An unusual presentation of scar endometriosis

45-year-old female patient with end stage renal failure presented for a renal transplant. She had an incidental hard, fixed subcutaneous pelvic mass. Exclusion of malignancy was urgently required in order for the transplant to remain viable. The mass was tender during menstruation. She had a previous history of two caesarean sections.

Imaging Findings:

Ultrasound revealed heterogeneous, predominantly hypoechoic lesions within the anterior pelvic wall, some with posterior acoustic enhancement (Fig. 1).

CT confirmed a heterogeneous, complex 6 cm lesion within the right rectus sheath adjacent to a CAPD catheter. A smaller hyperdense soft tissue density structure was noted in the left rectus (Fig. 2).

On MRI, both anterior pelvic wall lesions returned high signal foci on T1 in keeping with blood breakdown products (Figure 3). Low level, heterogenous enhancement was demonstrated (Figure 4), and the larger right deposit was sited adjacent to a caesarean section scar. There was a right ovarian simple cyst with an adjacent follicle containing haemorrhage.

The imaging features alone have a differential diagnosis including desmoid tumours and malignancy, but with the history of cyclical pelvic pain, a confident diagnosis of abdominal wall endometriosis could be made, enabling the renal transplant to proceed. Biopsies at the time of transplant subsequently confirmed endometriosis.

Discussion:

Endometriosis is defined as functioning endometrial tissue found outside the uterine cavity [1]. It has been estimated to affect between 5% and 10% of women of reproductive age [2, 3]. Endometrial deposits within abdominal wall scars have a reported incidence of 0.1% which increases to 0.8% in women who have undergone previous caesarean section [1, 4, 5]. There are two major theories regarding the pathogenesis of abdominal wall endometriosis. The transportation theory postulates that endometrial tissue is transported to extra uterine sites, commonly by retrograde menstruation, lymphatic spread or through iatrogenic transplantation. The metaplasia
theory suggests that endometriomas can develop from primitive pleuripotential mesenchymal cells found in the peritoneum [4, 6, 7]. Case reports exist for degeneration into both clear cell carcinoma and primary endometrioid carcinoma [5, 8, 9].

Scar endometriosis usually presents with abdominal wall pain, characteristically cyclical, although it can be asymptomatic. The majority have a palpable mass. Without cyclical pain, the diagnosis is difficult, with differentials including incisional hernia, suture granuloma, desmoid tumours and malignancy [1, 5].

Abdominal wall endometriosis has non-specific imaging features and a tissue diagnosis is usually required. With our case this was not feasible as an urgent diagnosis was needed to allow successful renal transplantation. Biopsies taken at the time of surgery confirmed endometriosis (Fig. 5).

Ultrasound and CT typically demonstrate ill defined heterogenous lesions (Figures 1 and 2) which may contain cystic components. With CT, the soft tissue lesions are usually of similar density to adjacent muscle and show mild/moderate enhancement with intravenous contrast. CT may detect an association with an abdominal wall scar.

MRI is particularly good at detecting blood breakdown products. T1 weighted imaging (Figure 3) typically reveals an iso/slightly hyperintense lesions with foci of increased signal (haemorrhage) which remain high on fat suppressed sequences. On T2 acquisitions the lesions are typically hyperintense (Fig. 4). Rarely cystic lesions show signal shading allowing a more confident diagnosis. Abdominal wall endometriomas enhance with Gadolinium with occasional feeding vessels demonstrated [1-5].

Definitive tissue diagnosis is recommended. Fine needle aspiration (FNA) is safe and readily available but offers poor sensitivity due to the presence of fibrotic tissue. Larger samples can be obtained from a core biopsy. If the patient is for surgical intervention, the site of aspiration/biopsy should be resected as cases of needle tract endometriosis have been reported [4].

Teaching Points:
In a patient with an abdominal wall mass with cyclical pain who has had a previous Caesarean section, scar endometrioma is an important differential.

Differential Diagnosis List: Abdominal wall endometriosis, Desmoid tumour, Primary soft tissue sarcoma, Metastatic deposits

Final Diagnosis: Abdominal wall endometriosis

References:
**Description:** Ultrasound images demonstrate non-specific heterogenous, but predominantly hypoechoic, lesions within the soft tissues of the abdominal wall. Some margins are ill defined. The lower image demonstrates posterior acoustic enhancement. **Origin:** Ihezue C, Department of Radiology, Queen Alexandra Hospital, Cosham, Portsmouth, UK
**Figure 2**

**Description:** A heterogenous, spiculated soft tissue density lesion is related to the right rectus sheath (dashed arrow). Abdominal wall scar (solid arrow). The CAPD catheter and a simple right ovarian cyst is shown. **Origin:** Ihezue C, Queen Alexandra Hospital, Cosham, UK
Description: Biopsies showed fibrous tissue containing glands that labelled with antibody Cytokeratin 7 (CK7) surrounded by a stroma that labelled with antibody CD10, entirely consistent with endometriosis.

Origin: D Cowlishaw, Department of Histopathology, Queen Alexandra Hospital, Cosham UK
Description: T1 weighted images demonstrate a midline scar, a heterogenous right rectus sheath lesion with high signal foci centrally, which represent subacute haemorrhage. Origin: C Ihezue, Department of Radiology, Queen Alexandra Hospital, Cosham, UK.
Description: A low signal rim is seen on T2 sequences (*) in keeping with haemosiderin staining. Enhancement with Gadolinium is demonstrated post contrast (solid arrow). Origin: C Ihezue, Department of Radiology, Queen Alexandra Hospital, Cosham, UK