td>
<td>2014</td>
<td>M</td>
<td>52 years</td>
<td>Abdominal discomfort</td>
<td>60</td>
<td>-</td>
<td>Open</td>
</tr>
<tr>
<td>Allam et al. [30]</td>
<td>2013</td>
<td>M</td>
<td>77 years</td>
<td>Abdominal pain</td>
<td>17</td>
<td>-</td>
<td>Untreated</td>
</tr>
<tr>
<td>Huang et al. [31]</td>
<td>2011</td>
<td>M</td>
<td>55 years</td>
<td>Intestinal obstruction</td>
<td>-</td>
<td>-</td>
<td>Untreated</td>
</tr>
<tr>
<td>Takada et al. [6]</td>
<td>1998</td>
<td>M</td>
<td>79 years</td>
<td>Incidental</td>
<td>70 × 60 and 70 × 60</td>
<td>78 and 66</td>
<td>Open</td>
</tr>
<tr>
<td>Ooyagi et al. [32]</td>
<td>2006</td>
<td>M</td>
<td>65 years</td>
<td>Abdominal discomfort</td>
<td>4cm diameter</td>
<td>-</td>
<td>Not available</td>
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<td>Takayama et al. [33]</td>
<td>2009</td>
<td>M</td>
<td>63 years</td>
<td>Abdominal discomfort</td>
<td>4.5 diameter</td>
<td>-</td>
<td>Laparoscopy</td>
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<tr>
<td>Our study</td>
<td>2016</td>
<td>M</td>
<td>50 years</td>
<td>Acute abdominal pain</td>
<td>5 cm diameter</td>
<td>-</td>
<td>Laparoscopy</td>
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</table>

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Figure a: Boiled egg like mass measuring 5 cm diameter with smooth and shiny outer surface.
Figure b: cut surface showing central most hard core surrounded by yellowish rim. Peripheral part is whitish in colour.  
Figure c: high power view showing dystrophic calcification.
Figure d: microscopic examination of omentum showing fat necrosis.