

Accessory Cavitated Uterine Mass (ACUM). Causing Refractory Dysmenorrhea: Role of 3D Ultrasound in Diagnosis and Surgery.

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BACKGROUND

- Rare Müllerian anomaly causing refractory dysmenorrhea, chronic pelvic pain, infertility.
- Mimics adenomyosis and degenerating fibroids and is often misdiagnosed.
- 2D US may not fully characterize ACUM morphology and its spatial relationship to the uterine cavity; 3DUS enables multiplanar and volumetric assessment.

Objective

Evaluate the diagnostic and surgical value of 3DUS in ACUM.

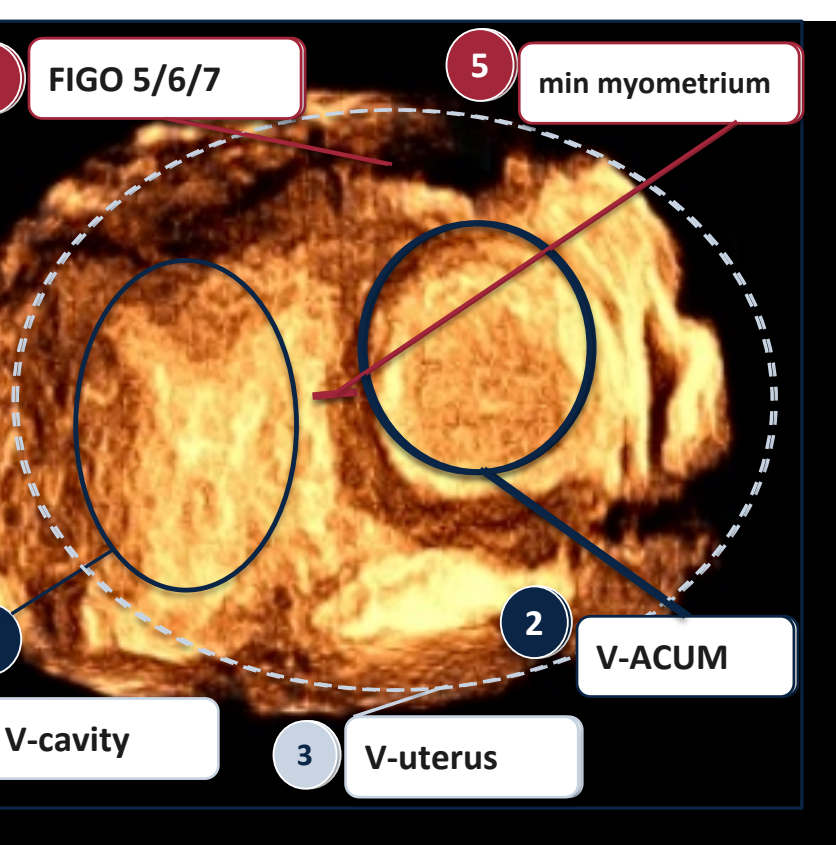
MATERIALS AND METHODS

- 14 patients from 15 to 41 years old (mean 25,4)
- Chronic pelvic pain 92,9 %, infertility 21,4%, AUB 14%
- Bimanual pelvic examination – **diagnostic value: 0%**
- 2D/3D TVUS, 2D sonohysterosalpingography, MRI and histopathological examination
- Laterality: Left (50%)/Right (50%)
- FIGO type: 5 (42,9%), 6 (42,9%) or 7(14,3%)
- Volume: from 0,43 to 41 cm³ (mean 18,6±6,4)

3D ULTRASOUND ASSESSMENT OF ACUM: FIVE KEY PARAMETERS

3DUS → one morphometric map for diagnosis + surgical planning

3D volume → quantification → safe resection



Triangular cavity with 2 tubal ostia (excludes unicornuate uterus); peripheral ring vascularity, no feeder vessel.

