

Quantitative cervical vascularization and softness in pregnancies at risk of placenta accreta spectrum and their association with adverse outcomes



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Objective

- To estimate a quantitative evaluation of the cervix vascularization (QV) and stiffness in pregnancies at risk of placenta accreta spectrum (PAS).
- Correlate these parameters with unscheduled admission and severe intraoperative blood loss (IOBL).

Study Design

- Thirty-eight patients with suspected PAS underwent transvaginal US at the time of referral.
- Cervical length (CL) was measured.
- Quantitative vascularization (QV) of the anterior fornix-cervix complex (AFC) was assessed using standardized color Doppler settings in a MatLab® algorithm (**Fig 1 a**) and expressed as the percentage of color pixels within the AFC.
- Cervical stiffness was evaluated by strain elastography and the index of stiffness (IOS) (**Fig 1 b**).
- PAS diagnosis was confirmed by histopathology.
- Uncomplicated placental extraction was classified as no PAS.
- Severe IOBL was defined as transfusion of ≥ 4 blood products.

In patients with PAS, a soft cervix and increased QV in the AFC complex are associated with unscheduled admission and with severe IOBL requiring ≥ 4 units of blood transfusion.

Results

- CL ≤ 30 mm was seen in 8 patients and was associated with earlier delivery (median 30.4 vs 33.4 weeks).
- Patients with placenta increta or percreta (n=29) had higher AFC-QV than those with accreta or no PAS (n=9; 26.3% $\pm$ 13.0 vs. 9.1% $\pm$ 8.4; p=0.001).
- AFC-QV $\geq 8.5\%$ was associated with unscheduled admission for bleeding or contractions, and with severe IOBL (OR 6.37, 95% CI 1.05–38.8; p=0.04).
- IOS was higher (softer) in increta/percreta patients compared to accreta/no PAS (0.37 $\pm$ 0.1 vs 0.31 $\pm$ 0.1; p=0.1).
- All patients with both, AFC-QV $> 8.5\%$, and IOS > 0.40 , required unscheduled admission or received ≥ 4 blood products intraoperatively.

Conclusion

- A softer cervix and increased vascularization in the AFC complex are associated with unscheduled admission for contractions or bleeding and with severe intraoperative blood loss requiring ≥ 4 units of transfusion.

