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Extragonadal Dermoid Cysts – a Review and Case Report

CK Khoo [1], SYI Chua [2], YMA Siow[3], SMB Chern [3]

ABSTRACT

Extragonadal mature cystic teratomas (dermoid cysts) have been reported occasionally, with the most common site being the omentum. Of the three proposed aetiologies of such cysts, torsion of a pre-existing dermoid, leading to auto-amputation and subsequent re-implantation is most likely the preceding event. We also report a rare case of a parasitic benign cystic teratoma that was incidentally found in the Pouch of Douglas in a 29-year old woman undergoing a laparoscopic right cystectomy for an ovarian dermoid cyst. A literature review indicates that this is the third reported case of a parasitic or wandering dermoid cyst of the Pouch of Douglas.

Keywords : Dermoid cyst Extragonadal or parasitic Pouch of Douglas

INTRODUCTION

Mature cystic teratomas (dermoid cysts) occur most commonly in the ovary, but cases of cystic teratomas of extragonadal origins have also been described. The most common extragonadal site of these parasitic dermoid cysts has been the omentum. [1] We report a rare case of a parasitic benign cystic teratoma that was incidentally found in the Pouch of Douglas in a 29-year old woman, who was undergoing a laparoscopic right cystectomy for an ovarian dermoid cyst.

Khoo CK, MBBS, MRCOG, M.Med (O&G)
Registrar
Division of Obstetrics and Gynaecology
KK Women's and Children's Hospital

Chua SYI, MBBS, MRCOG, FAMS
Consultant Gynae-Laparoscopist
Department of Minimally Invasive Surgery
KK Women's and Children's Hospital

Siow YMA, MBBS, MRANZCOG, MRCOG, M.Med (O&G), FAMS
Consultant Gynae-Laparoscopist
Department of Minimally Invasive Surgery
KK Women's and Children's Hospital

Chern SMB, MBBS, MRANZCOG, MRCOG, M.Med (O&G), FAMS
Head and Senior Consultant
Department of Minimally Invasive Surgery
KK Women's and Children's Hospital

CASE REPORT

A 29 year old Chinese woman, parity 2, presented to the outpatient gynaecological clinic with bilateral lower abdominal pain of one week's duration. The pain was described as sharp and intermittent, with radiation to the back. She also had a vaginal discharge two weeks ago which had resolved spontaneously. There was no fever, dysuria, urinary frequency or diarrhoea. Her menses were regular, with no history of dysmenorrhoea or menorrhagia. There was no significant medical and surgical history of note.

On examination, she was febrile at 37.70 Celsius. Her abdomen was soft with minimal tenderness. There was no rebound or guarding. A speculum examination done showed minimal per vaginal discharge. A vaginal swab was taken for culture and sensitivity. The vaginal examination revealed the uterus to be normal sized. Cervical excitation was positive.

A working diagnosis of pelvic inflammatory disease was made, and she was treated with oral antibiotics and analgesics on an outpatient basis.

The ultrasound scan a week later in the outpatient clinic showed an enlarged right ovarian cyst measuring

7.2 cm x 7.1 cm x 4.3 cm cyst with diffuse low-level internal echoes, as well as 2.7 cm x 2.2 cm x 1.9 cm and 1.8 cm x 1.6 cm echogenic components without significant vascularity. The left ovary was not seen and the uterus was normal and not enlarged.

A diagnosis of a large right ovarian cyst, possibly dermoid cyst, was made. The vaginal swab culture was negative and the ovarian marker CA125 was not elevated. The Pap smear was negative for malignant cells.

A laparoscopic right cystectomy was planned. A 3-port laparoscopy (10 mm sub-umbilical, 5 mm suprapubic, 5mm left iliac fossa) was performed, with a routine open entry approach. Intra-operative findings showed a 7 cm right ovarian dermoid cyst (Fig. 1). The uterus, right tube, left ovary and tube were normal.

A second similar dermoid cyst of about 7 cm in size was noted in the Pouch of Douglas after the removal of the first cyst. It was surrounded by thin filmy adhesions, with no identifiable blood supply (Fig. 2). It was freed and removed intact. Post-operatively, the patient had an unremarkable recovery and was discharged the following day.

Macroscopic histology of the second dermoid cyst from the Pouch of Douglas showed a collapsed cyst measuring 6 cm x 4 cm x 1 cm, filled with cheesy material and matted hair. There was also a tooth found among the solid areas of the cyst wall. Microscopically, the cyst contains predominantly dermal elements with some respiratory lining. There were no immature elements and no malignancy was seen, confirming the pathological diagnosis of a benign mature cystic teratoma.

Discussion

Dermoid cysts occur most commonly in the ovary, but cases of extragonadal origins have also been described. The most common extragonadal site of these parasitic dermoid cysts has been the omentum [1], of which only 27 cases have been reported so far [2].