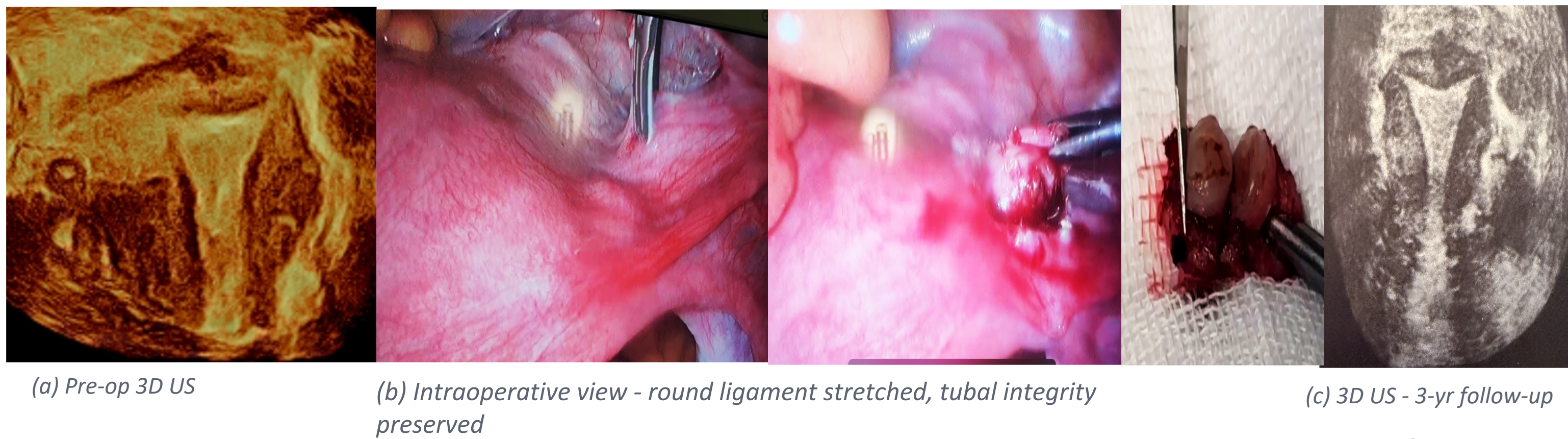
Five outputs highlighted on one 3D image:

- 1 Topography: FIGO type 5 / 6 / 7
- 2 ACUM volume: V-ACUM (cm³)
- 3 AVR = V-ACUM / V-uterus (%)
- 4 Dysmorphism index = V-cavity / V-uterus (%)
- 5 Residual myometrium: <3 mm risk; >5 mm safer

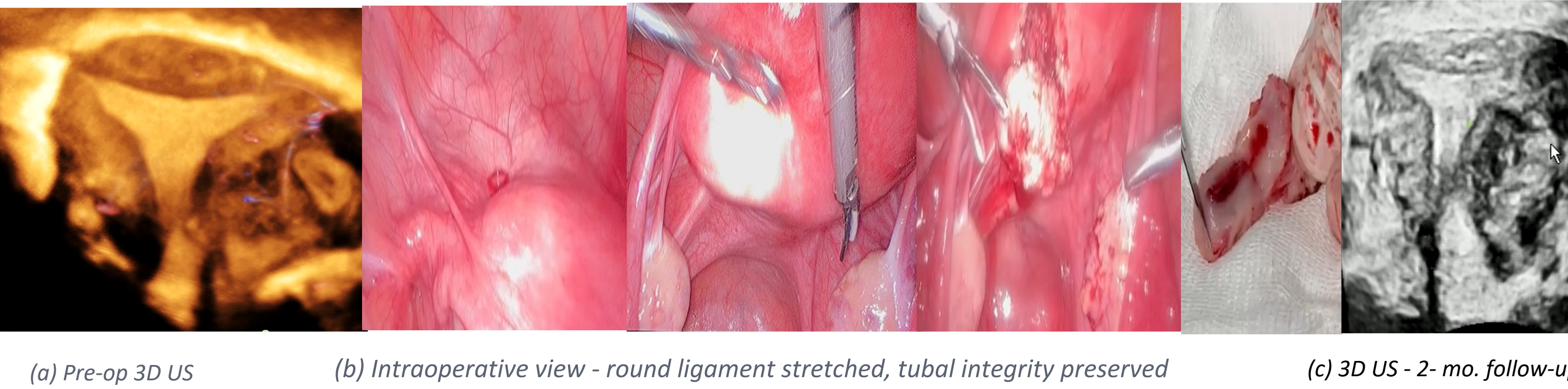
SURGERY: BEFORE & AFTER

13/14 (92.9%) underwent surgical treatment involving resection: laparoscopy (11), laparotomy (1), transcervical approach (1).

