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CASE REPORT

Severe granulomatous peritonitis and small-bowel fistula formation following the excision of an ovarian dermoid cyst: a case report

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Abstract Dermoid cysts are the most common type of ovarian tumour and should be removed due to possible complications. We report a case of a woman who suffered severe granulomatous peritonitis following laparoscopic removal of a dermoid cyst. This required laparotomy, with subsequent enterocutaneous fistula formation. This case demonstrates the importance of adequate irrigation and the use of an endobag in removing dermoid cysts laparoscopically.

Keywords Dermoid cyst · Peritonitis · Laparoscopy · Enterocutaneous fistula · Endobag

Introduction

Dermoid cysts, more accurately known as benign cystic teratomas, are the most common type of ovarian tumour, comprising approximately 20–25% of all ovarian tumours [1]. They are usually discovered incidentally during pelvic ultrasound or examination. Surgical removal is advised because of the risk of complications, including torsion, rupture and the small potential of malignant transformation, estimated at between 1 and 3% [2].

Case report

A 37-year-old female presented to the Accident and Emergency department with a two-week history of increasing abdominal pain, distension, diarrhoea and fever. There were no respiratory, cardiovascular or urinary symptoms.

Three weeks earlier, the patient underwent a laparoscopic salpingo-oophorectomy for a left ovarian dermoid cyst. There was spillage of the cyst and an endobag was not used. Peritoneal washout was performed laparoscopically.

On examination, the patient was alert and orientated. The vital signs were as follows: heart rate 140 beats per minute; blood pressure 152/79 mmHg; tympanic temperature 38.1°C and respiratory rate 24 breaths per minute. The apex beat was not displaced and no heart murmurs were noted. The chest was clear on auscultation, whereas the abdomen revealed generalized tenderness with rigidity and rebound. There was no evidence of infection at the port sites. Bowel sounds were diminished. A clinical diagnosis of peritonitis was made.

Chest X-ray showed no abnormality, whereas abdominal X-ray showed some generalised increased opacification consistent with the presence of free fluid. Computed tomography (CT) of the abdomen revealed a large amount of free fluid, with some thickening of the peritoneal surfaces, consistent with generalised peritonitis.

The blood results were as follows: haemoglobin 10.5 g/dL, white cell count 17.8×10^9/L, neutrophils 15.5×10^9/L, platelets $1{,}044\times10^9$/L. The renal and liver function tests, calcium, phosphate and blood cultures were all normal. The C-reactive protein was raised at 245 mg/l (normal <6).

A diagnostic laparoscopy was performed and was converted to a laparotomy for peritoneal washout. Eleven days later, the patient developed multiple fluid anterior abdominal wall collections revealed by CT of her abdomen. Ultrasound-guided aspiration of one of these peritoneal collections showed no growth of organisms. A repeat abdominal CT showed an enlarging anterior wall collection of fluid and air (Fig. 1), as well as a hernia containing bowel inferior to the umbilicus. Exploration of the wound

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Fig. 1 Computed tomography (CT) axial section through the abdomen showing a collection of fluid and air, mainly the latter, immediately posterior to the anterior abdominal wall in the subcutaneous fat tissue

revealed yellow pus and necrotic material extending between the layers of the abdominal wall, but there was no extension of tracts into the peritoneal cavity. Ten days later, the lower third of the laparotomy wound broke down and initially there was discharge of frank pus from the wound; later an amylase-rich brown fluid and air were discharged. This was the formation of an enterocutaneous fistula.

Discussion

The laparoscopic removal of dermoid cysts has been shown to be safe, with most patients discharged the same day [3, 4]. The most significant potential complication of dermoid cyst removal is chemical peritonitis resulting from spillage. Although the rate of spillage during laparoscopic removal is approximately 27% [5], the incidence of clinical peritonitis following spillage during laparoscopy is estimated at only 0.2% [4].

The risk of spillage during removal of dermoid cysts is independent of age, operative technique or cyst size [6]. Concomitant oophorectomy, however, does reduce the chance of spillage, as does surgeon experience when laparoscopy, but not laparotomy, is performed.

The chances of spillage during laparoscopic removal have been shown to be reduced by the use of an endobag and complications are prevented by jet wash irrigation with large amounts of fluid [4, 7–10]. Failure to adequately irrigate the pelvis following spillage has been shown to lead to severe granulomatous peritonitis post-operatively [11]. This manifests at subsequent laparotomy as diffuse purulent peritonitis with scattered yellow sebaceous fragments [11, 12].

Fistula formation to bowel and bladder has been reported in cysts which have not been removed [13, 14]. Fistula formation results either from malignancy within the cyst or from a small amount of spillage of cyst contents, leading to peritonitis [15].

Conclusion

This case and literature review underline the importance of thorough washout of the pelvis following spillage from dermoid cysts removed laparoscopically. In addition, it is strongly recommended that endobags be used to minimise complications such as peritonitis and fistula formation.

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