

Measurement of the lower uterine segment thickness for the prediction of birth outcomes in women after prior Cesarean section

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Objective

Ultrasound measurement of the lower uterine segment (LUS) thickness has been proposed as a non-invasive method to assess scar integrity. We want to share our experience in the measurement of LUS and clinical outcome of these pregnancies over the last six years.

Study metrics

- ✓ Retrospective analysis
- ✓ Single tertiary reference center
- ✓ Previous delivery per cesarean section + LUS measurement

Methods

Patients were categorized in TOLAC and elective repeated cesarean section. Primary outcome was uterine rupture in the TOLAC group. Secondary outcome was uterine dehiscence in both groups. Obstetric characteristics and perinatal outcome were extracted and analysed

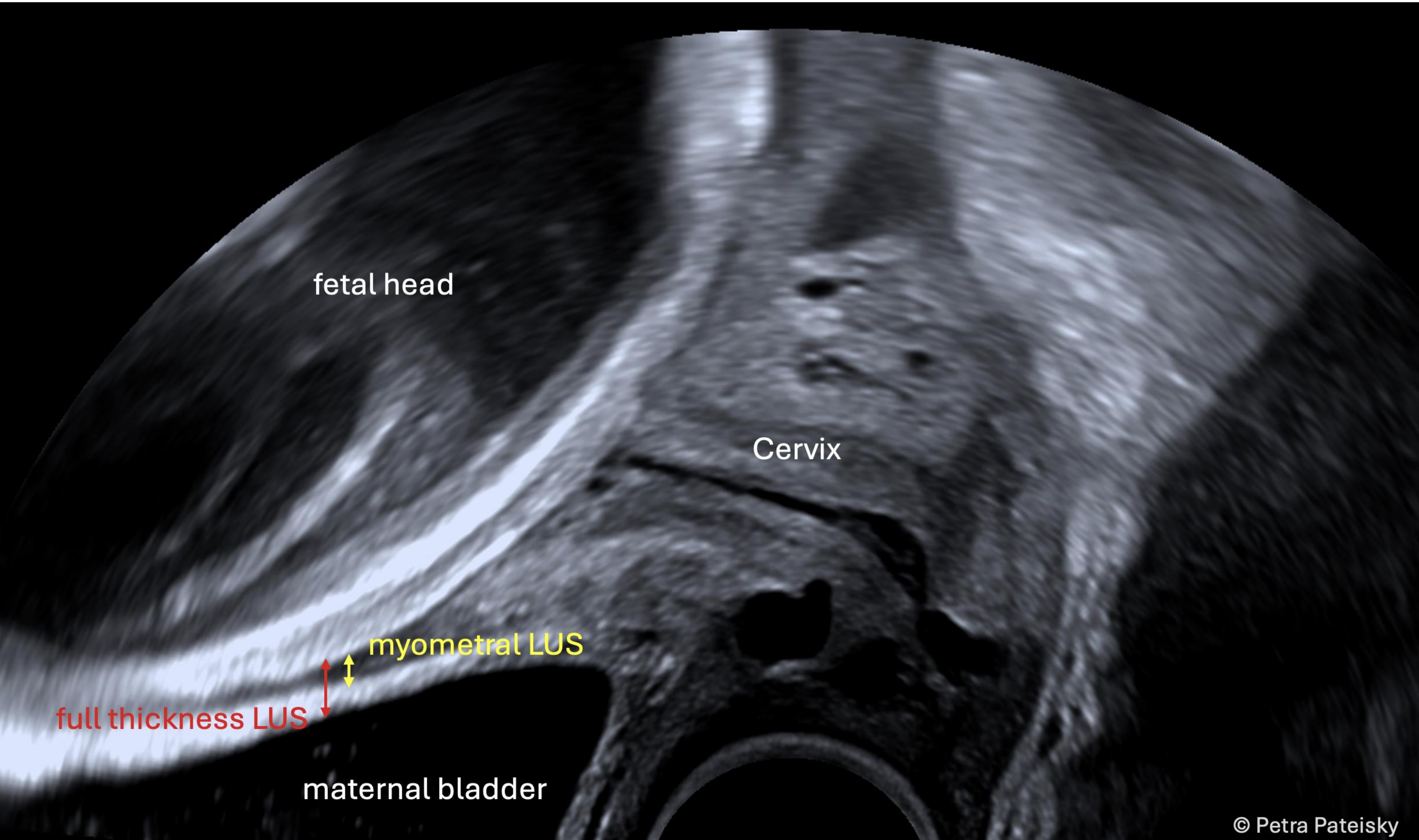


Figure 1: LUS measurement

- transvaginally
 - half-filled bladder
 - saggital plane
 - gestational week 36+2
 - prior c-section 5 years ago
- No rupture or dehiscence

