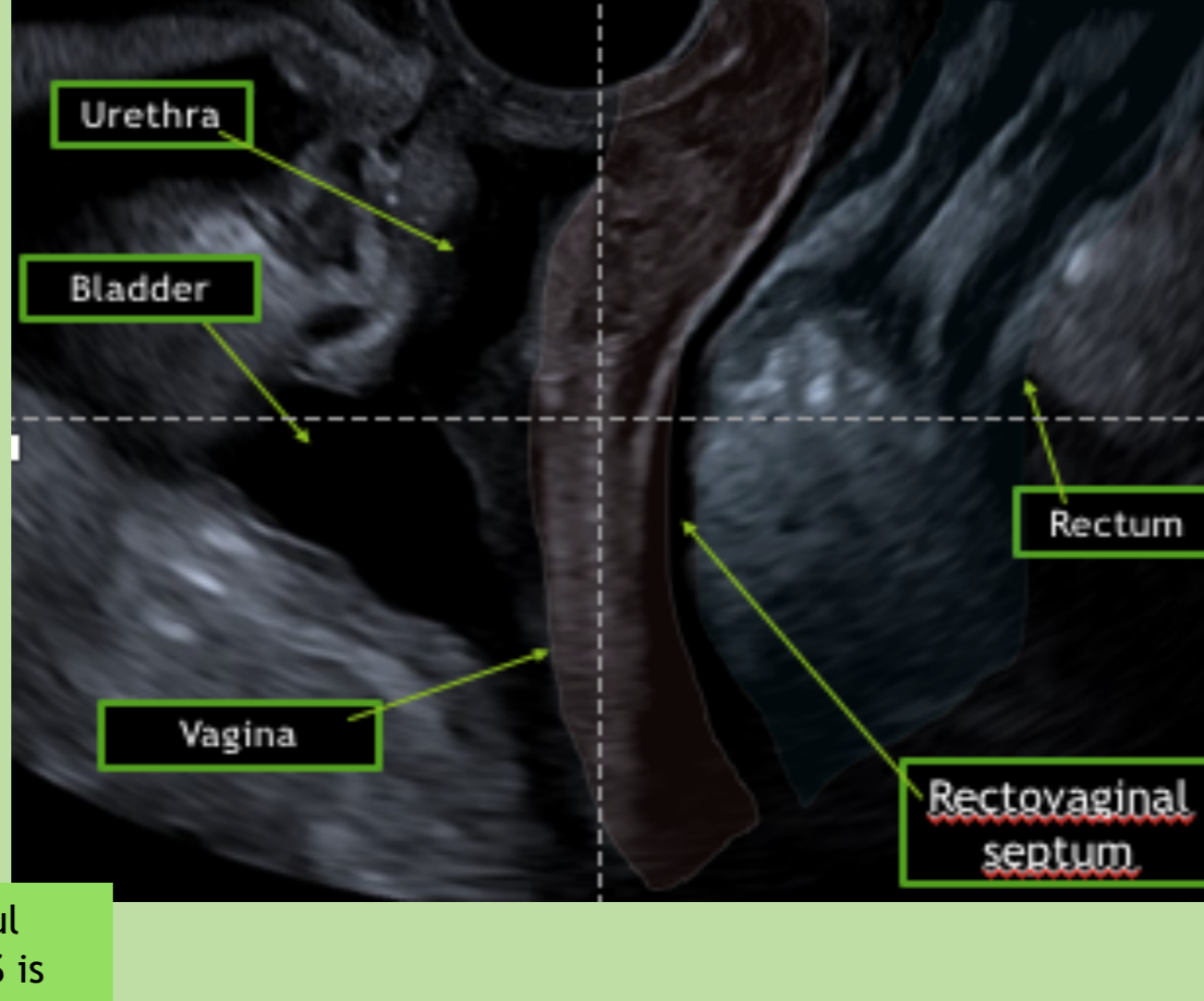
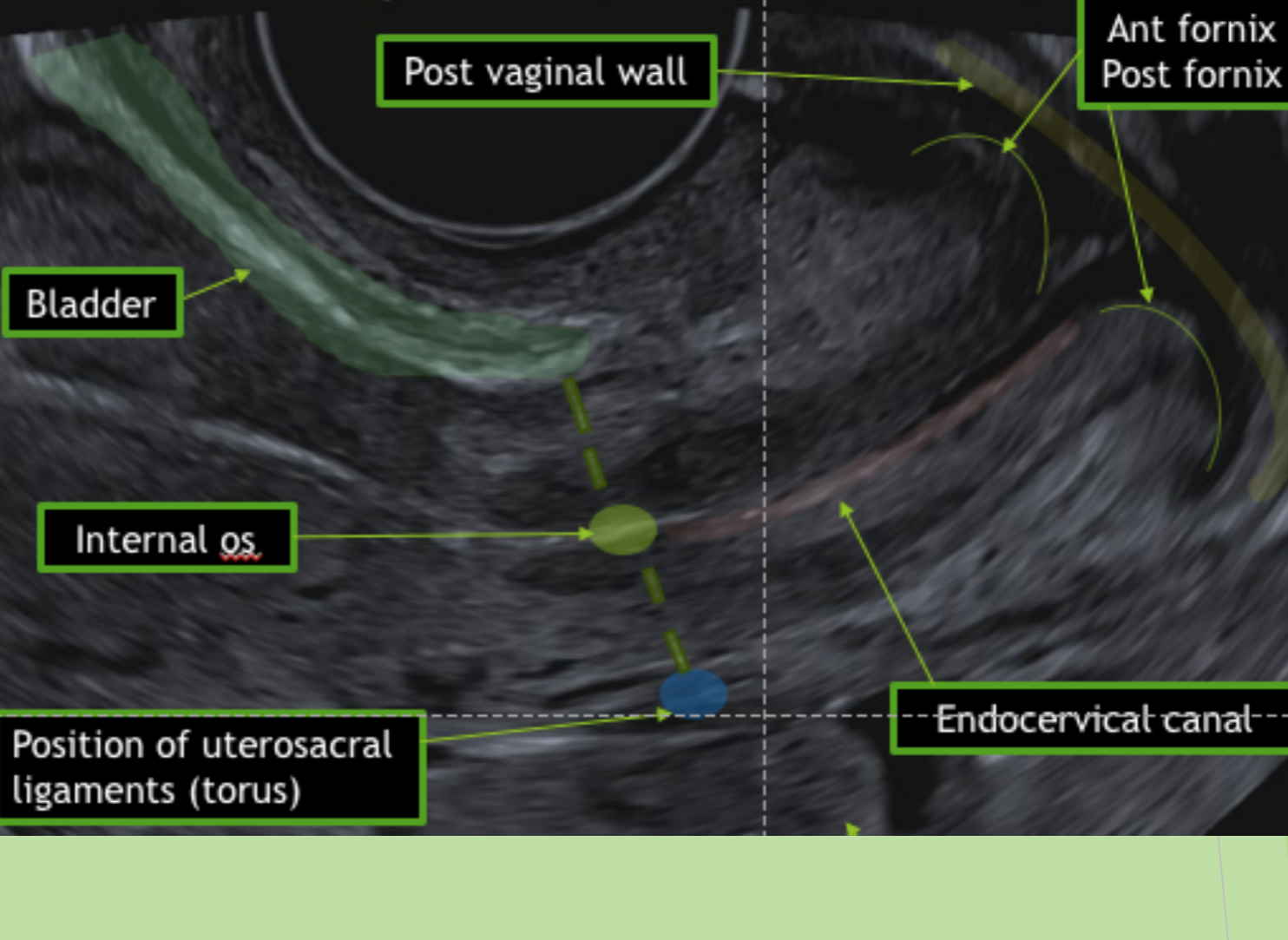
