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A RARE CAUSE OF INTRA-ABDOMINAL CYSTIC LESION: A CASE REPORT

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ABSTRACT
An 18-year-old female presented with right-sided lower abdominal pain, white discharge per vagina (PV), and intermittent burning micturition. Imaging revealed a large cystic lesion in the pelvis, prompting diagnostic laparoscopy to confirm a peritoneal inclusion cyst (PIC), with intraoperative findings of severe adhesions and organ involvement. Cyst drainage and deroofing were then performed. Postoperatively, the patient experienced symptom relief and histopathological examination confirmed the diagnosis. Regular follow-ups revealed no recurrence. This case highlights the diagnostic challenges, surgical management, and favourable outcomes of rare peritoneal inclusion cysts in a young female. Timely diagnosis and appropriate surgical intervention led to the resolution of symptoms and favourable clinical outcomes. Individualised treatment and close monitoring are crucial to achieve a successful clinical course. Further research is needed to enhance the understanding and management strategies for such uncommon conditions.

Keywords: Peritoneal cyst, benign, cystic, mesothelioma, debulking surgery

INTRODUCTION

The peritoneal inclusion cyst, or multicystic peritoneal mesothelioma (MCPM), represents a rare subtype of peritoneal mesothelioma [1]. This benign entity exhibits uncertain pathogenesis, characterized by the development of multiloculated cysts stemming from reactive mesothelial proliferation [2, 3]. Predominantly affecting women in their reproductive years, its aetiology is linked to chronic peritoneal inflammation secondary to conditions such as endometriosis, pelvic inflammatory disease, or prior surgical interventions [1, 2, 4]. With fewer than 200 documented cases in medical literature, its annual incidence stands at 0.15 per 100,000 individuals, contributing to its challenging management [1, 2, 4, 5]. While peritoneal inclusion cysts generally demonstrate a favourable prognosis with low malignant potential, recurrence rates can reach up to 50% [1, 2].

Nonetheless, 10% of PICs are incidentally discovered in asymptomatic individuals during imaging or surgical intervention. These cysts typically manifest as multilocular cystic lesions filled with fluid, located adjacent to pelvic organs, and adherent to the ovaries [3]. When encountering PICs, clinicians often consider para-ovarian cysts, hydrosalpinx, and low-grade cystic mesothelioma as part of the differential diagnosis. PICs lack malignant potential, allowing a conservative approach as an alternative to surgery. Image-guided aspiration coupled with oral contraceptive administration is the most effective therapeutic modality. However, fluid reaccumulation is inevitable over time. Consequently, many patients opt for surgical intervention [4].

The current standard of care involves debulking surgery; however, due to the potential for transformation into invasive mesothelioma and the high recurrence risk, certain institutions advocate for more aggressive strategies such as complete cytoreductive surgery (CRS), peritonectomy, and hyperthermic intraperitoneal chemotherapy (HIPEC) to pursue complete disease eradication [1, 5]. Nonetheless, the lack of adequate data currently precludes aggressive treatments from being considered as first-line approaches [5]. Herein, we present a unique case of a peritoneal

inclusion cyst in an 18-year-old female. This case report adhered to the SCARE criteria, and patient consent was obtained for publication by the ethics committee of the hospital.

CASE REPORT

An 18-year-old female presented to our outpatient department with a 20-day history of right-sided lower abdominal pain. The pain was insidious in onset, progressive, and radiating to the back. She reported a history of white discharge per vagina (PV) for six months and intermittent burning micturition for two months. Notably, she had similar complaints six months prior, which were managed conservatively. Her medical history included haemorrhoidectomy performed six months ago. On examination, the abdomen was soft with mild tenderness in the right iliac region, and no palpable masses were detected.

Imaging and Diagnosis:

Ultrasound screening revealed a large, fairly defined cyst with few internal low-level echoes in the pelvic midline and bilateral adnexa. A contrast-enhanced computed tomography (CECT) of the abdomen further characterized the cystic lesion, measuring 14.2 × 8.5 × 11.4 cm, involving the pelvis and left iliac fossa (LIF) region. Based on these findings, the patient was scheduled for diagnostic laparoscopy to ascertain the nature of the lesion.

Intraoperative Findings:

During laparoscopy, severe adhesions were noted between the small bowel and parietal wall. An inclusion cyst was observed in the pelvic cavity, with the left ovary and uterus found inside the cyst and the right ovary and fallopian tube protruding through the cyst wall (**Fig. 1**). A needle was used to puncture the cyst, and straw-coloured fluid was aspirated. Subsequently, the cyst wall was opened, approximately 600 ml of fluid was suctioned out, and deroofing of the cyst wall was performed (**Fig. 2**).

