

# EP12.23

## Sound Velocity Imaging of the Uterus: Establishing Normal Reference Ranges in Reproductive-Age Women

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### Objective

To determine the sound velocity values of the myometrium and endometrium in reproductive-age women, establish normal reference ranges, and assess the influence of patient characteristics.

### Methods

This ethics-approved study included 64 reproductive-age women with normal uteri undergoing transvaginal ultrasound (Oct–Dec 2024).

Sound velocity was measured at three sites in the posterior myometrium and endometrium on the sagittal plane, from the fundus to the cervix, using a P80 system (6V3 transducer, SonoScape, China), as illustrated in Figure 1.

Patient demographics (age, height, weight, BMI) were recorded. Mean velocities were compared diagnostic accuracy for endometrium assessed by ROC, and correlations with,

demographics analyzed by Pearson’s coefficient.

### Results

As shown in Figure 2, sound velocity was higher in the myometrium ( $1584.5 \pm 2.6$  m/s) than the endometrium ( $1580.8 \pm 3.6$  m/s,  $p < 0.0001$ ).

ROC analysis showed good diagnostic performance (AUROC = 0.83, 95% CI: 0.75–0.89, Figure 3).

No significant correlations with patient characteristics were found (all  $r < 0.3$ ,  $p > 0.05$ ).

### Conclusion

Sound velocity imaging reliably differentiates uterine tissues, with minimal impact from patient factors, supporting its use as a standardized, operator-independent tool for uterine evaluation.