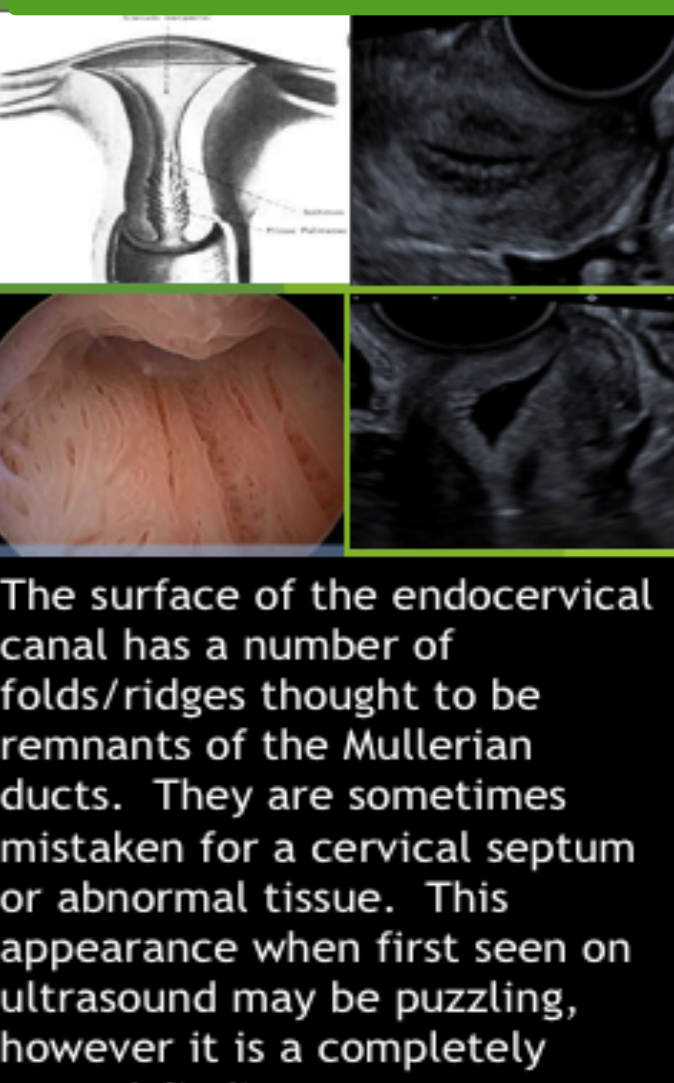