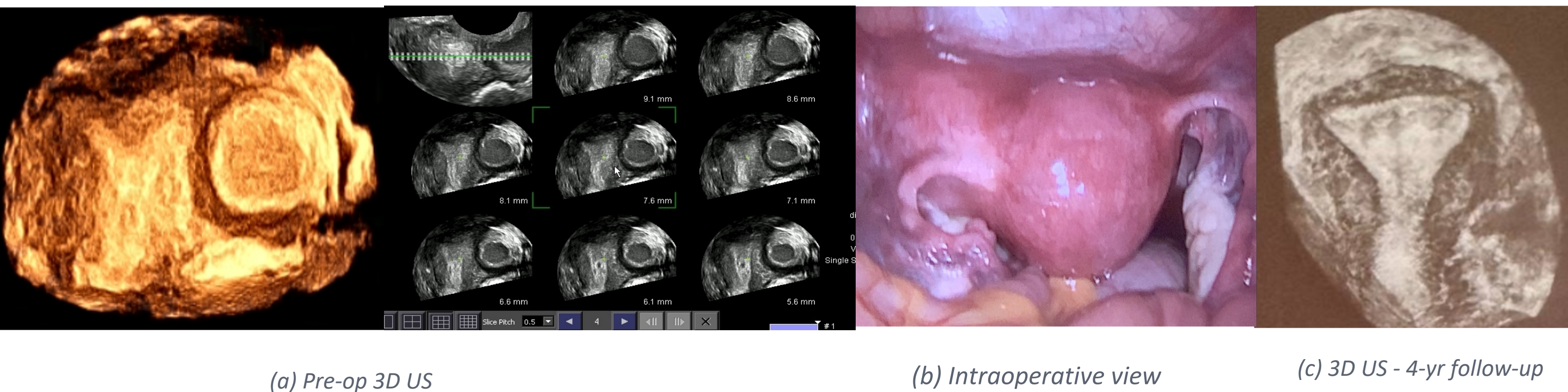
Case 1 (19 years old): Right-sided ACUM, FIGO type 7, volume 0,43 cm³



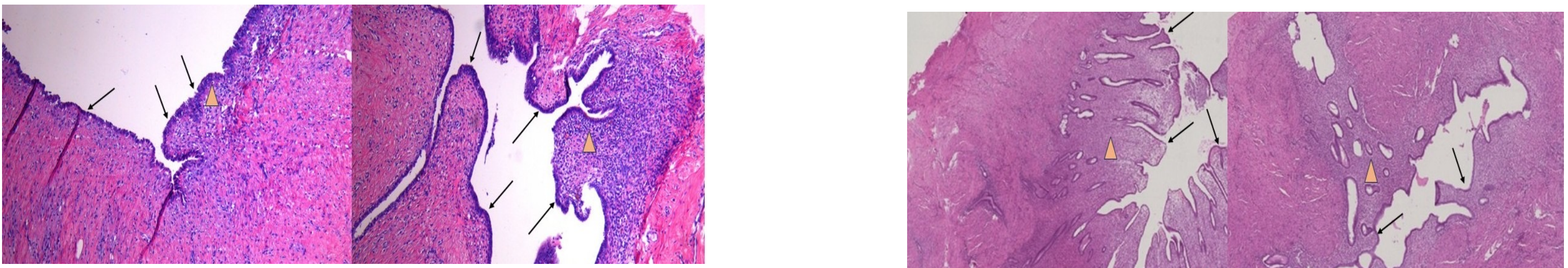
Case 2 (24 years old): Left -sided ACUM, FIGO type 5, volume 2,7 cm³



