

Ovarian fibroma with liquefaction necrosis—a diagnostic and treatment dilemma—a case report

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Abstract We report the case of a large ovarian fibroma which presented a challenging pre-operative diagnosis with suspicious features on ultrasound scan and raised Ca 125 level. The risk of malignancy index was within normal limits and the patient underwent laparoscopic treatment. At laparoscopy, features remained suspicious. Histology confirmed benign ovarian disease.

Keywords Laparoscopy · Ovarian fibroma · Ultrasound scan · Ca 125 · RMI

Introduction

Ovarian fibromata constitute up to 6% [1] of all ovarian neoplasms; they are composed of fibrous tissue and thecal cells with abundant lipid in the cytoplasm [2].

Ovarian fibromata may occur at any age but are most common in middle age. Patients may be asymptomatic or may present non-specifically with pelvic pain and/or lower abdominal fullness [3]. The pre-operative diagnosis of ovarian fibromas is difficult and often presents a challenge for the gynaecologist. We report a case of ovarian fibroma in a young woman who presented a diagnostic dilemma until histology confirmed final diagnosis.

Case report

A 22-year-old female was referred to a gynaecologist with a history of lower abdominal discomfort for 3 months and increasing bloating unrelated to her periods. In the past, she had a history of severe acne when she was 17 years old and a small ovarian cyst was identified by ultrasound sound scan. She also took combined oral contraceptive pills (Microgynon) for contraception for 3 years.

Her general practitioner had arranged for her to have a pelvic ultrasound scan which was performed both trans-abdominally and trans-vaginally.

The scan revealed a large pelvic mass adjacent to the fundus of the uterus and superior to the bladder, measuring 12.4×12.2×11.7 cm (Figs. 1 and 2). It had a heterogeneous echo texture with predominantly solid components but also many areas of fluid density, some of which contained low-volume venous flow. The uterus appeared normal and neither ovary was identified separately from this mass. There was no evidence of hydronephrosis. There was no ascites or evidence of peritoneal disease. A neoplastic ovarian mass was suspected and urgent referral to a gynaecologist was suggested.

Physical examination confirmed a large mass occupying the pelvis which was smooth and very much consistent with the ultrasound findings. The working diagnosis was a large dermoid cyst or ovarian carcinoma. Tumour markers including Ca 125, alpha fetoprotein (a-FP) and testosterone were checked. The plan was to proceed to a laparoscopic ovarian cystectomy if the risk of malignancy index (RMI) was low. If the RMI should prove to be above 150, the patient would have been referred to an oncologist.

The result of the Ca 125 was elevated at 59.4 (normal range 0 – 35) and the testosterone and a-FP were within normal range. This produced an RMI of 119 (low risk of

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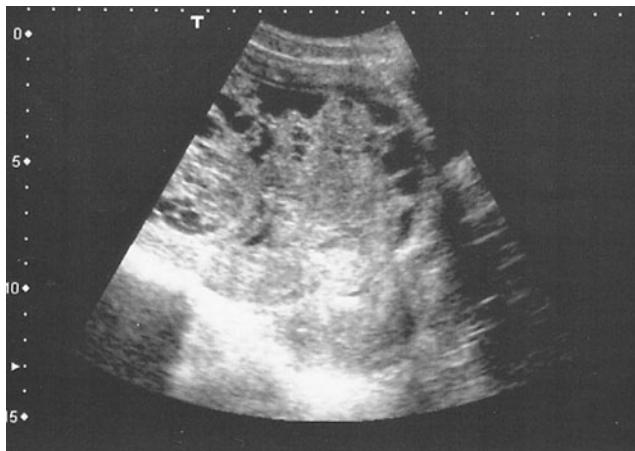


Fig. 1 Ultrasound image of the large pelvic mass with heterogeneous echotexture containing part solid and part cystic components

malignancy if <150). It was decided to proceed to laparoscopic ovarian cystectomy. The patient was admitted for the operation 3 weeks later.

In view of the large ovarian mass, the primary 10-mm port was inserted through Palmer's point. Two secondary ports were placed at the left (5 mm) and right (10 mm) iliac fossae lateral to the inferior epigastric vessels. The left ovary was entirely normal as was the rest of the pelvis. There was a 15-cm mass replacing the right ovary which contained multiple large cystic areas. The cyst ruptured during inspection and revealed that the ovary was replaced by creamy necrotic material (Fig. 3). In view of this, an oophorectomy was performed using a harmonic scalpel. The specimen was placed in a bag for removal to avoid any further spillage. This was removed from the abdomen by extending the skin incision in the right iliac fossa port to 20 mm to allow the top of the bag to be exteriorised and the

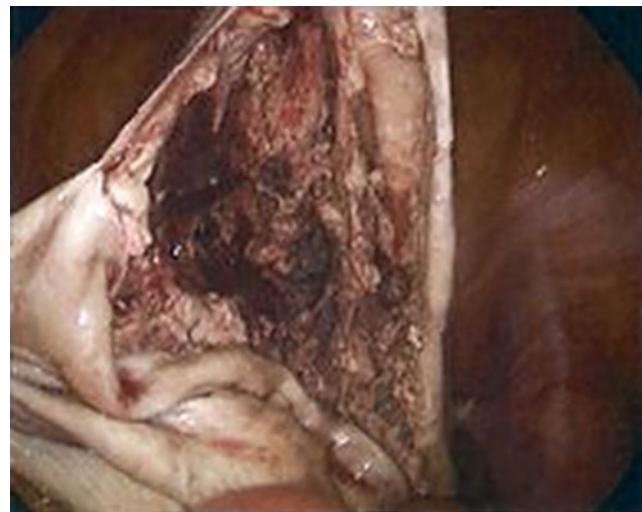


Fig. 3 The appearance of ovarian mass showing ovarian tissue replaced by necrotic tissue by laparoscopic vision



Fig. 2 Ultrasound image showing the papillary projections within the multicystic ovarian mass

specimen was removed in piecemeal and sent for histology. The sheath of the right-side port was closed with a no. 1 polyglycolate suture and the skin incisions with Dermabond. There was minimal blood loss at operation. The patient was discharged the following day.