11. Assessment of the cervix and vagina in the routine transvaginal scan

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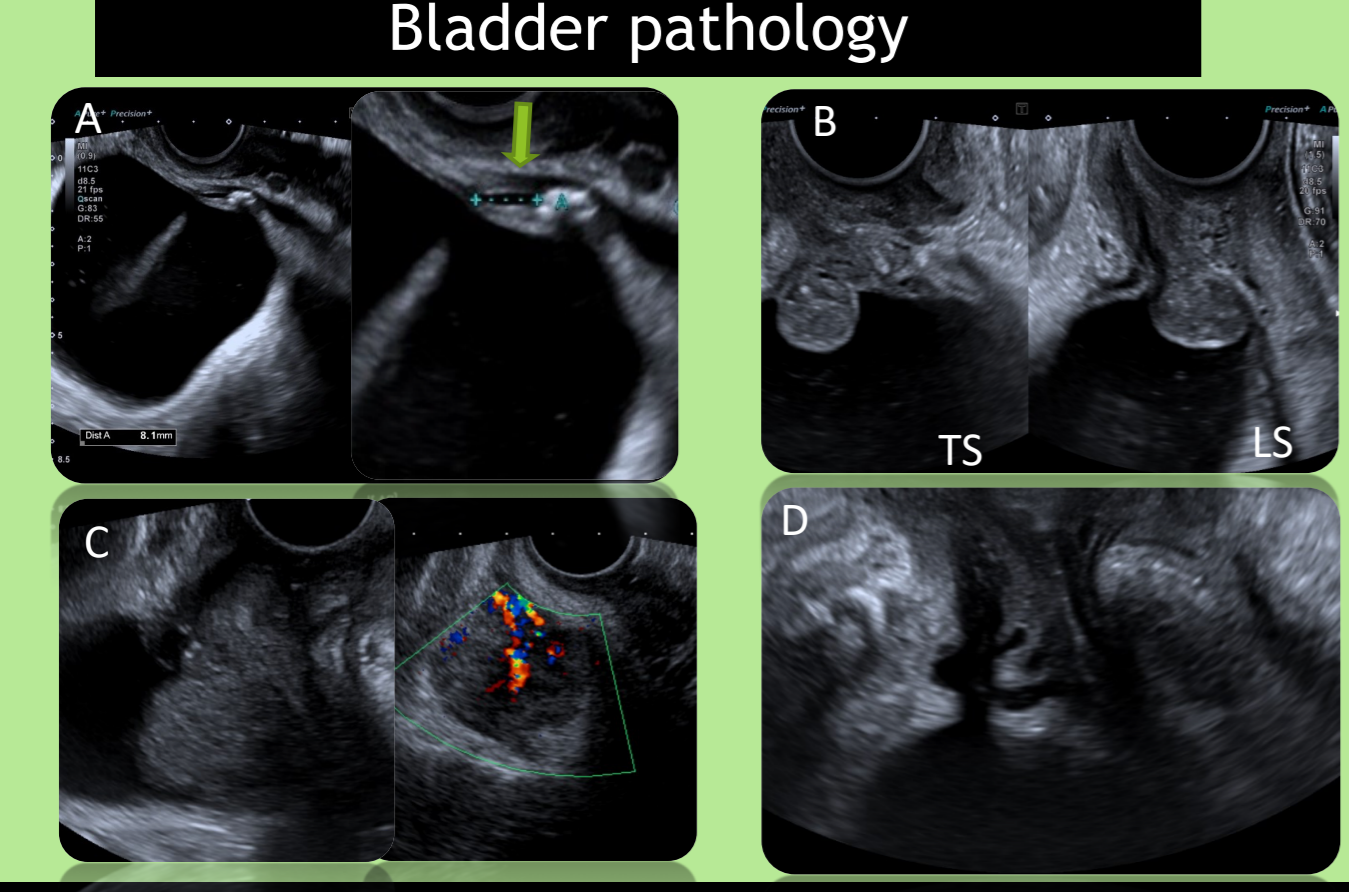
Abstract:

Views of the cervix in a transvaginal scan are usually obtained when assessing the uterus appearance and size, and the vagina may be partially visualized in the introitus view. Focused interrogation of these structures however is invaluable in helping to detect a range of pathologies which may be the cause of common presenting symptoms such as dysfunctional bleeding and pain. This poster discusses how and why to improve imaging of the cervix, vagina and surrounding structures, and presents images of detectable pathologies.

Standard views	1. Introitus view	2. Longitudinal cervical view	Normal cervical appearance 'Plicae palmate'
<p>1. Introitus view showing urethra, vagina and rectum</p> <p>2. Focused assessment of the cervix should be performed in two planes with optimization of the image depth, field of view and focal zone. A longitudinal view is recorded which clearly demonstrates the endocervical canal for its full length, with view of the bladder to help estimate the locations of the internal os* and torus.</p>	 <p>Labels: Urethra, Bladder, Rectum, Rectovaginal septum, Vagina</p>	 <p>Labels: Post vaginal wall, Bladder, Internal os, Position of uterosacral ligaments (torus), Endocervical canal, Ant fornix, Post fornix</p>	 <p>The surface of the endocervical canal has a number of folds/ridges thought to be remnants of the Mullerian ducts. They are sometimes mistaken for a cervical septum or abnormal tissue. This appearance when first seen on ultrasound may be puzzling, however it is a completely normal finding</p>

*locating the internal os is particularly helpful when commenting on whether a low lying IUS is extending through the os into the cervix

