**Peritoneal inclusion cyst**  
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**Section:** Genital (female) imaging  
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**Patient:** 34 years, female

**Clinical History:**

34-year-old female patient underwent laparoscopy assisted vaginal hysterectomy for uterine leiomyomas. Her post-operative period was uneventful, routine follow-up pelvic scan after 1 month was also normal. 2 months later she presented with recurrent lower abdominal pain and increasing abdominal girth. Per-vaginal examination revealed a 4-5cm cystic mass localised chiefly at the left adnexa.

**Imaging Findings:**

Routine haematological and biochemical investigations were normal. Her CA-125 level was 35.28 U/ml (normal<35U/ml). The patient was subsequently referred for a pelvic MRI. Ultrasound images (Fig. 1) of the pelvis revealed an irregular, anechoic, cystic lesion posterolateral to the urinary bladder. The left ovary was located eccentrically within the cystic lesion. Axial T1 weighted images (Fig. 2), axial fat suppressed T2 WI (Fig. 2b) and coronal T2 WI (Fig. 3) MR images showed a large, irregular, sharply defined cystic lesion in the left adnexal region, superior to the urinary bladder. The cyst appeared iso-intense to water on all sequences and possessed lobulated outlines, prominent finger-like extensions and few septations inferomedially. The left ovary was engulfed by the cystic lesion and showed normal imaging morphology (Fig. 3 & 4). A small curvilinear hyperintense area visualised medially on T1 WI was probably due to haemorrhage. Based on the presence of a lobulated, cystic mass lesion lacking clearly defined walls, encircling a normal appearing ovary, in a young female with history of recent pelvic surgery a diagnosis of peritoneal inclusion cyst was made and the patient was managed conservatively. The patient improved clinically and follow-up ultrasound one month later showed marked reduction in the size of the lesion (Fig. 5).

**Discussion:**

Fluid exudate derived from functioning ovaries is promptly absorbed by the normal peritoneum [1]. However, the absorptive capacity of the peritoneum is greatly diminished in the presence of mechanical injury, inflammation and peritoneal adhesions. Thus, patients with peritoneal adhesions who are fertile are susceptible to development of localised fluid collections termed peritoneal inclusion cysts (PIC). Such cysts are seen in premenopausal women with history of abdominal or pelvic surgery, pelvic inflammatory disease, trauma or endometriosis [2]. Pathologically, the cyst results from non-neoplastic, reactive mesothelial proliferation [3]. PIC tend to grow slowly from accrual of fluid exuded cyclically from the ovaries; however, they have no malignant potential.

Patient most often present with pelvic pain or mass and are initially referred for ultrasound examination to determine the cause. Sonography reveals an irregular, unilocular or multilocular cystic lesion in the pelvis. Size of the lesion varies from small localised collections to large cystic masses which occupy the entire pelvis and lower abdomen. Invagination of the surrounding structures into the cyst, lack of a discrete limiting wall and septations caused by
adhesions are responsible for the variegated imaging morphology. The peritoneal adhesions may ensnare the ovary producing a multisepate cystic lesion entrapping the “solid” ovary, expounded in literature as the “Spider web pattern” [1]. Sometimes the ovary may be located eccentrically within the lesion as in our case. Several other appearances include an oblong cyst with nodular mesothelial tissue adjacent to the uterus simulating a hydrosalpinx, and small fluid collections contiguous with the adnexa resembling parovarian cysts. Exuberant adhesions can form irregular, thick septations giving rise to a complex cystic mass.

CT can demonstrate fluid collection of irregular shape, however, it may be difficult to determine the nature of the fluid, also it is not always possible to localise the ovary [4, 5]. On MR-imaging, PIC appear as irregular masses with low signal intensity on T1-weighted images, appearing bright on corresponding T2-weighted images [6]. Post contrast images do not reveal enhancement of cyst walls. The location of the ovary with respect to the cysts is clearly demonstrated on MR. PIC must be differentiated from other cystic ovarian and paraovarian lesions. Cystic ovarian tumours are usually round or oval and do not contain invaginations of the surrounding structures. Thickening, solid elements and enhancement of the walls observed in ovarian neoplasms serve as differentiating features. Parovarian cysts do not have thickened walls but in contrast to peritoneal inclusion cysts they are non-septate, round, located in the broad ligament and may not be contiguous with the ipsilateral normal ovary [7].

Management of PIC is usually conservative, GnRH analogues and oral contraceptives are administered in order to suppress ovulation and exudation of ovarian fluid. Image guided transvaginal fluid aspiration and sclerotherapy have been attempted with partial success [8]. Laparoscopic and surgical ablation of adhesions is used as a last resort since risk of recurrence following surgery is 30–50% [1]. Excellent response to conservative management and knowledge of the fact that there is no risk of malignancy shall provide comfort to the clinician and the patient.

**Differential Diagnosis List:** Peritoneal inclusion cyst

**Final Diagnosis:** Peritoneal inclusion cyst

**References:**


**Description:** Longitudinal and transverse transvesical pelvic sonogram shows an anechoic, cystic lesion posterior to the urinary bladder. **Origin:**
Figure 2

Description: Axial MR image of the pelvis shows a lobulated homogeneous sharply defined hypointense collection on this T1-weighted image. Origin:
**Description:** The collection demonstrates hyperintense signal on this fat suppressed T2-weighted image. The left ovary seems to be engulfed by the cystic collection. **Origin:**
Figure 4

Description: Coronal T2-weighted pelvic MR image shows a normal left ovary engulfed by the cystic lesion. Origin:
Figure 5

Description: Follow-up longitudinal transvesical sonogram of the pelvis shows significant resolution of the cystic lesion in the left adnexa. Origin: