

EP01.47 The inverse niche sign: an anterior-compartment marker to anticipate vesicouterine adhesions

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Background

Standardized methods define how to image the conventional niche (isthmocoele) after Caesarean delivery and where it sits within Caesarean scar disorder.¹ Vesicouterine adhesions are a distinct but related sequela,² currently assessed with the dynamic anterior sliding sign.^{3,4} A static, single-image marker has been missing.

The inverse niche sign

Invagination of hyperechoic fibrotic tissue from the vesicouterine fold into the lower anterior myometrium via the serosal surface, with or without adjacent bladder wall involvement.

A conventional niche indents the myometrium from the cavity, with intact serosa. The inverse niche sign runs the other way, serosal side inward (Figure 3). It is not defined in existing niche terminology,⁵ and we hypothesize it is a static marker of dense vesicouterine fixation, with or without a conventional niche.

Sonographic features

- Focal triangular or cleft-like hyperechoic indentation into the anterior myometrium, with or without the bladder wall
- Focal, on the left, central or right, or broad across the lower uterine segment
- Acoustic shadowing is common and can limit assessment of a coexisting conventional niche

References

1. Klein Meuleman SJM, et al. JAMA Netw Open 2023;6(3):e235321.
2. Moro F, et al. Ultrasound Obstet Gynecol 2015;45(2):223-228.
3. Min N, et al. Ultrasound Obstet Gynecol 2025;65(1):114-121.

How to capture it

Diagnosis rests on a single image in which the anterior serosal line is interrupted by hyperechoic tissue.

- Sweep on video, or label stills by side, to document lateral extent
- Measure in three orthogonal planes, including transverse
- Perform and document the anterior sliding sign whatever the static appearance^{3,4}

Clinical implications

Recognition should raise suspicion of dense anterior compartment adhesions and prompt careful sliding sign assessment. Documenting the sign, with location and extent, may assist planning where bladder mobilization or lower uterine segment dissection is required:

Repeat Caesarean delivery · Hysterectomy
Niche repair · Abdominal cerclage

Conclusion

The inverse niche sign is a static, serosal-side counterpart to the dynamic anterior sliding sign. Validation studies are invited on reproducibility, symptoms, surgical correlation, natural history and operative planning. Until then, it should not be used as a stand-alone diagnostic or surgical decision-making tool.

4. van Keizerswaard J, et al. Ultrasound Obstet Gynecol. doi:10.1002/uog.70281
 5. Jordans IPM, et al. Ultrasound Obstet Gynecol 2019;53(1):107-115.
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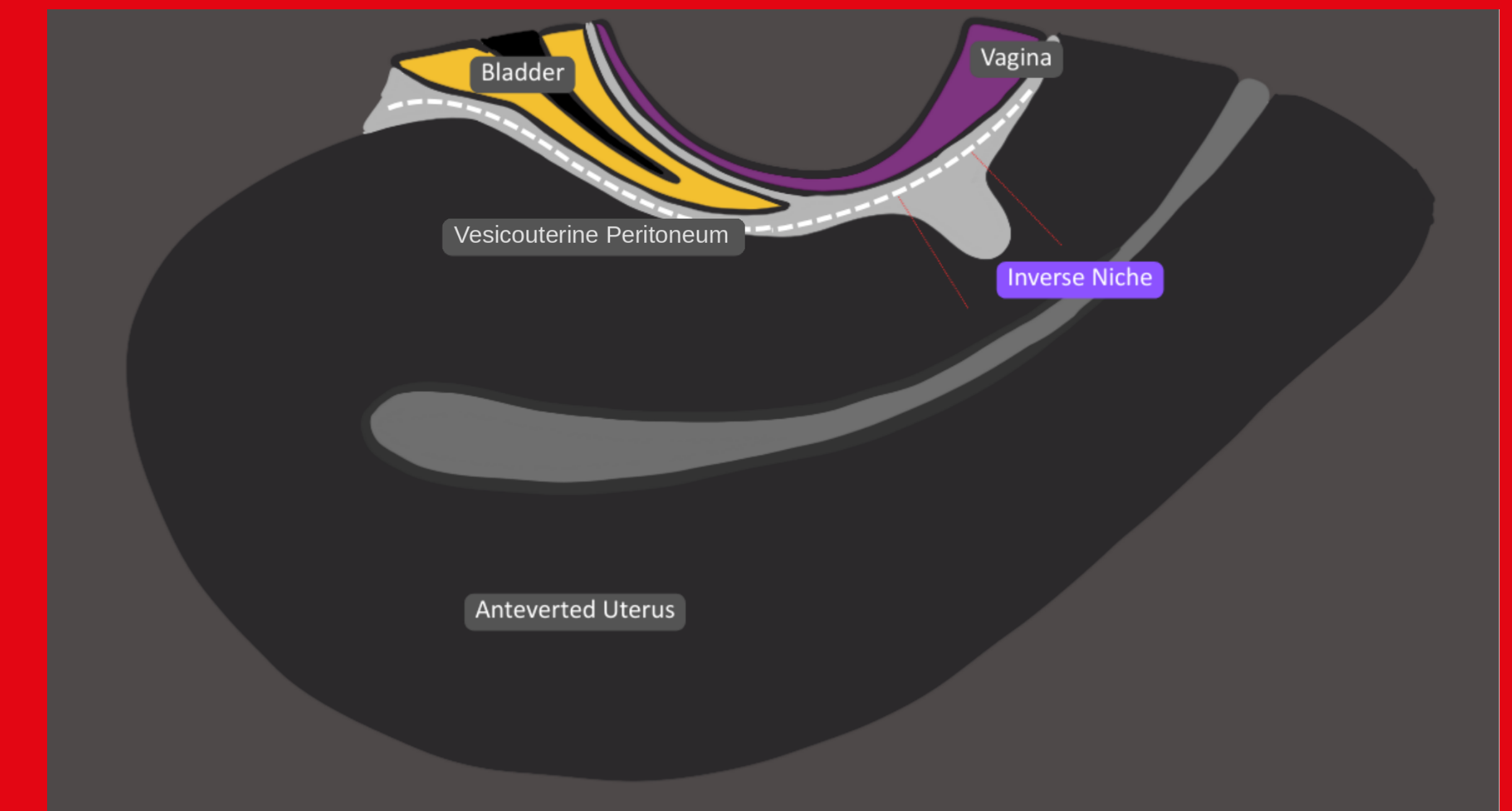


Figure 1. Graphic of an anteverted uterus. Fibrotic tissue invaginates at the vesicouterine fold, through the uterine serosal surface.



Figure 2. Matching transvaginal image. Note the acoustic shadowing produced by the density of the fibrotic tissue.

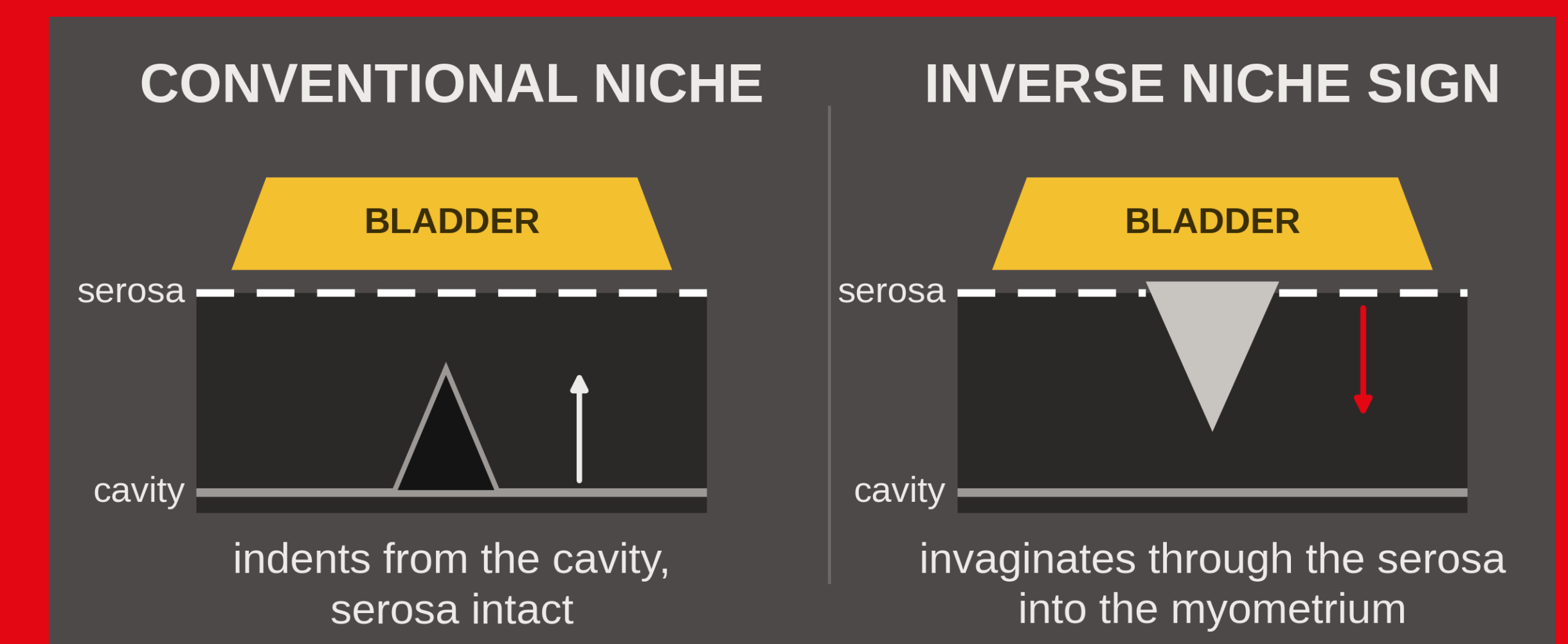


Figure 3. Direction of travel. The two entities indent the myometrium from opposite surfaces.