Bladder pathology



A. Ureteric stone with urothelial thickening (arrow). Note ureteric jet indicating that it is non-obstructive

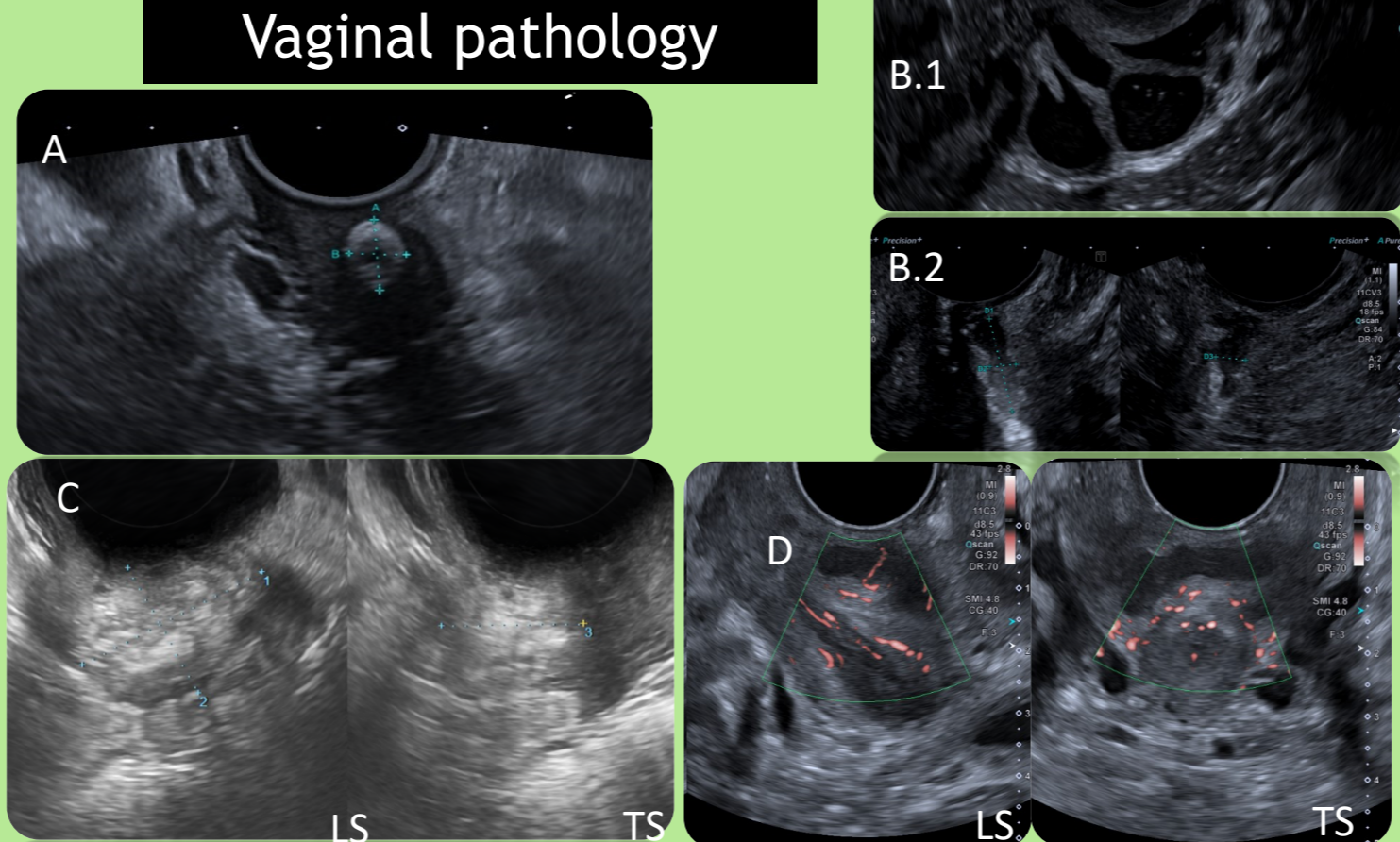
B. Urethral/base of bladder polyp

C. Trigone bladder mass

D. Urethral diverticula

All of the above findings require a urological referral

Vaginal pathology



