

Complications of Ovarian Cyst: An uncommon and unusual case report.

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• Abstract

Mature cystic teratoma (aka) dermoid cysts, are the most common primary ovarian tumours with an incidence of 10 - 25% and 50% in women and adolescent girls, respectively. With the known common complication of a dermoid cyst being torsion of the cyst (15%), rare complications include malignant transformation (1-2%), infection (1%), and rupture of the cyst (0.3-2%). We hereby present a 54-year-old female, who presented to the hospital with a history of persistent fever and raised inflammatory markers, following a laparoscopic ovarian cystectomy. Despite draining the intra-abdominal collection, under interventional radiology; an interval CT showed persistent para colic gutter collection. Hence chemical peritonitis, following a rupture of the dermoid cyst was suspected and this was confirmed on exploratory laparotomy. Post-operatively after completing a 3-day course of dexamethasone, all antibiotics were stopped prior to being discharged home. Follow up scans at 2 and 4 weeks, confirmed a significant improvement in the intra-abdominal collection and she remained clinically stable.

• Introduction

Germ cell tumours are common, accounting for approximately 30% of primary ovarian tumours, of which 95% are benign, mature, cystic teratoma. The peak incidence for ovarian germ cell tumour is in young women and adolescent girls. Mature cystic teratoma (dermoid cysts) are the most common germ cell tumours with 10-25% incidence of adult and 50% of paediatric ovarian tumours. The tumour is slow-growing and in most cases, it is an accidental finding as the presenting symptoms are vague and nonspecific. The diagnosis of mature cystic teratoma is often made in retrospect, after surgical resection of an ovarian cyst because no imaging modalities cannot yet accurately and reliably distinguish between benign and malignant pathology. The main complication of a dermoid cyst is cyst torsion (15%); other reported complications include malignant transformation (1-2%), infection (1%), and rupture (0.3-2%). Prolonged pressure during pregnancy, torsion with infarction, or a direct trauma are the main risk factors for a spontaneous dermoid rupture that can lead to acute or chronic peritonitis.

• Case History

54-year-old female presented to our gynaecology department with abdominal pain, vomiting and pyrexia having undergone an open right salpingo-oophorectomy and peritoneal lavage six weeks previously for a ruptured dermoid cyst, at a different Hospital. Following this two weeks later, an intra-abdominal collection was drained under interventional radiology. Despite this, pyrexia with raised inflammatory markers persisted. Hence, CT scan of pelvis and abdomen was performed which demonstrated a fluid collection in the right paracolic gutter measuring 13 x 4.5 x 3.7cm with surrounding stranding of the mesentery and omental interface.

Further CT scan repeated nine days after the initial one demonstrated no changes. As there was no clinical improvement in the patient following 14 days, chemical peritonitis was suspected, and exploratory laparotomy was undertaken. With the findings of a frozen abdomen, Chemical peritonitis following dermoid cyst rupture was confirmed. Post-operatively a 3-day course of dexamethasone 8mg OD was started and all antibiotics were stopped prior to being discharged home. The patient had a follow up CT scan two weeks later which showed a significant improvement in the size of the paracolic gutter collection and on-going inflammatory changes in the omentum and mesentery. 4 weeks following this she had a further follow up CT which showed stable appearances.

• Discussion

Germ cell tumour constitute 15-20% of all ovarian tumours. These include Dysgerminoma, Yolk sac tumour, embryonal carcinoma, Choriocarcinoma, Mature Teratoma and Immature teratoma; of all various germ cell tumour, Teratoma is the commonest. Ovarian germ cell tumours are composed of derivatives of two or three primary germ layers; that is, ectoderm, mesoderm, or endoderm. Teratoma can be mature cystic Teratoma (Dermoid cyst) or immature teratoma.

Mature teratoma or ovarian dermoid cysts are benign cysts comprise up to 58% of all benign ovarian tumours. They are very common and composed of mature tissues, most frequently sebaceous material, hair and bone. They may present at any age from 2 to 80 years, with a mean age of 32 years. . Dermoid cysts are bilateral in 8-15% of cases.

Approximately 5% of tumours present postmenopausal. It usually occurs in reproductive age group and can occur during pregnancy. On rare occasion they may undergo malignant transformation in one of the elements, with squamous cell carcinoma being the most frequent malignant histology.