The histology reported a fibroma with cystic changes secondary to liquefaction necrosis and degenerative changes. There were focal areas of haemorrhage and necrosis. There were no malignant features.

Discussion

A report by Leung and Yuen [4] studied a series of 45 patients where all tumours were unilateral with a median size of 13 cm. They recommended removal of the tumours due to low probability of malignancy. The pathological diagnosis of adnexal masses is difficult to make prior to surgery.

On ultrasound (US), an ovarian fibroma will most commonly appear as solid hypoechoic masses with sound attenuation; however, this appearance is variable depending on the size of the mass [2]. The typical US appearance of a fibroma can make identification difficult as the solid nature is easily mistaken for a malignancy. In this case, it was made harder to diagnose due to the atypical appearances on ultrasound. In this woman, the ultrasound features suggested a diagnosis of malignancy although the patient's age was only 22 years. However, the RMI was reassuring.

US is a very practical method for initial assessment of pelvic masses as it is relatively inexpensive and widely available. Suspicious features on US include thick irregular walls and septa, papillary projections and solid moderately echogenic lesions [2]. Given our US findings, the differen-

tial diagnosis includes endometrioma, fibroma, epithelial neoplasm, teratoma and functional cyst.

Ca 125 is a glycoprotein and has been shown to be a good test in monitoring the response to treatment and detecting recurrent disease, but its value in early detection of disease by itself is limited unless combined with US. Ca 125 in combination with US and menopausal status forms the basis of RMI and has been shown to achieve a sensitivity of 85% and specificity of 97% for prediction of ovarian cancers and provides a simple detection tool [5].

Three-dimensional ultrasonography and three-dimensional power Doppler are further US methods which hope to increase the accuracy of pelvic pathology classification. Identification of central localisation of vessels in the mass is thought to indicate a malignant process. A study by Geomini et al. [6] evaluated the accuracy of three-dimensional US and found that central vessels were present in only 15% of the benign lesions, 69% of the malignant lesions and 27% of the borderline malignancies. Of the 144 benign lesions used in the study, nine were fibromas and three of these were found to have central vessel localisation which suggest that, as with ordinary US, three-dimensional US has low diagnostic accuracy for fibromas [6].

Magnetic resonance imaging (MRI) is another modality for examination of ovarian masses. Typically, fibromas appear as well-circumscribed masses with low signal intensity on T2-weighted images. However, it is known that larger tumours can contain varied MRI findings reflecting the degenerative change including scattered high-signal-intensity areas representing oedema or cystic degeneration, therefore limiting its usefulness in pre-operative diagnosis [3].

In the USA, around 5–10% of women present with an adnexal mass and undergo surgery but malignancy is found in only 13–21% of these cases [2], demonstrating the diagnostic difficulties of pelvic masses. Laparoscopy provides an accurate method of diagnosis and involves shorter hospital stay, less post-operative pain, quicker recovery time, and less intraoperative complications [7, 8] when compared with laparotomy. Laparoscopy is the standard diagnostic and therapeutic tool for adnexal mass assessment with low risk for malignancy [7]. However, concerns remain as there is a risk of misdiagnosis of ovarian malignancies, tumour spillage during the operation, and an inability to perform a complete staging procedure. The concern that laparoscopic rupture of cystic contents and intraperitoneal dissemination of malignant cells may lead to an upstage of malignant cysts leading to otherwise unnecessary adjuvant chemotherapy exists, but this is not thought to affect the overall prognosis of the disease whereas a pre-operative rupture or the presence of ascites

does negatively influence the outcomes [7]. Every effort is taken to reduce the possibility of cyst rupture including the use of an endobag to retrieve tumours. Furthermore, a study by Eltabbakh et al. [9] revealed that laparoscopy is safe in large ovarian cysts (defined as larger than 10 cm) with benign features, which in turns relies on the accuracy of pre-operative assessment.

In conclusion, this case clearly demonstrates the limitation of pre-operative assessment of benign adnexal masses. Initial US assessment suggested possible malignancy, and the raised Ca125 supported this. However, the RMI was low so we proceeded with a laparoscopy which subsequently revealed suspicious finding and removal of the mass by oophorectomy was carried out. Histology confirmed fibroma with cystic changes and no evidence of malignancy, thus indicating the difficulty in diagnosis of fibroma. The evidence presented shows that US is a useful tool for initial evaluation of masses but has low specificity and is unable to give an accurate diagnosis. However, it can enable the formulation of an initial management plan and, as part of RMI, can help give a more accurate indication of potential malignancy.

Conflict of interest There is no actual or potential conflict of interest in relation to this article.

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