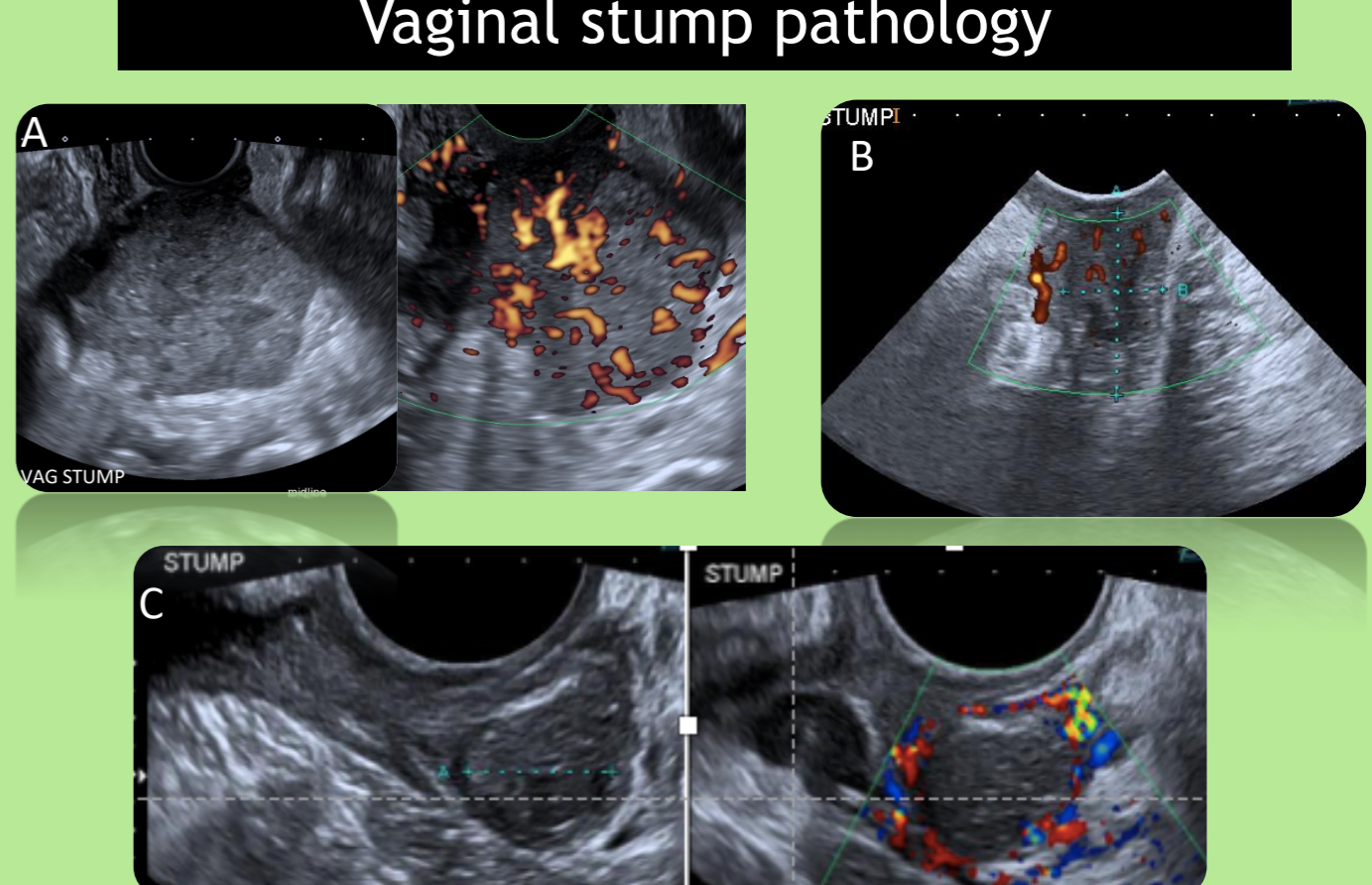
A. Vaginal wall focus, avascular, likely post-op granuloma

B1. Bartholin cysts
B2. Scan requested post-drainage

C. Hemostatic agent 'SNOw' Seen within vagina post surgery

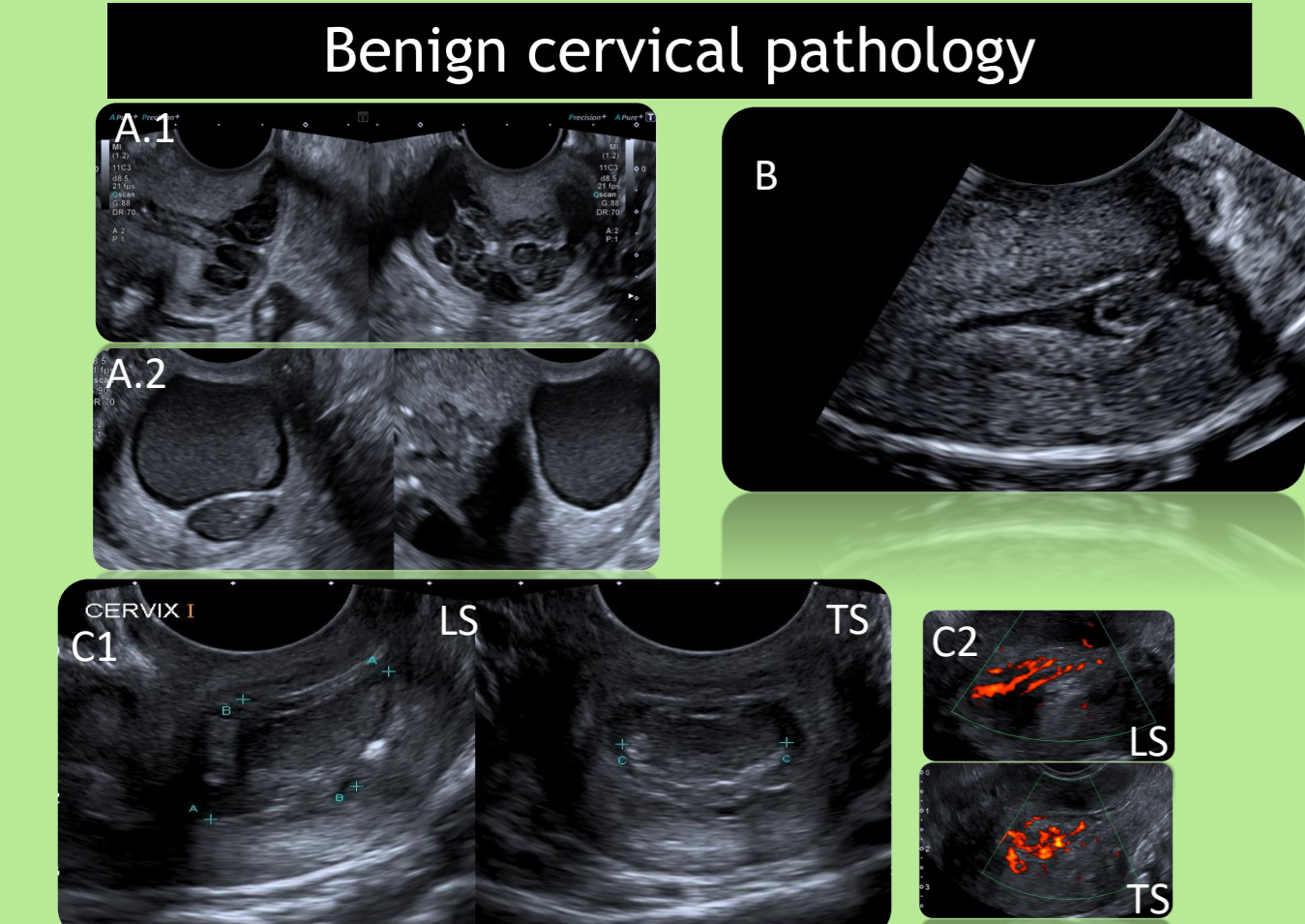
D. Thickened vaginal wall with hyperemia -patient clinically had vaginitis

