Chemical Peritonitis Due to Spontaneous Ruptured Teratoma: A Case Report

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Abstract- One of the most common benign tumors in reproductive age women is mature Teratoma. We reported a 35-year-old woman who presented with abdominal pain, nausea, vomiting, and fever. The patient underwent laparotomy with the probable diagnosis of ovarian torsion. The evidence in the peritoneal cavity revealed chemical peritonitis due to the spontaneous rupture of the dermoid cyst.

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Keywords: Dermoid cyst; Mature teratoma; Ruptured cyst; Chemical peritonitis; Spontaneous ruptures dermoid

Introduction

One of the most common benign ovarian tumors is mature Teratoma (dermoid cyst). It can occur at any age but is more common in reproductive ages (1). 1-3% of Teratoma can become malignant (2). It can be complicated by ovarian torsion because of the fat component and ovarian enlargement (3). Rupturing of these cysts is uncommon and often occurs iatrogenically. The chemical peritonitis, which is resulted due to a ruptured cyst, is so dangerous and difficult to manage (3). We present a case of the spontaneous ruptured dermoid cyst with chemical peritonitis.

Case Report

The patient was a 35-year-old nulligravida woman with a history of 8 years of primary infertility. She was presented to our emergency department with an acute onset abdominal pain, which was greater in the left lower quadrant from 2 days ago, nausea and vomiting, and mild dyspnea. There was no other associated sign or symptoms. General examination revealed a pulse rate of 104 bpm and a temperature of 38.2°. There was a vague tenderness in the lower part of the abdomen associated with voluntary guarding. There was a decreased respiratory sound on both lung bases. In paraclinical evaluations, white cell count was 16800, with 84% neutrophils, BHCG was negative, and a superficial 50*62*46 mm solid mass with internal hyperechoic areas and low arterial vascularity with fat stranding view in favor of left ovarian torsion was reported in transvaginal sonography. A mild free fluid was seen in the pelvic cavity. The CXR showed mild blunt right costophrenic angle due to pleural effusion. The patient underwent laparotomy with the probable diagnosis of ovarian torsion. In the peritoneal cavity, there was 200 cc white to yellowish fluid with fatty droplets and lots of fibrin shape lesions over the bowels, appendix, uterus, and right ovary. The tube and left ovary and sigmoid colon constituted a complex with dense adhesions on the left side of the uterus. After sending a 10cc sample of fluid for the cytology, smear, and culture, the adhesion lysis was gradually performed, and the left ovary with a 6cm dermoid cyst, which had a small spontaneous perforation with sebaceous content leakage, was seen. The cyst was excised and sent to the pathology lab. Irrigation of peritoneal cavity with five liter N/S was performed. The patient was admitted to the ICU after surgery. Leukocyte count, temperature, and dyspnea were gradually improved. The patient was discharged after three days of laparotomy.

Discussion

One of the most common benign ovarian tumors is the dermoid cyst. Its prevalence is about 5 to 25 % of all ovarian tumors (4). It can occur at any age but is more common in reproductive ages, especially in the second and third decades of life (1,5).

Mature cystic teratoma consists of all three germ cell layers; ectodermal tissue (such as skin, hair, and sebaceous glands), mesodermal tissue (such as muscle),

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and endodermal tissue (such as lung, GI) origin (6-8). 1-3% of all Teratomas can become malignant (2).

50-60%of patients with dermoid cysts are asymptomatic, which is diagnosed incidentally in gynic routine examination or during sonography that is done for other reasons (2,9,10). Other symptoms that may help to diagnose a dermoid cyst are chronic pelvic pain, menstrual irregularities, or cyst complications (9,10). These complications include torsion (15%), ruptured (1.3%), infection (1-2%), and in some rare cases, hemorrhage of the dermoid cyst (9). In this report, we present a case of the spontaneous ruptured dermoid cyst with chemical peritonitis.

The uncommon complication, ruptured dermoid cyst, can be associated with shock and hemorrhage as an immediate sequel. Chemical peritonitis, as a marked granulomatous reaction, can happen subsequently because of the spillage of sebaceous contains the cyst into the peritoneal cavity. It can develop dense adhesions. The rupture can happen spontaneously or, more often, iatrogenic (9,11,12). The patient manifests as acute peritonitis. If extravasation happened, the patient's picture would become much more pernicious with abdominal distension, nausea-vomiting, diarrhea, and in some cases, low-grade fever (8,11). In the surgical exploration, small yellow-white peritoneal implants with dense adhesions may be found, which simulate peritoneal carcinomatosis or tubercular miliara (11,13). Ascites can also be seen in bilateral, paracolic gutters and between mesenteric leaflets (13). Our patient also was presented to the emergency department with acute onset abdominal pain, nausea-vomiting, and a low-grade fever.

Imaging modalities can help to diagnose the ruptured dermoid. Plain films may show calcific and tooth components in the pelvic or abdominal cavity. Ultrasound is the most common imaging technique, which can diagnose the dermoid cyst with calcific structures, hair, and sebaceous materials and diagnose arterial flow with Doppler mode, but it has many limitations by abnormal pelvic anatomy. CT scans can show ascites and floating areas of fat attenuation around the liver with discontinuation of the cyst wall. The pathognomonic finding is the observation of hypoattenuating fatty fluid below the right hemidiaphragm. In addition, with chemical peritonitis, CT scan findings reveal ascites, diffuse or focal omental infiltration, and inflammatory masses involving the omentum and bowels, which is more similar to peritoneal carcinomatosis. MRI, in the case of a ruptured dermoid cyst, shows ascites and peritoneal thickening with fat globules in the cul de sac and in the ante dependent pockets with a deformed ovarian dermoid cyst (14). We just performed an ultra-sonography for our patient, which was, unfortunately, undiagnostic because of pelvic deformities due to dense adhesions. At last, according to our patient's signs and symptoms, we preferred to do surgical exploration via laparotomy on her.

The acceptable treatment of dermoid cysts is ovarian cystectomy in order to make a definitive diagnosis, ovarian preservation, decreased complications such as torsion, rupture, or malignant transformation. The surgical approach may be via laparotomy or laparoscopy (15). The abdomen should be carefully irrigated to decrease the chemical peritonitis from iatrogenic spillage of cyst contents in either approach (11,16). In a case of probable chemical peritonitis, an emergency surgical exploration with laparoscopy or laparotomy is justified to adhesiolysis and complete peritoneal washing, with suctioning of spilled ovarian cyst contents, irrigation with warmed normal saline, and cystectomy (3,17). The conservative management is not beneficial as it is described in Shamshirzad *et al.*, and C.Rubod J *et al.*, case reports (3,18).

If obvious intraoperative signs of peritonitis are not seen, and immediate removal of the spontaneously ruptured dermoid cyst with complete peritoneal irrigation are performed to prevent chemical peritonitis, the prognosis will be favorable (14).

In our presented case also, peritoneal lavage with cystectomy and adhesiolysis was performed, and after three days of admission, she was discharged without any complications.

Chemical peritonitis is a rare complication of a ruptured dermoid cyst that should be promptly managed by surgical exploration via laparoscopy or laparotomy. The imaging modalities such as plain films, CT scans, or MRI can help to diagnose it. The treatment is a surgical exploration with complete peritoneal washing, cystectomy, and adhesiolysis.

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