A Pictorial Review of Extra-Pelvic Endometriosis

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Introduction: Extra-pelvic endometriosis (EPE), whilst rare, can complicate the diagnosis and management of endometriosis. Multiple theories exist on the pathogenesis of EPE including the implantation theory, where there is direct spread of endometrial cells within the peritoneal cavity via retrograde menstruation, and the metaplastic theory where endometrial cells develop in extrapelvic sites as a result of mesothelial cell metaplasia¹.

Abdominal wall endometriosis is the most common site of EPE and may arise spontaneously or secondary to previous surgery (scar endometriosis). Other extra-pelvic sites include abdominal viscera, as well as rarer sites such as the thorax, brain and nerve roots².

Method:

We present a pictorial review of imaging performed in patients with subsequent diagnoses of extra-pelvic endometriosis, from a specialist endometriosis tertiary centre and referring district general hospitals in the Northwest of England.

Imaging Review:

C-Section Scar Endometriosis (CSE)



Bilateral rectus muscle scar endometriosis.

Axial T1 fat saturated MR image showing heterogenous high T1 signal within bilateral recti at previous C-section scar site.

EPE at C-section scar sites is thought to occur through direct implantation of endometrial cells

Bilateral Inguinal Endometriosis



Coronal T2 MR imaging demonstrating bilateral inguinal ring T2 low signal deposits in a patient with deep infiltrative endometriosis involving the uterus, fallopian tubes and distal sigmoid (not shown) and a large endometrioma within the pouch of Douglas (*).

during surgery.



Right anterior abdominal wall scar endometriosis.

Axial T2 MR imaging (left) showing a nodule within the anterior abdominal wall subcutaneous tissue with low signal bands tethering to the right rectus sheath at the site of previous C-section. Axial T1 fat saturated imaging (right) demonstrates high T1 signal within the nodule in keeping with CSE.

Left Rectus Sheath Endometriosis (Non-Scar)



Axial T1 fat saturated MR imaging demonstrating a T1 hyperintense nodule at the level of the iliac crest, distant to the site of the C-section scar (not shown). Laparoscopy confirmed this as the only site of endometriosis with no evidence of deep infiltrative endometriosis or CSE. The non-scar location can be explained by the metaplastic theory of extra-pelvic endometriosis.

Left Iliac Fossa Abdominal Wall Endometriosis

Umbilical Endometriosis



Axial fat saturated T1 (left) and sagittal T2 (right) imaging demonstrating an umbilical soft tissue nodule in a patient with deep infiltrative endometriosis of the posterior compartment and endometrioma.

Diaphragmatic Endometriosis



Coronal CTPA imaging (left) performed 2 days post laparoscopy. Histology confirmed right hemidiaphragm endometriosis; however, CT imaging did not demonstrate this. Free air under the right hemidiaphragm is secondary to recent surgery. Laparoscopic imaging (right) demonstrates the histologically proven focus of endometriotic tissue on the diaphragmatic surface (arrow).



Axial T1 fat saturated MR imaging (left) showing a focal area of scarring in the left iliac fossa with high T1 signal (left). This was proven on biopsy to be endometriotic tissue. US imaging at the time of biopsy showed a spiculated hypoechoic lesion with peripheral vascularity (right).

Appendiceal Endometriosis



Axial CT abdomen and pelvis imaging of a patient presenting with right iliac fossa pain. Imaging demonstrated a right sided abscess (arrowed). Patient underwent a laparoscopy where endometriosis was noted and the appendix was removed. Histology confirmed endometriotic tissue within the appendix.

Conclusion: Whilst rare, it is important for radiologists and referring clinicians to be aware of these extrapelvic manifestations of endometriosis and their imaging characteristics to help facilitate early diagnosis and guide patient management.

References:

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