Vaginal stump pathology



The vaginal stump has an abnormal appearance in all of the above 3 cases. This finding, particularly in cases of previous uterine/cervical pathology, is suspicious for recurrence and requires urgent onward referral

Benign cervical pathology



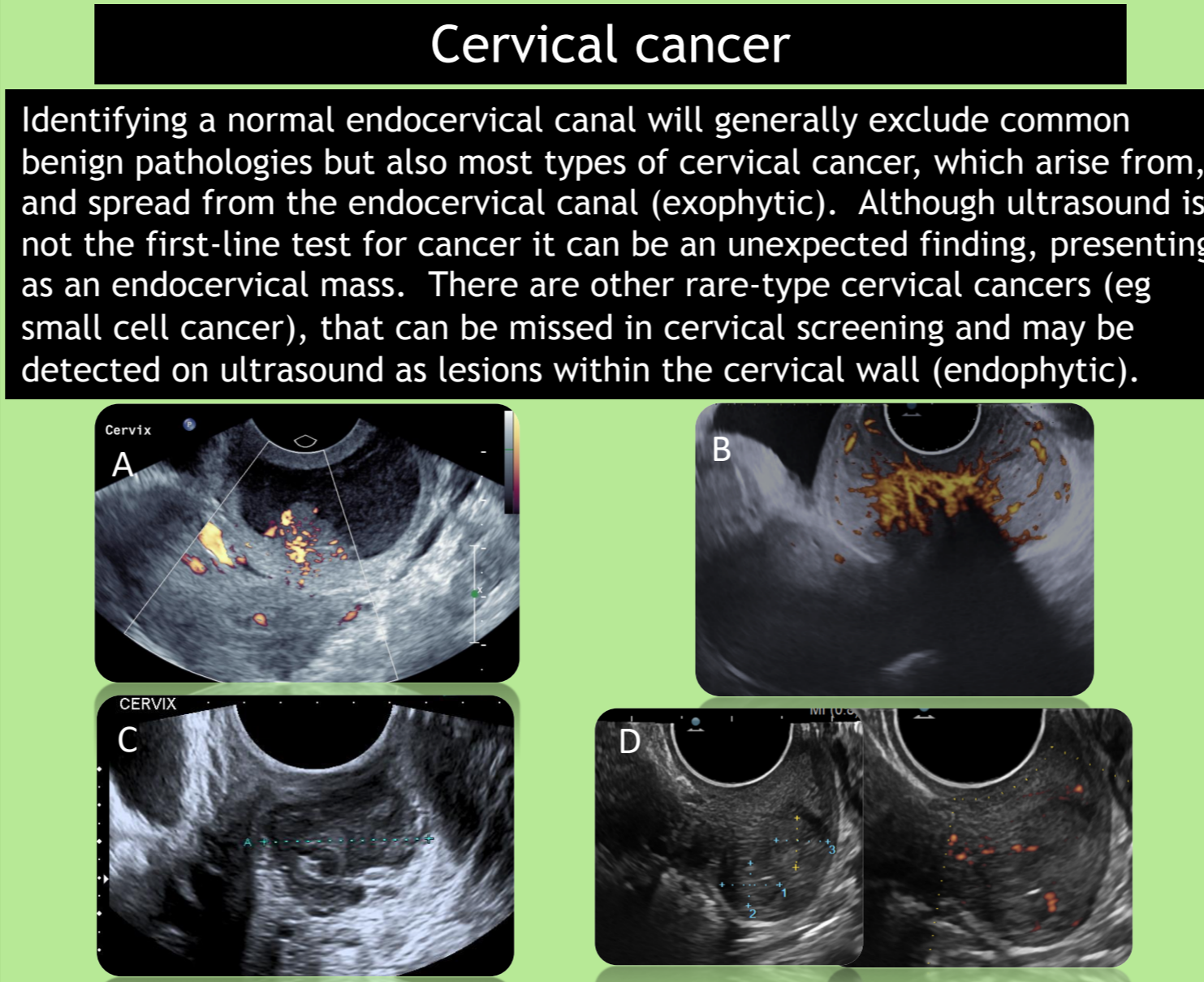
A. Nabothian cysts are a common, insignificant finding often with mucinous content. A.2 Can contain hemorrhage rather than mucus and diagnosis is confirmed by exquisite tenderness.