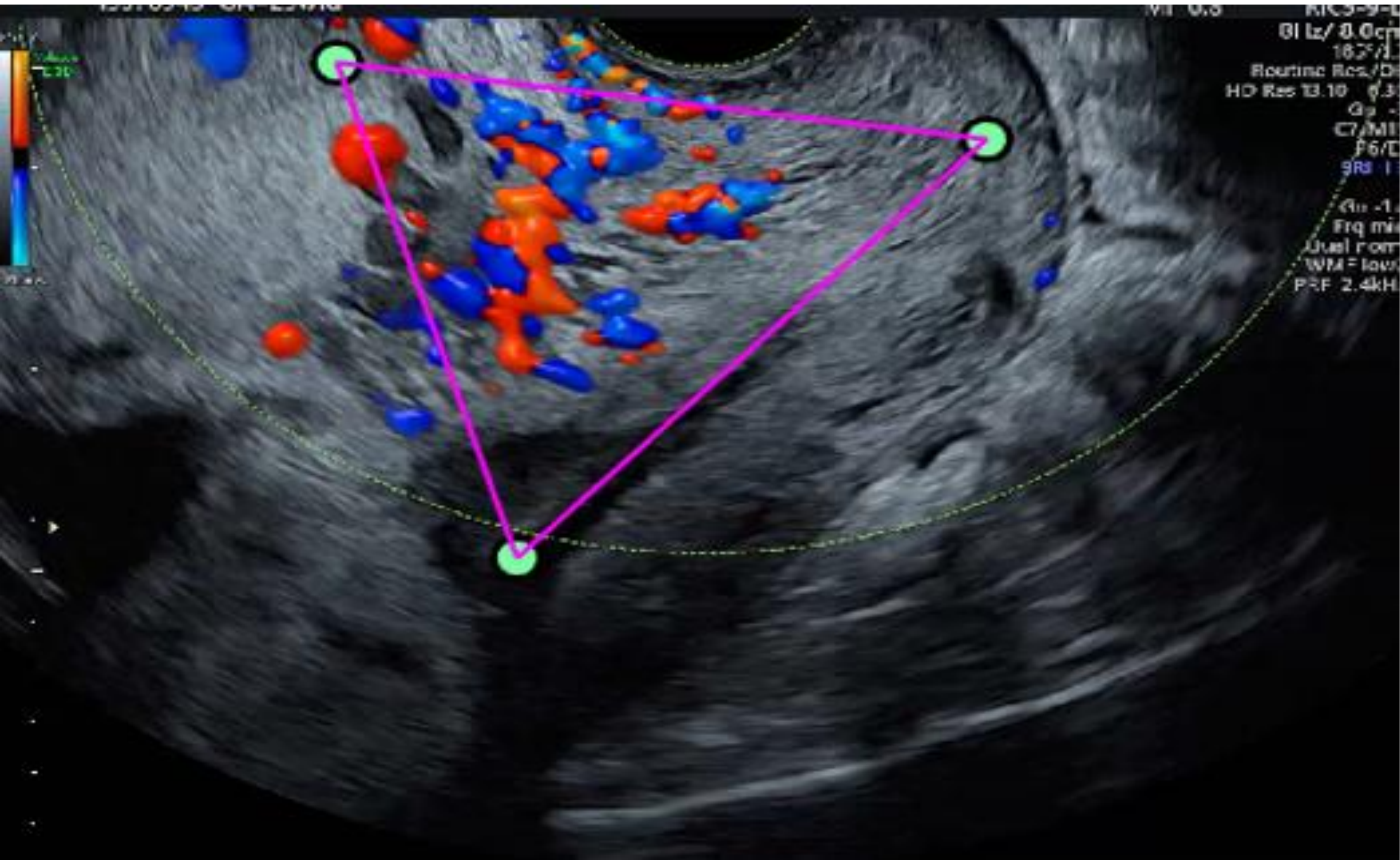


Fig 1a, Quantitative vascularization of the anterior fornix/cervix complex

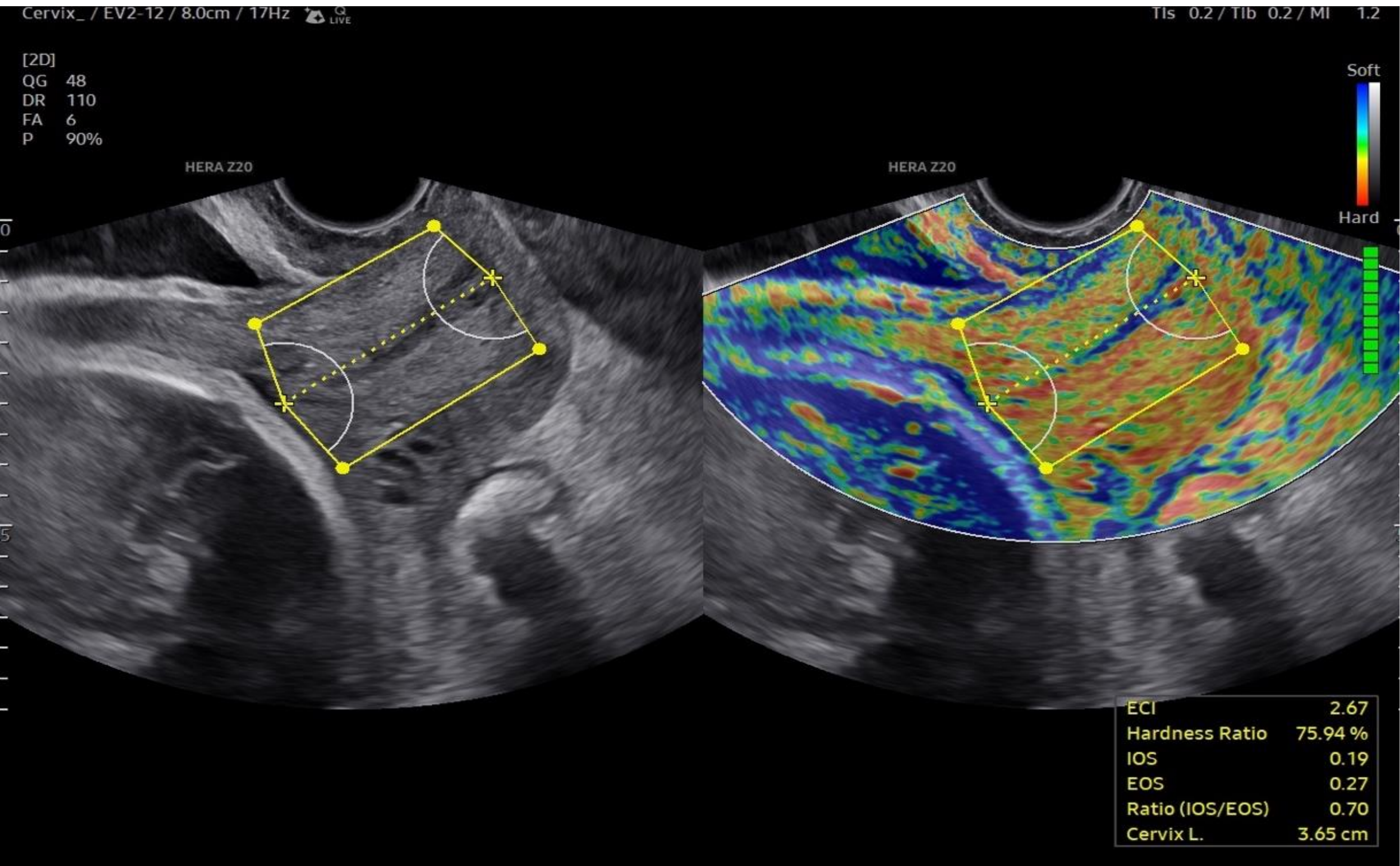


Fig 1b, Strain elastography of the cervix