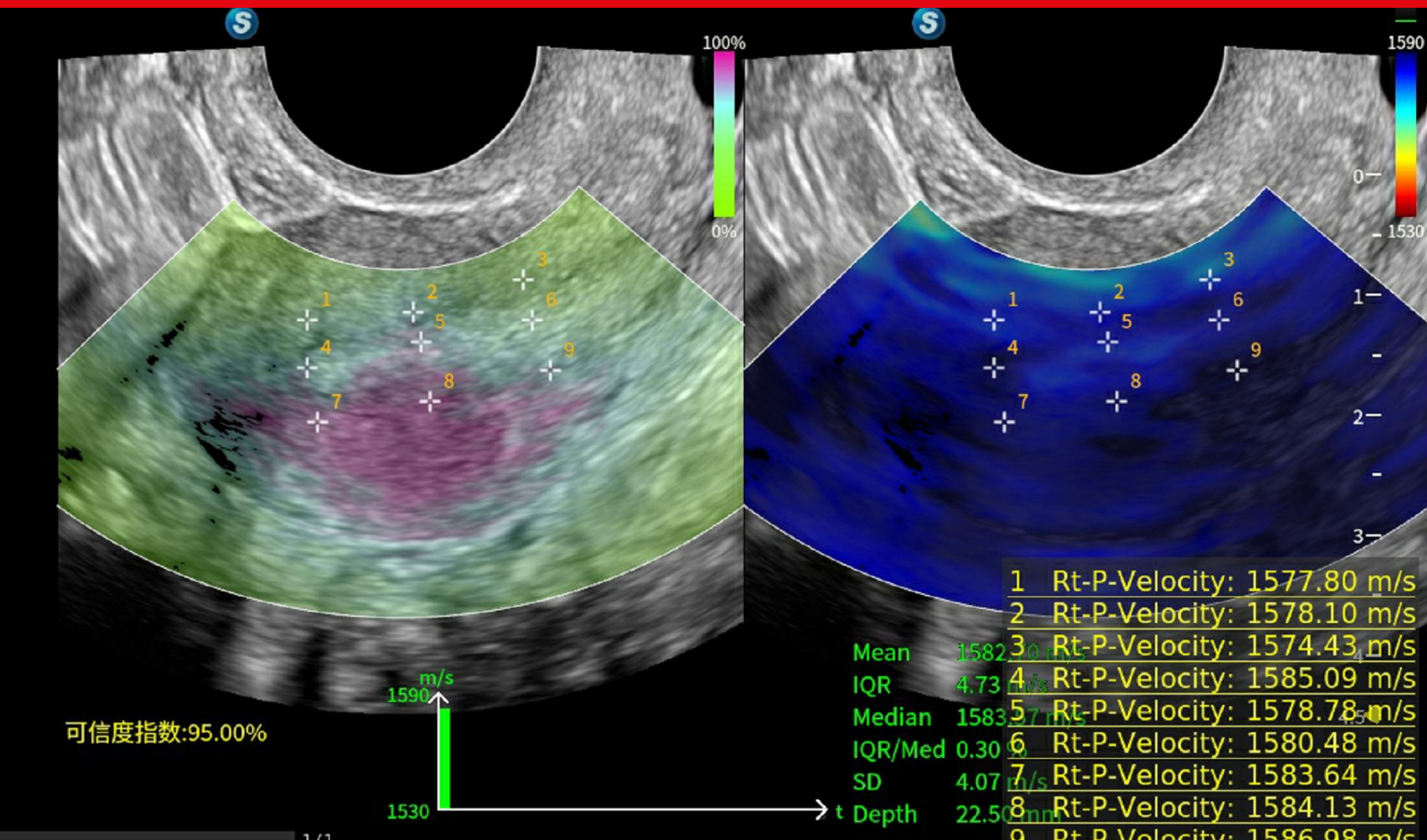


Figure 1. Sound velocity acquisition in the posterior myometrium and endometrium

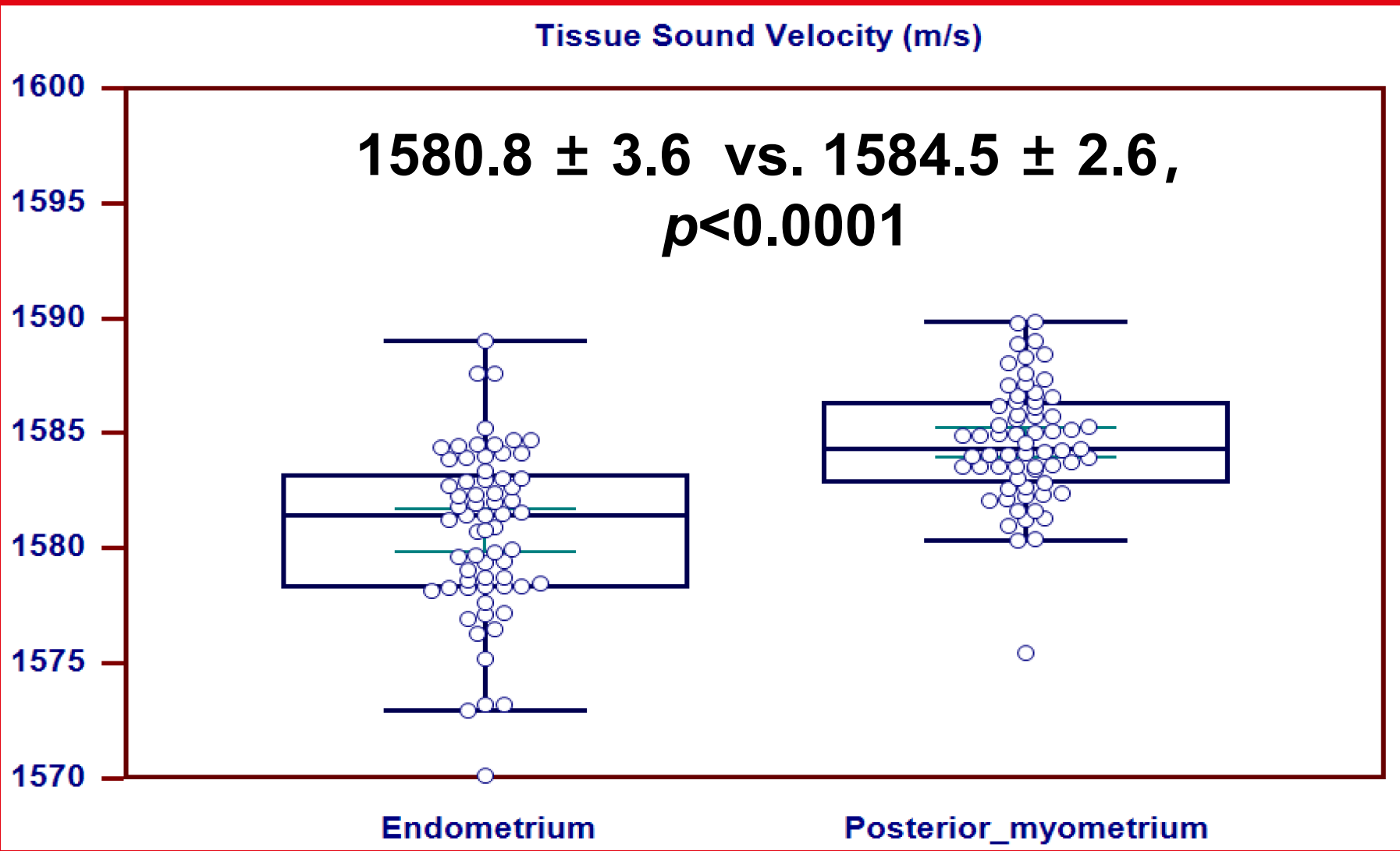


Figure 2. Distribution of sound velocity values: posterior myometrium vs. endometrium