B. Small endocervical polyp at external os.

C. This large, heterogenous mass with a pedicle and marked blood supply (C2), is as submucosal fibroid pedunculating into the endocervical canal. This mass can often be seen to move within the uterus and endocervical canal due to peristaltic action. It may also intermittently protrude through the external os. Note a differential diagnosis can include a uterine sarcoma.

Cervical cancer

Identifying a normal endocervical canal will generally exclude common benign pathologies but also most types of cervical cancer, which arise from, and spread from the endocervical canal (exophytic). Although ultrasound is not the first-line test for cancer it can be an unexpected finding, presenting as an endocervical mass. There are other rare-type cervical cancers (eg small cell cancer), that can be missed in cervical screening and may be detected on ultrasound as lesions within the cervical wall (endophytic).



A, B and C all demonstrate squamous cell carcinoma with complete loss of endocervical canal, complex appearance & presence of marked vascularity. In image D these small lesions also represent cancer but were originally misdiagnosed as cervical fibroids - There is subtle obliteration of the distal endocervical canal. Of note cervical fibroids are rare <5% of overall fibroids

Deep infiltrating endometriosis

A. In suspected cases of deep infiltrating endometriosis (DIE), specific assessment of the rectovaginal septum in the introitus view should be made for endometriotic nodules. This is particularly the case when bowel symptoms are present.