Figure 1: Laparoscopic findings revealing severe adhesions between the small bowel and parietal wall, additionally demonstrating inclusion cyst

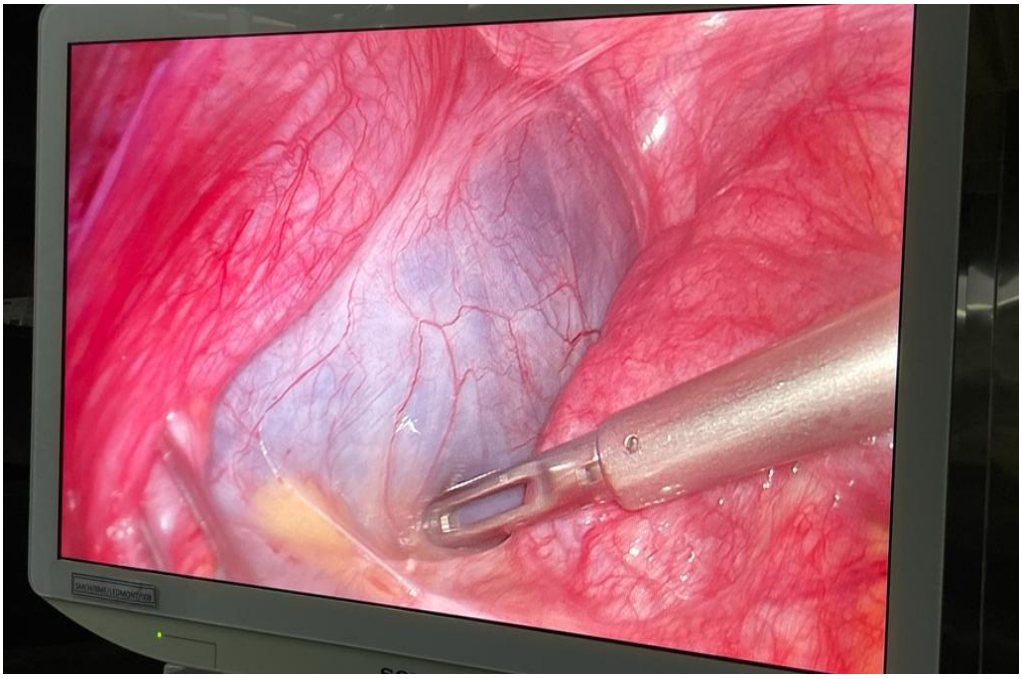

Figure 2: Intraoperative photos from revealing inclusion cysts

Treatment and Outcome:
Following the laparoscopic procedure, the patient's symptoms improved significantly and she was discharged with appropriate postoperative instructions. A histopathological examination of the cyst confirmed the diagnosis of a peritoneal inclusion cyst. The patient was followed up regularly and remained asymptomatic without any signs of recurrence during subsequent visits.

DISCUSSION

Peritoneal inclusion cysts represent an exceedingly rare subset of peritoneal mesothelial lesions, constituting approximately 3–5% of such cases, yet they exhibit a benign nature with a low propensity for malignant transformation [1, 2]. These tumours predominantly affect females, with a prevalence of 80–90%, and are most commonly encountered during the third to fourth decades of life [2]. The pathological involvement primarily targets the peritoneal surfaces of the omentum and pelvic viscera, including the uterus, fallopian tubes, and ovaries [1]. Due to their nonspecific symptomatology, diagnosing peritoneal inclusion cysts can be challenging. Patients were often present with diffuse abdominal pain and pressure symptoms, attributed to the compression of pelvic organs by the large intra-abdominal cysts, resulting in altered bowel and urinary habits [1].
To facilitate diagnosis, cross-sectional imaging techniques are essential for comprehensive evaluation, particularly for identifying intra-abdominal multicystic lesions, predominantly within the pelvic region. However, the differential diagnosis for pelvic lesions in females is extensive, necessitating the use of magnetic resonance imaging (MRI) to discern the lesion's origin and ascertain the presence of solid or liquid components within the cystic structure [7].
In a case study conducted by Padmanabhan et al., the patient underwent CRS and HIPEC for a suspicion of pseudomyxoma peritonei (PMP). Peritoneal free-floating cysts (PFFC) were observed during intraoperative assessment. The significance of PFFC lies in the potential risk of disease recurrence if left untreated, as these cysts can deposit elsewhere in the abdomen, contributing to disease progression [1]. Al Tamimi reported a hypothesis for the development of PIC due to peritoneal disruption via prior surgery that leads to impaired fluid absorption and results in cyst formation. Surgeries of abdominopelvic regio, gastrointestinal inflammation, or pelvic inflammation are the risk factors for developing peritoneal inclusion cysts [8].
This is a rare case of a peritoneal inclusion cyst. However, individualised treatment courses were tailored for each patient. Similar to our case, Tamimi et al. obtained initial symptomatic relief through cyst drainage. However,

subsequent treatment was different, as our patient was treated by inclusion cyst excision, while Tamimi et al. resorted to conservative hormonal therapy [8]. Imaging modalities such as ultrasound and CECT are valuable for characterisation, but definitive diagnosis is often made intraoperatively. Surgical management, particularly laparoscopic deroofing, is effective in alleviating the symptoms and preventing recurrence, as demonstrated in this case.

CONCLUSIONS

This case highlights the diagnostic journey and successful laparoscopic management of peritoneal inclusion cysts in a young female patient. Timely diagnosis and appropriate surgical intervention led to the resolution of symptoms and favourable clinical outcomes. Continued vigilance and regular follow-up are essential for effectively managing rare and challenging cases. This case adds to the limited literature on peritoneal inclusion cysts and highlights the importance of a tailored treatment plan for each patient. Further research and case reports are warranted to enhance our understanding of and management strategies for this rare condition.

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