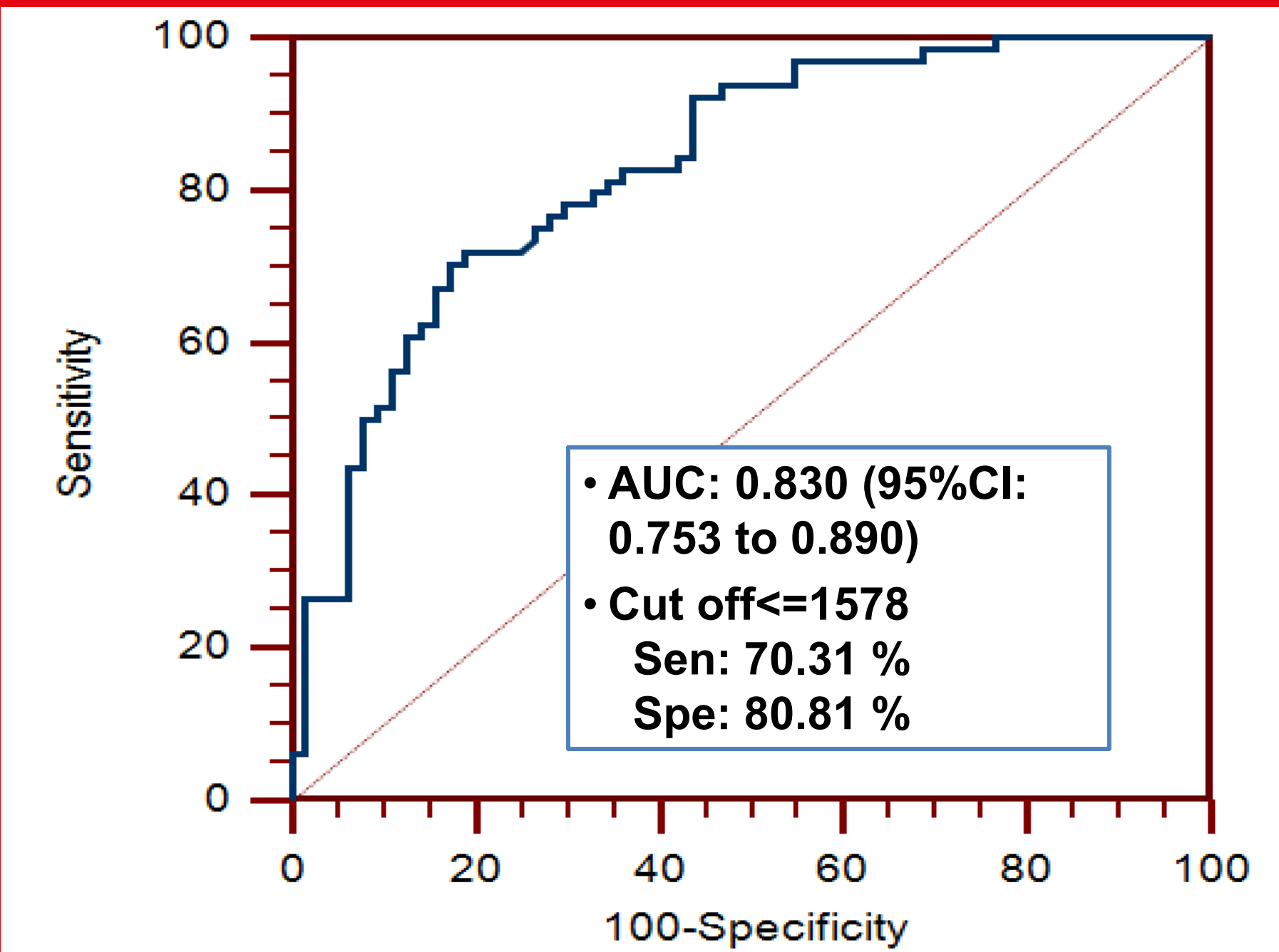


Figure 3. Diagnostic performance of sound velocity in uterine tissue differentiation