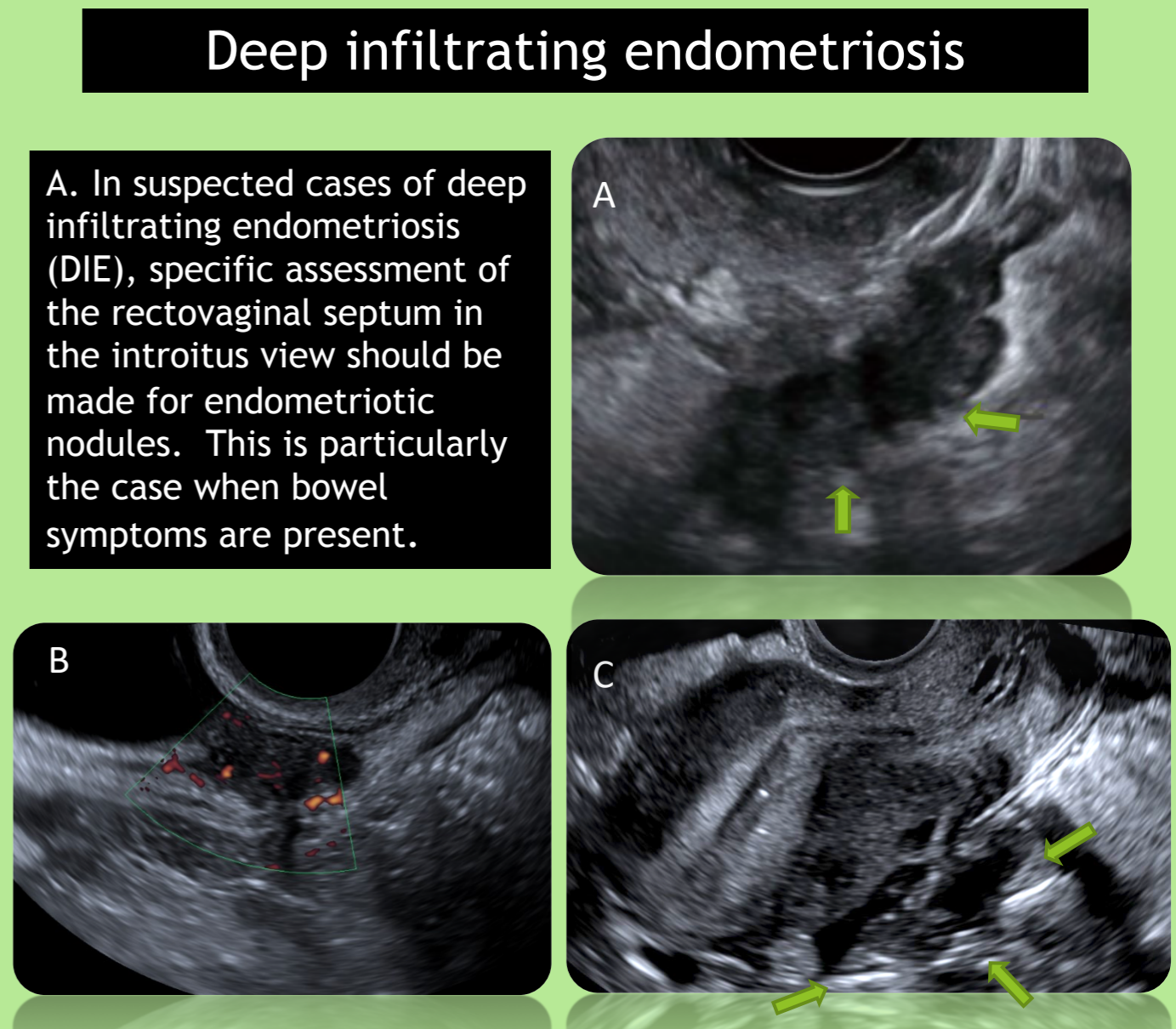

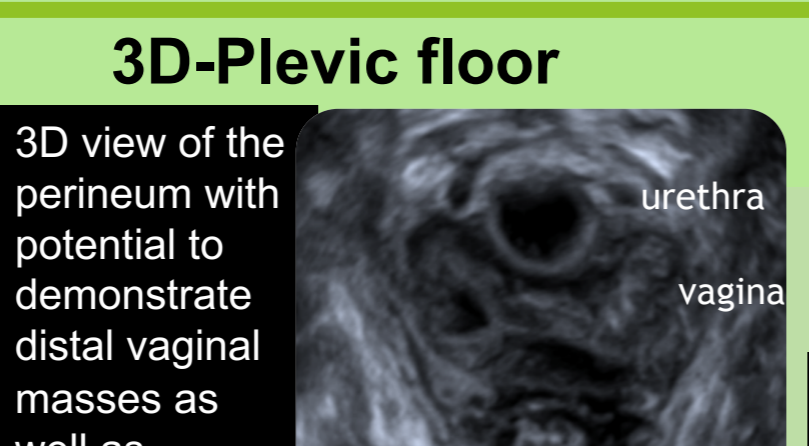
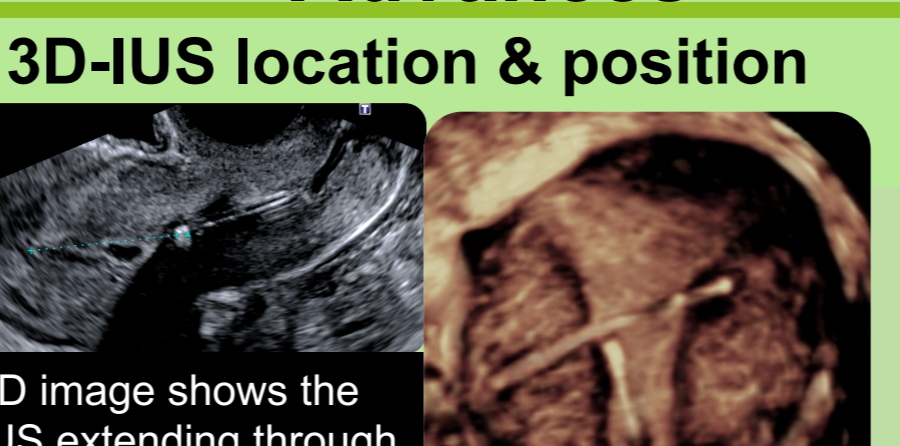
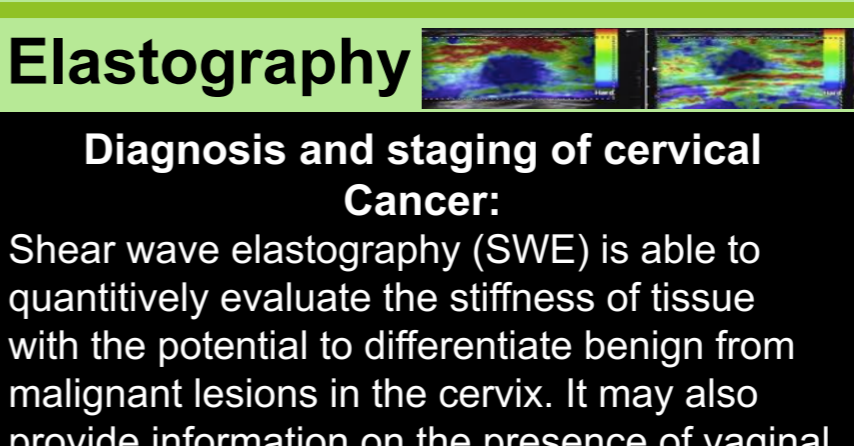



Image B show a well defined, hypoechoic DIE nodule affecting the bladder wall

Image C shows an irregular, hypoechoic lesion in the region of the uterosacral ligaments- note the typical 'question mark' shape of uterus sometimes seen in cases of significant adhesions/DIE

Advances

<h4>3D-Cervix.</h4>  <p>Case of an inconclusive cervical number/configuration on MRI in a suspected didelphys uterus - a targeted 3D scan over the cervical region clearly shows 2 separate cervixes</p>	<h4>3D-Plevic floor</h4>  <p>3D view of the perineum with potential to demonstrate distal vaginal masses as well as urethral and rectal abnormalities</p>	<h4>3D-IUS location & position</h4>  <p>2D image shows the IUS extending through the internal os. 3D image shows the IUS 'arms' embedded in the uterine myometrium.</p>	<h4>Elastography</h4>  <p>Diagnosis and staging of cervical Cancer: Shear wave elastography (SWE) is able to quantitatively evaluate the stiffness of tissue with the potential to differentiate benign from malignant lesions in the cervix. It may also provide information on the presence of vaginal or parametrial infiltration and can more accurately measure the size of the lesion when compared to conventional US. The normal cervix is uniformly blue and cervical cancer diffusely red on SWE images.</p>	<h4>Gel sonovaginography</h4>  <p>Gel sonovaginography is a new way of assessing vaginal and cervical disorders including benign and malignant pathology, septal defects and DIE endometriosis. 20ml of U/S gel is instilled into vagina and assessed by TVS. Above image shows improved visualization of a vaginal cyst</p>
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Conclusion
Focused assessment of the cervix and vagina is advantageous in the routine scan, with the potential to detect a range of pathologies.

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