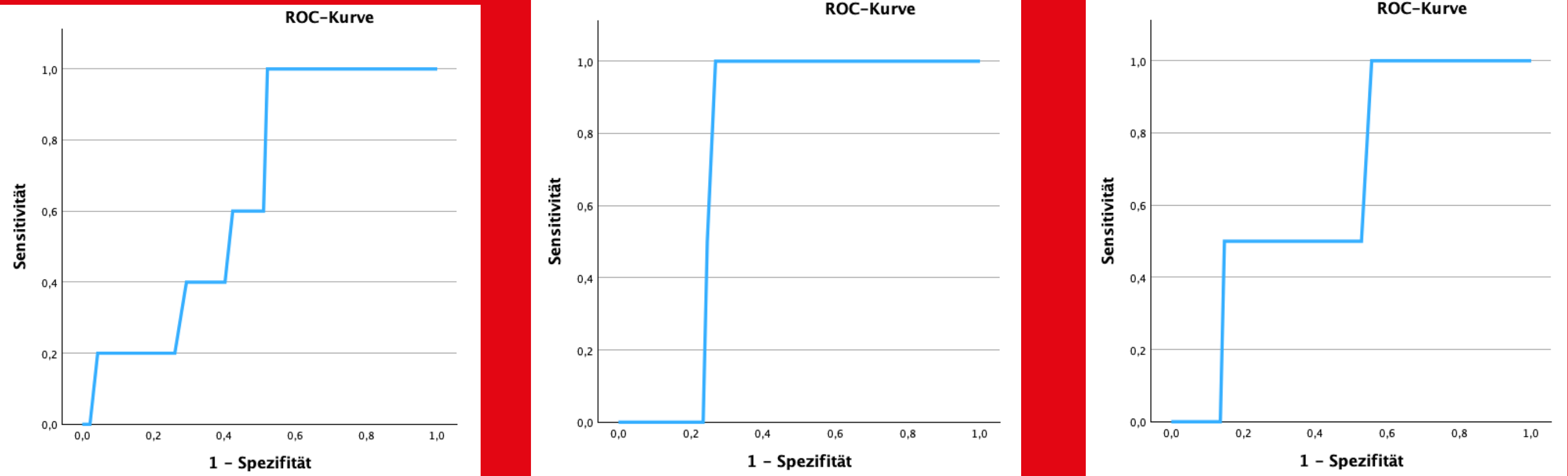
Conclusion

In comparison to the current literature, our results show a high cut-off value for the full thickness LUS in regards of uterine rupture, both with low specificity. According to our results, uterine rupture or dehiscence are unlikely to occur over a cut-off of full thickness LUS of 5.65mm and myometrial thickness over 2.11mm. The statements of our results are limited by the low incidence of adverse events.

Results

257 patients met the inclusion criteria. 65% (178/275) opted for a TOLAC. Two (1.1%) uterine ruptures were reported in the TOLAC group, in 5 (2.8%) cases uterine dehiscence was described in the surgery report. Patients with elective repeated c-section showed no cases of uterine rupture and 5 (5.2%, N=97) cases of uterine dehiscence.

Figure 2: left-right: ROC TOLAC, full thickness LUS; myometrane LUS; dehiscence



Uterine rupture	Cut-off	Sensitivity	Specifity	ROC (CI)	PPV
TOLAC N = 2					
Full thickness LUS	5.45	1.0	0.55	0.658 (0.37-0.94)	2%
Myometran LUS	1.75	1.0	0.27	0.751 (0.67-0.82)	4%

Uterine dehiscence	Cut-off	Sensitivity	Specifity	ROC (CI)	PPV
TOLAC N = 5					
Full thickness LUS	5.65	1.0	0.62	0.64 (0.4-0.88)	3.5%
Myometran LUS	2.11	0.8	0.42	0.63 (0.47-0.81)	5.25%
Elective repeated c-section N = 5					
Full thickness LUS	4.15	1.0	0.52	0.649 (0.47-0.82)	8.6%
Myometran LUS	1.95	1.0	0.52	0.64 (0.50-0.794)	8.6%