



Ultrasound Diagnosis of Superficial Peritoneal & Uterosacral Ligament Endometriosis (SPULE)

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BACKGROUND

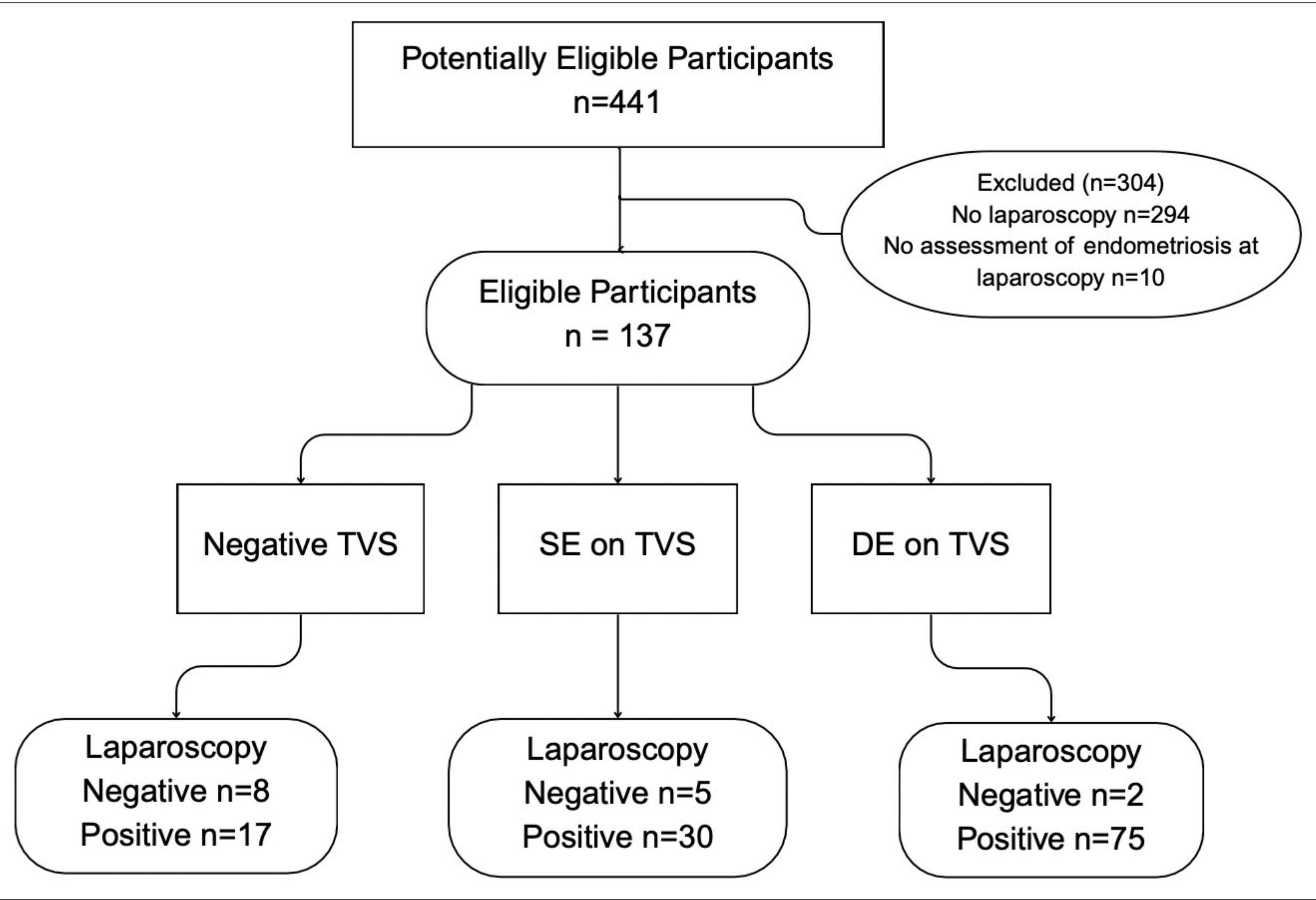
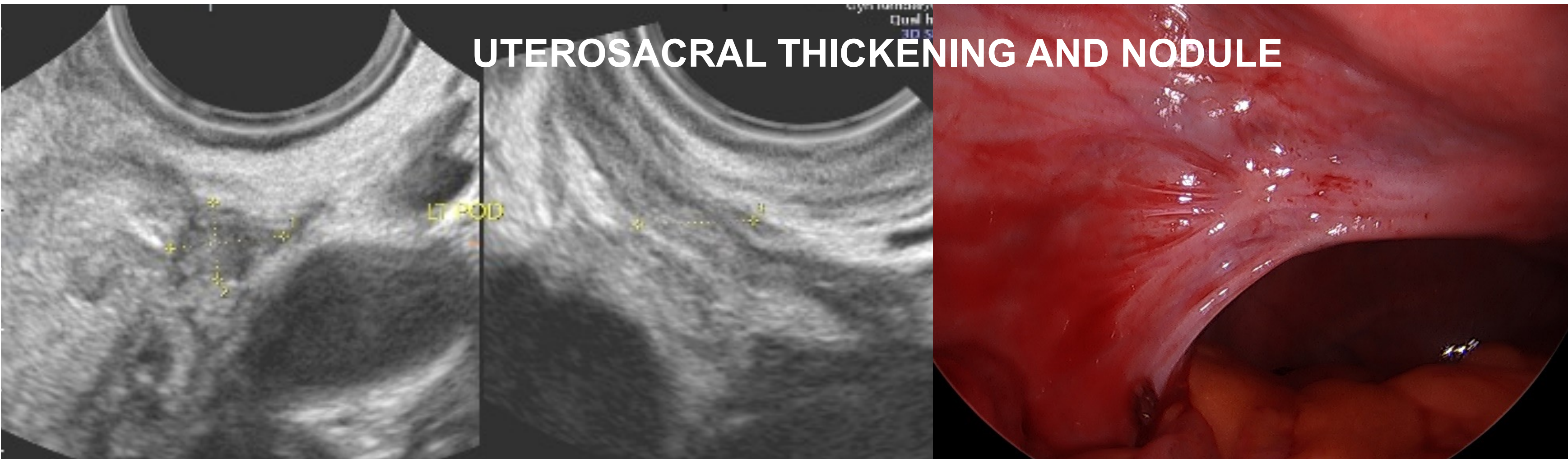
- Transvaginal ultrasound (TVS) is a reliable tool for the diagnosis of deep infiltrating endometriosis, including Pouch of Douglas (POD) obliteration and rectal nodules.
- Recent publications have demonstrated techniques to improve the diagnosis of superficial peritoneal (SP) and uterosacral ligament (USL) endometriosis (SPULE).
- The objective of this study was to determine whether TVS is an accurate, reliable tool for the diagnosis of SPULE.
- In studies published to date TVS diagnosis of SPULE, the same practitioner(s) have performed both the TVS and the laparoscopic surgery, introducing significant bias and reducing generalisability.

