ULTRASOUND AS A SCREENING TOOL IN THE DIAGNOSIS OF DEEP INFILTRATING ENDOMETRIOSIS

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Purpose: To assess the efficacy of pelvic ultrasound as a screening investigation in patients with suspected deep infiltrating endometriosis.

Method: This was a two-part study. We first established the concordance of MRI ENZIAN classification with surgical ENZIAN classification. The data from the first part was presented at the European and British Societies of Gynecological Endoscopy in 2016 and 2017 respectively. There was statistically significant correlation between MRI ENZIAN classification and surgical findings (P < 0.01). We also introduced TVUS as a screening tool for DIE. A monthly Consultant lead Sonographer teaching session to evaluate features of Endometriosis was set up with excellent uptake among Sonographers which led to a significant improvement in scan quality and report clarity between 2014 and 2015. Patients with pelvic pain were assessed by one Consultant Gynaecologist using the BSGE pelvic pain questionnaire and clinical assessment identifying recto-vaginal or utero-sacral nodularity and assessing mobility of the uterus. As part of the assessment an ultrasound was requested followed by MRI depending on ultrasound finding or clinical suspicion.

Results: Of the 75 patients, 4 had transabdominal ultrasound and 71 had TVUS for assessment of DIE. 19 of the reviewed cases were considered to have a normal ultrasound, however MRI was performed due to a high clinical suspicion. Further 51 patients had an abnormal pelvic ultrasound and 5 cases had inconclusive findings (Table 1). Out of the 85 cases 10 cases were excluded as no further imaging was performed due to a normal TVUS along with normal clinical findings. Any patient with primary imaging prior to 2015 was also excluded from the study. All patients who had pelvic ultrasound as a screening tool followed by MRI were included. A total of 75 patients fulfilled the criteria.

Conclusion: Transvaginal ultrasound is an increasingly recognized screening modality for patients with suspected DIE (Exacoustos et al., 2014). It is being exploited at Luton & Dunstable University Hospital Endometriosis Centre as a tool for trigging patients who need MRI for characterisation. Ultrasound assessment is operator dependent, but the skills can be acquired with training (Goncalves et al., 2009). We observed that with increasing sonographer experience, there was an improvement in identification of DIE with increasing clinical confidence. This will reduce the number of patients needing a staging MRI for DIE prior to Laparoscopic surgery. Dedicated ultrasound teaching with ongoing feedback and case review will help improve diagnostic sensitivity for all ultrasound practitioners.

Background: Deep infiltrating Endometriosis (DIE) poses a diagnostic challenge resulting in delayed diagnosis (Hudelist et al., 2011). Surgical excision is associated with high incidence of complications and requires multidisciplinary team approach to improve outcome of surgery (Wolthuis and Tomassetti, 2014). Diagnostic Laparoscopy for the diagnosis of DIE cannot quantify posterior compartment disease until densely adherent bowel is mobilised with opening of the parametrical space. This is associated with a high risk of complications needing careful planning and patient counselling. We have been accredited as a regional endometriosis centre by the British Society of Gynaecological Endoscopy (BSGE) since 2014. We introduced MRI ENZIAN classification in 2015 and later developed the use of Transvaginal ultrasound (TVUS) as a screening tool to identify DIE prior to performing an MRI scan. A monthly Endometriosis MDT was set up in 2014 involving a dedicated endometriosis team consisting of Gynaecologist, Colorectal Surgeon, Urologist and Radiologist. Cases were reviewed and reported by a single dedicated Radiologist with a special interest in Gynaecological Imaging.

Materials: 85 consecutive cases discussed at the Endometriosis MDT were evaluated retrospectively. Pelvic ultrasound images were reviewed along with sonographer report. The ultrasound scans were scored independently with respect to MRI findings. The fields assessed included 1) Uterine adenomyosis; 2) Posterior compartment DIE; 3) Bowel Infiltration; 4) Adnexal abnormality (endometriomas, hydrosalpinx); 5) Bladder involvement and 6) Limited uterine or ovarian mobility. If the patient scored positive in any of these categories, the scan was considered abnormal. Out of the 85 cases, 10 cases were excluded as no further imaging was performed due to a normal TVUS along with normal clinical findings. Any patient with primary imaging prior to 2015 was also excluded from the study. All patients who had pelvic ultrasound as a screening tool followed by MRI were included. A total of 75 patients fulfilled the criteria.

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Table 1. Distribution of ultrasound cases

<table>
<thead>
<tr>
<th>Ultrasound</th>
<th>MRI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transabdominal</td>
<td>Normal: 3, Abnormal: 4</td>
</tr>
<tr>
<td>Transvaginal</td>
<td>Normal: 48, Suboptimal/Indeterminate: 19</td>
</tr>
</tbody>
</table>

Table 2. Correlation between ultrasound findings and MRI identification of DIE.

<table>
<thead>
<tr>
<th>MRI</th>
<th>Positive predictive value</th>
<th>Negative predictive value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal MRI</td>
<td>16</td>
<td>3</td>
</tr>
<tr>
<td>Abnormal MRI</td>
<td>1</td>
<td>50</td>
</tr>
<tr>
<td>Normal Ultrasound</td>
<td>3</td>
<td>15</td>
</tr>
</tbody>
</table>

References: