The role of a standardised ultrasound reporting template to report and diagnose deep infiltrative endometriosis (DIE)

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Background:

Endometriosis affects up to 1 in 9 people assigned female at birth[1] and can take on average, 8 years to diagnose[2]. Whilst NICE guidelines[3] advise an ultrasound scan for severe symptoms/unsuccessful intervention, there is no national guidance on how to scan for endometriosis. The IDEA consensus[4] states there is a lack of consistency in the terminology and definitions used between units when reporting the sonographic findings of DIE. This has resulted in incontinuity and long term inconsistency amongst operators and scanning sites, which ultimately has resulted in variability in patient management.

Aims:

- Develop a reporting template with the aim of increasing accuracy or yield in reporting of transvaginal ultrasound for suspected endometriosis.
- Trial the reporting template to identify if inter-operator variability in reporting of scans can be reduced.
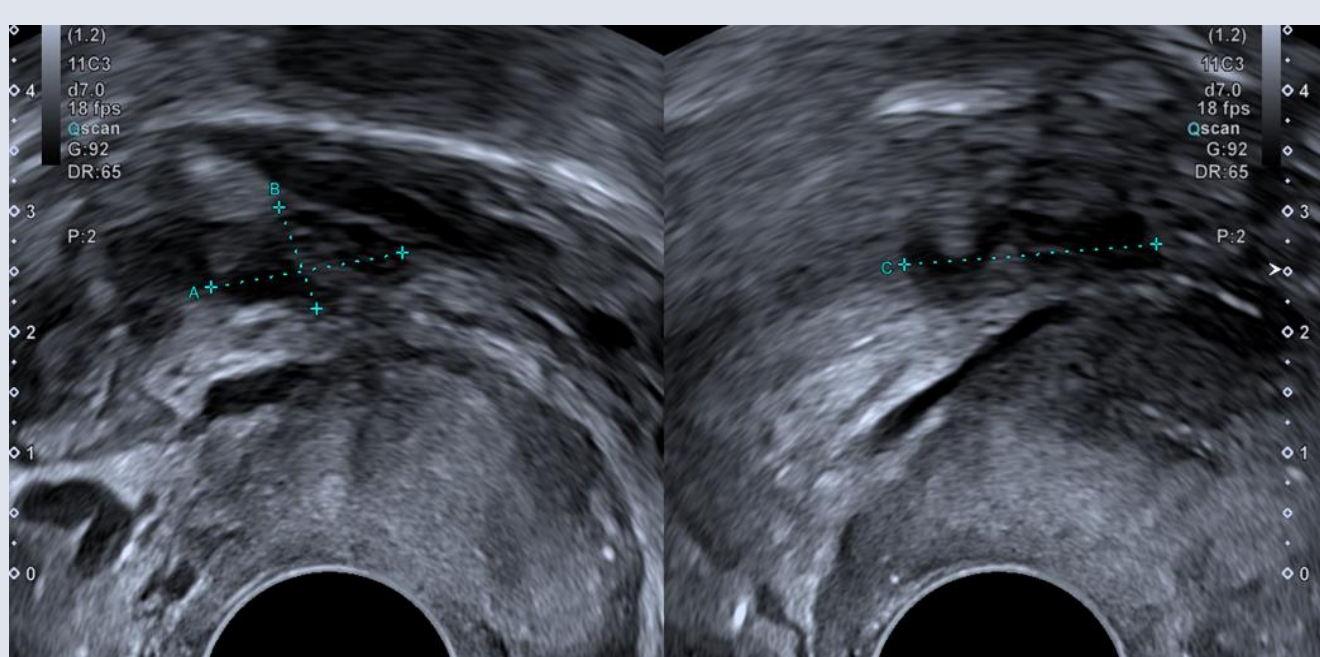

Image 1 - Thickened right uterosacral ligament and deposit extending across the torus uterinus.

Results:

Apart from Consultant A, all participants demonstrated an increase in detection of endometriosis and adenomyosis (fig.2). Sonographer A and C both had an overall increase in the number of reported positive cases of endometriosis of 24% and 53% respectively. Comparably, Sonographer B had an overall reduction in reported cases of endometriosis of 6%.

80% of participants did not feel confident reporting endometriosis before using the reporting template, whereas 20% of participants agreed that they felt confident (fig.1). With implementation, 80% of participants agreed/strongly agreed that using the template changed their confidence in reporting. Sonographers (60%) strongly agreed that the template made them feel time pressured, whereas the Consultants disagreed.

Discussion:

Prevalence of endometriosis and adenomyosis - Increased detecting across all age groups post-template. All participants had an increased detection rate of adenomyosis, with highest figures in the 40-49 and 50-55-year-old categories consistent with common ages[6], suggesting that the data results we are seeing is representative of the wider population.

Difference in disease diagnosis - Sonographer A and C both achieved increased detection rates of endometriosis of 38% and 63% respectively,.

Inter-operator variability - Data collection target was not reached; therefore a statistical analysis between the post-template effects on the different participant group (Sonographer vs Consultant) was not possible.

Questionnaire feedback - 100% of participants believed that the report template incorporated all the required points for scanning for endometriosis (fig.1). 80% agreed that they would recommend and endorse the template to other scanning practitioners.

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Methodology:

Participants included Sonographers and Consultant Radiologists. Performed advanced TVUS examinations and used a standardised reporting template. A retrospective assessment of their work was used to determine their baseline detection rate.

50 per participant pre- and post-template were used - not all participants met this due to Covid-19 pandemic.

In view of the strong link between endometriosis and adenomyosis[5], detection of the latter disease was also recorded to assess for correlations.

Follow up questionnaires with a Likert scale given to the 5 participants to assess the suitability in NHS scanning practice.
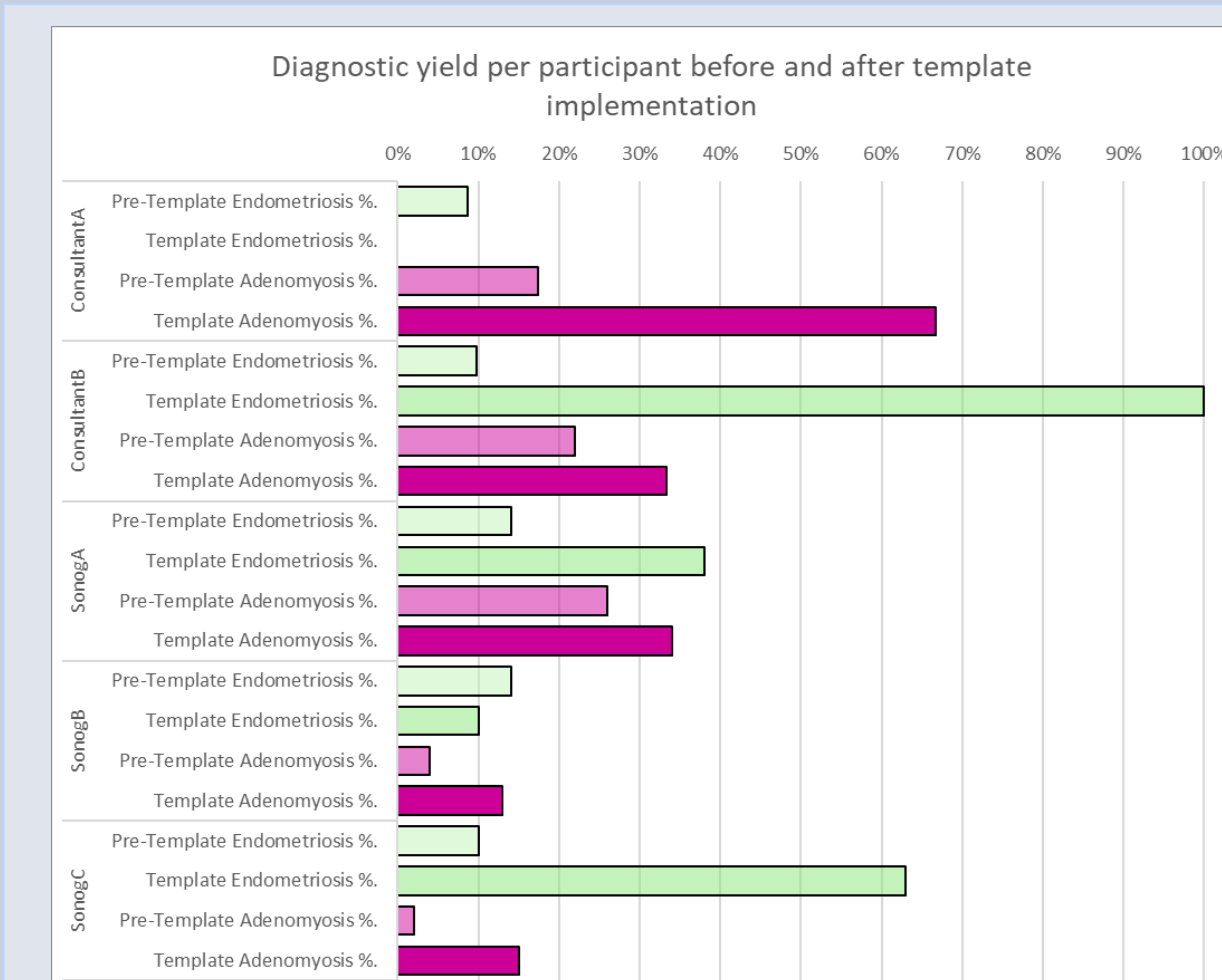

Figure 2 - Distribution of the positive findings of endometriosis and adenomyosis before the template was implemented, broken down by participants and age of patients.

Recommendations:

Scan appointment time -
Reporting process can take a considerable amount of time dependent on the complexity of a case.

Patient inclusion -
Focus the patient eligibility criteria
Specialist scanning lists with specifically trained Sonographers & Consultants

Limitations:

Covid-19 had an impact on the number of patients scanned. In the height of the pandemic, there was increased levels of staff sickness and list alterations to suit the need of the service.

Statistical analysis between Sonographer and Consultant Radiologist groups could not be made.

Disproportionate patient ages in the sampled population

Statement/question	SonogA	SonogB	SonogC	ConsultA	ConsultB
1. Were you confident reporting endometriosis before using the template?	2	2	2	2	4
2. Did using the template change your confidence in reporting endometriosis?	4	5	4	5	3
3. Would you feel confident reporting endometriosis only using the reporting template?	4	4	4	4	3
4. Did using the template increase your reporting time?	4	4	5	3	3
5. Did using the template increase your scan acquisition time?	4	5	5	4	1
6. Did the using the report template and standardised scanning approach, make you feel pressured?	5	5	5	2	2
7. Did using the template support all the requirements for the examination?	5	5	5	5	5
8. The template was simple to use.	4	4	4	4	5
9. I would recommend the template to other scanning practitioners.	5	3	4	5	5
10. I would endorse the implementation of the template in clinical service.	5	2	4	4	5

Figure 1 – Questionnaire responses from the clinical participants.
Responses were between 1-5, 1 = strongly disagree and 5 = strongly agree.

Conclusion:

The implementation of a standardised reporting template and a systematic scanning method, resulted in an increased diagnostic yield for positive cases of endometriosis and adenomyosis. Whilst it was not possible to draw many conclusions in the Consultant group and intra-operator comparisons between groups, the results demonstrated that the implementation of the reporting template increased the detection rate for the Sonographer group. High detection rates are not only linked to the template implementation, but they rely on practitioners being able to scan using advanced techniques to identify subtle features of DIE.

The future of developing and improving the endometriosis diagnosis pathway cannot be assessed using ultrasound alone. A hospital system wide approach needs to identify the beneficial impact of implementing a standardised reporting template as it is likely that the ultrasound department would need to reduce its capacity to accommodate this change.

Transabdominal and transvaginal scans performed with patient's verbal consent. Formal chaperone present (***).

Uterus (position/size) : ***
Endometrium: *** (LMP ***)
Myometrium (fibroid/adenomyosis/C-section scar) : ***
Ovaries (size/position/sliding sign/endometrioma): ***
Fallopian tubes (hydrosalpinx/haematosalpinx): ***
Free fluid/loculated fluid present/deepest pool: ***
Endometriosis:
Uterine sliding sign/obliteration pouch of Douglas: ***
Torus uterinus/uterosacral ligaments (site/size/tenderness): ***
Rectovaginal space (adhesions/lesion):
Posterior vaginal fornix (lesion size):
Bowel muscle invasive lesion (lesion size, site/distance from anal margin): ***
Uterovesical fold/bladder (adhesions/serosa/muscle invasive/site): ***
Parametria/ureters (distance from VUJ/hydronephrosis): ***
Other sites (abdominal wall/inguinal canal): ***
Other: ***
Conclusion: ***

Figure 4 - Advanced endometriosis reporting template.