Grossly, the tumours are round or oval with a smooth, glistening, gray-white surface. The majority of tumours measure 5 to 10 cm in diameter, with 8% to 15% of cases being bilateral. The tumours are usually unilocular but occasionally multilocular and are filled with hair and a fatty material similar to sebum. A solid portion located at one pole of the cyst and projecting into the cavity is known as a Rokittansky protuberance, where all three germ cell layers are found.

Tissues also can be found at the protuberance, such as hair, teeth, bone, glia, neural tissue, cartilage, retina, smooth muscle, fibrous and fatty tissue, gastrointestinal and bronchial mucosa, and thyroid and salivary gland tissue.. Microscopically, they may take on any mature tissue structure, and nodules composed of fat and bone that project into the cyst may be present; these are called Rokittansky protuberances

Most of them are asymptomatic and may be detected at ultrasound scan performed for other indication. The presenting symptoms are due to pressure effects and present as pain, urinary symptoms, bowel symptoms and breathlessness or palpitations. Complications include Torsion, rupture, Intracystic haemorrhage, infection and malignant transformation.

Ovarian torsion is a common cause for presentation and is reported in 10-16% of cases, secondary to the fat content within the cyst that causes the cyst to float on peritoneal fluid and render it more easily twisted, particularly as the cyst enlarges. Rupture during surgery or spontaneous cyst rupture is rare and is reported in only 0.3 - 0.7% of cases, due to thick capsule. Risk factors for spontaneous rupture include prolonged pressure during pregnancy, torsion with infarction, or a direct trauma. The dissemination of cystic contents into the abdominal cavity is called “spillage” and may result in a chemical peritonitis, an aseptic inflammatory peritoneal reaction that presents as an acute abdomen. Contents rupture into the peritoneal cavity or adjacent hollow organs (bowels, the bladder, or vagina).

Usually, asymptomatic, as the clinical presentation might be insignificant in the early period. When symptomatic, due to complications the patient would complain of progressive abdominal pain, abdominal distention, fever, and gastrointestinal disturbances such as anorexia, nausea, vomiting, and diarrhea. There are two different types of clinical presentation, which depend on the leakage time: ‘acute’ and ‘chronic’. Acute peritonitis is caused by a sudden wide cyst rupture and abrupt leakage of sebaceous material, while chronic granulomatous peritonitis is caused by a slow leak from a tiny tear in the cyst wall. It is a surgical emergency.

In the past, a diagnosis of benign cystic teratoma was usually made on an abdominal radiograph in a young woman with acute abdominal pain, because osseous differentiation or teeth could be seen in the pelvis. An accurate diagnosis of a ruptured ovarian teratoma can be confirmed when the discontinuity of the cyst wall is noted radiologically.

Transvaginal sonography, however, has become the diagnostic test of choice in most centres, although pelvic magnetic resonance imaging (MRI) can be helpful when the diagnosis is uncertain and may be especially useful when the mass is detected during pregnancy.

On Ultrasound there are characteristic features including Rokittansky protuberance is a rounded hyperechoic mural nodule with fat fluid or hair fluid levels in the cyst and lines and dots due to hair and fat. Ca125 levels are normal

Small >6cm asymptomatic dermoids may be observed, as their growth is only 2mm per year. However, repeat ultrasound and follow up should be performed every 6 months to 1 year. A CT scan can be helpful because this modality is very sensitive (93-98%) for the detection of an intraperitoneal fatty implant, most commonly around the liver surface.

Laparoscopic ovarian cystectomy is the treatment of choice, and the cyst is collected in an endobag and peritoneal spillage should be avoided to avoid granulomatous peritonitis. Laparotomy can be done for large cyst, torsion, rupture and when facility and expertise of laparoscopy are not available.

The treatment of choice, once rupture of an ovarian cystic teratoma is diagnosed, should be immediate surgical intervention. The initial treatment consists of resuscitation measures combining hydration, analgesics, blood transfusion and correction of electrolyte imbalances. The purpose of surgery is prompt removal of a spontaneously ruptured ovarian cyst with thorough peritoneal lavage. These steps are sufficient to prevent prolonged chemical peritonitis.

Chemically aggressive content of the ruptured cyst causes granulomatous inflammation of the peritoneal serosa. Dense pelvic adhesive disease or bowel obstruction, abdominal wall abscesses, enterocutaneous fistula formation and other complications. Some require intensive medical management and repeat surgical treatments. Since the acute abdomen can be a result of wide range of diseases, differential diagnosis plays an important

References

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