It is known that dermoid cysts arise from germ cells which originate in the mature gonads. Migration of these germ cells from the yolk sac along the hindgut (route of mesentery) towards the genital ridge (primitive gonad) takes place during fetal development [3]. These totipotent cells may give rise to a spectrum of tissues originating from the three primitive embryonic layers [4]

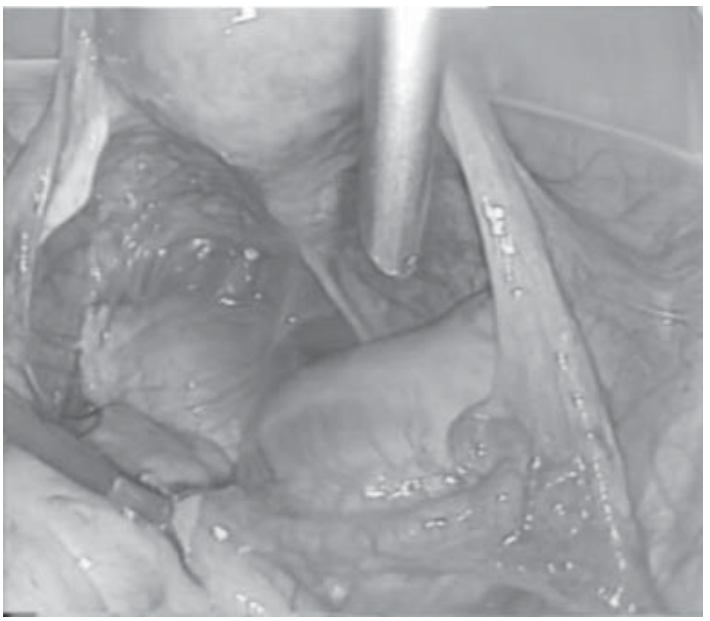

Figure 1
Initial findings of a 7 cm right ovarian dermoid cyst.

There have been three proposed theories on the aetiology of these extragonadal sites: (i) primary dermoids originating from displaced germ cells; (ii) dermoids developing in a supernumerary ovary; and (iii) auto-amputation of an ovarian dermoid and re-implantation into an extragonadal site [2].

J.K. Thornton first proposed the third possible mechanism in 1881. Mature teratomas are among the most commonly found ovarian tumors. The incidence of mature teratomas ranges between 5–25% of all ovarian neoplasms [1], with 13.7% of these tumors being bilateral [5]. Torsion of the pedicle is reported to be the most frequent complication of ovarian teratomas, occurring in 16.1% of cases [1]. Torsion interferes with the blood supply of the involved organ. Venous congestion and aseptic inflammation of the tumor wall may thus result. In acute torsion, the tumor undergoes necrosis and subsequent atrophy due to ischemia. In subacute or chronic torsion, the tumor may become adherent to adjacent structures with a new collateral circulation formed. Infrequently, the tumor completely detaches from its pedicle, thus, resulting in a parasitic dermoid cyst [7,8].

Parasitic cystic teratomas, at all locations, are rare, their incidence reported being 0.4% of all ovarian teratomas [1]. The omentum, because of its special role in intra-abdominal inflammation defense process is probably the main location for secondary implantation of the tumor.

The parasitic dermoid described in this case report had no apparent feeding vessel, which could make it a candidate for a cyst auto-amputated from the ovary as a result of torsion.

Attempts have been made to try to test for the histogenetics of these parasitic dermoids in order to elucidate the origins of their original sites. It has been noted that the dermoids tend to occur along the line of migration of the primordial germ cells from the yolk sac to the primitive gonad [9]. The teratomas have also occurred most commonly in the years of reproductive activity. Currently it is not possible to establish whether it has originated from a migrating parthenogenetic oocyte or disorganized proliferative blastomere which implanted in the Pouch of Douglas peritoneum or extra-embryonel cells [10].

Some of these parasitic dermoid cases have also been found to incidentally contain mobile spherules. The reason for the formation of such large spherules is still unknown, although it is proposed that hypovascularity could be a possibility [11,12].

The clinical presentation of the reported parasitic teratomas of the Pouch of Douglas tends to mimic those of omental teratomas, namely abdominal pain. The radiation to the patient's back is likely from lumbrosacral neuropathy, due to compression of the lumbrosacral plexus [13].

A review of the literature indicates that this is the third reported case of a parasitic or wandering dermoid cyst that has been found in the pouch of Douglas and the second mature teratoma in that location to be removed laparoscopically [2].

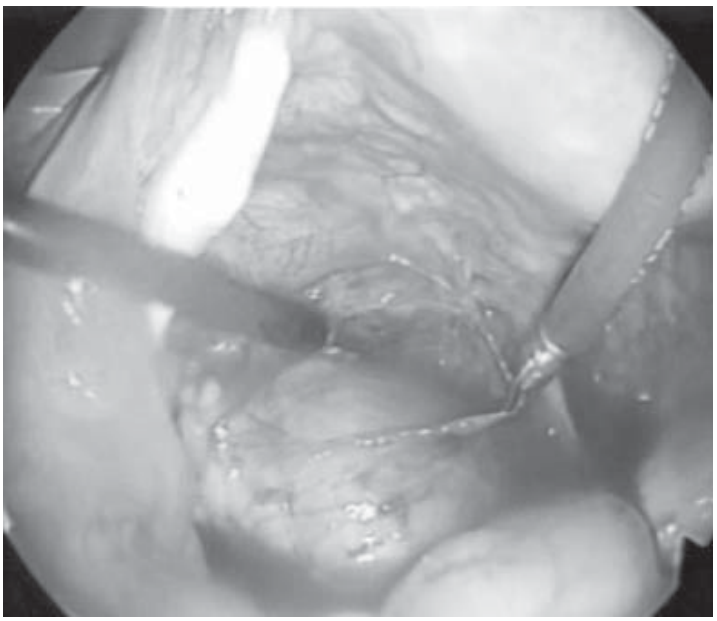

Figure 2
A second similar 7 cm dermoid cyst in the Pouch of Douglas, surrounded by thin filmy adhesions, with no identifiable blood supply.

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