DESIGN

- Retrospective observational cohort study at a tertiary hospital network in Sydney, Australia, between 1/1/2019 and 30/12/2023

METHODS

- Participants underwent TVS and diagnostic laparoscopy for investigation and management of endometriosis by multiple sonologists and surgeons.
- TVS assessed potential SPULE features, including USL thickening, hypoechoic nodules and increased echogenic material in the POD, pelvic side wall (PSW) and pararectal region.
- The findings were compared with laparoscopy
- Sensitivity (Sn), specificity (Sp), positive predictive value (PPV) and negative predictive value (NPV) were calculated



RESULTS: DIAGNOSTIC PERFORMANCE OF TVS FOR SPULE			
Site	Uterosacral Ligament	Superficial Peritoneal	
TVS finding	USL thickening or nodule	Hypoechoic nodules	Increased echogenic material
Sn (%)	60	71	24
Sp (%)	78	71	93
PPV (%)	91	96	97
NPV (%)	33	22	13

REFERENCES

AJUM 2019;22:157-164; ANZJOG 2019;22:157-164; UOG 2020;55:137-139; UOG 2024;63:263-270

RESULTS

- Median age: **33 years**.
- Most common referral reasons: **dysmenorrhoea** (n=61) and **dyspareunia** (n=42; 31%).
- **TVS findings**: 56% deep endometriosis (DE), 26% superficial (SE), 18% negative for DE/SE.
- **Laparoscopy**: 89% had endometriosis; 81% peritoneal, 79% USL involvement.
- The presence of **any TVS SPULE feature** correctly diagnosed endometriosis with sensitivity of 93%, specificity of 53%, PPV 94% and NPV 32%
- **Limitations**: Heterogeneous reporting of ultrasound and laparoscopy findings.

CONCLUSION

- TVS can support non-invasive diagnosis of SPULE when UL thickening, hypoechoic nodules, or echogenic material are visualised.
- Due to the high prevalence of endometriosis in this cohort, findings may not be generalisable to all gynaecological TVS settings.
- A low NPV suggests negative scans do not reliably exclude SPULE, while low specificity indicates some sonographic features may lack diagnostic precision.
- Future directions include evaluation of false positive and false negative cases, with the aim of refining diagnostic criteria for SPULE and contributing to standardised reporting protocols.