Case 3 (28 years old): Left -sided ACUM, FIGO type 6, volume 40,8 cm³



Pathomorphological examination

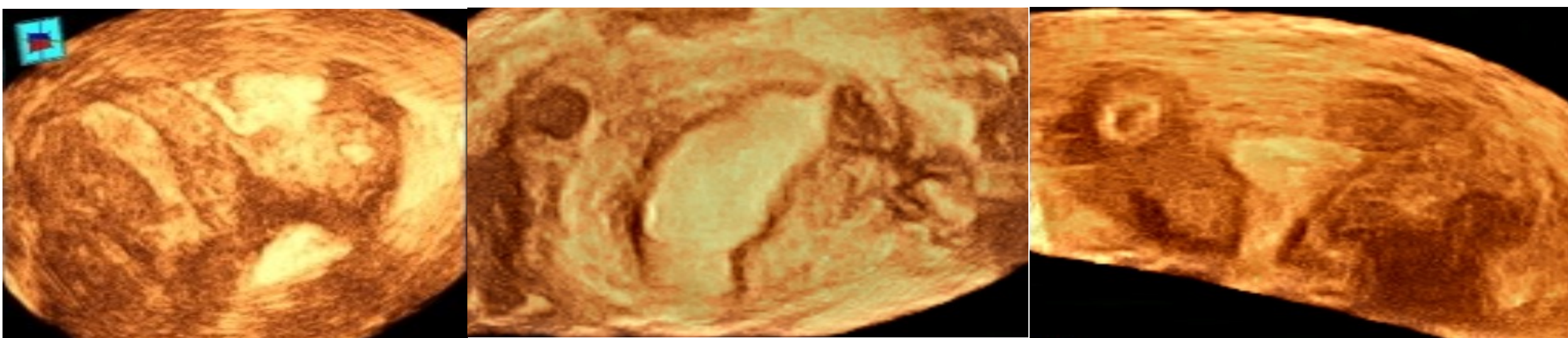


Endometrioid columnar epithelium (arrows) with underlying compact endometrial stroma

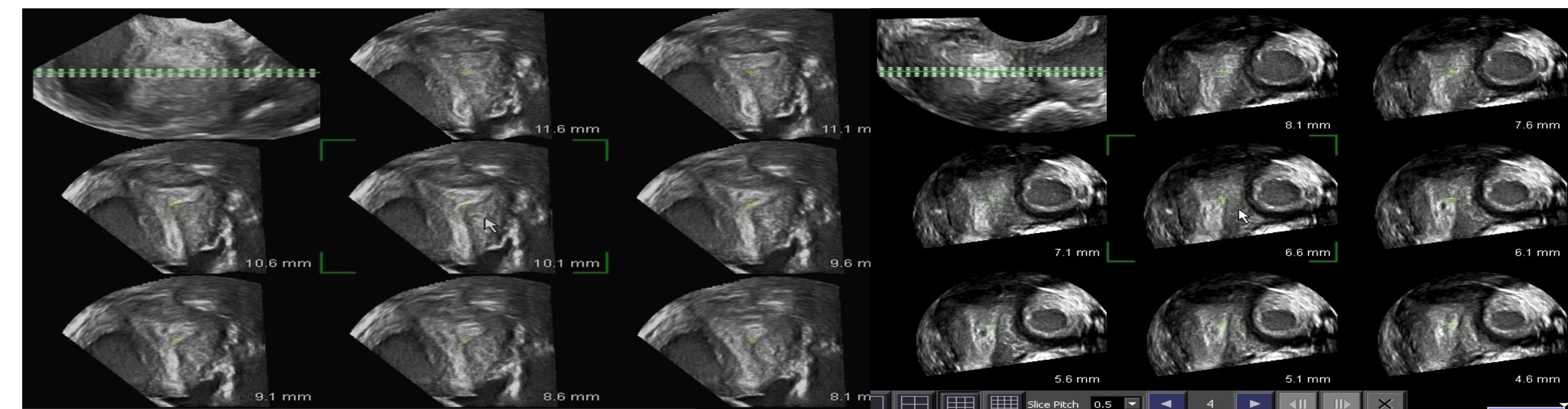
SURGICAL PARAMETERS

3DUS enables accurate diagnosis without the need for additional imaging modalities and allows differentiation of ACUM from:

- a non-communicating rudimentary uterine horn;
- Robert's uterus;
- interstitial pregnancy.



Defines two key surgical parameters: FIGO-based location + ACUM-cavity distance.



< 3 mm residual myometrium → high risk of cavity entry
> 5 mm → safer surgical margin

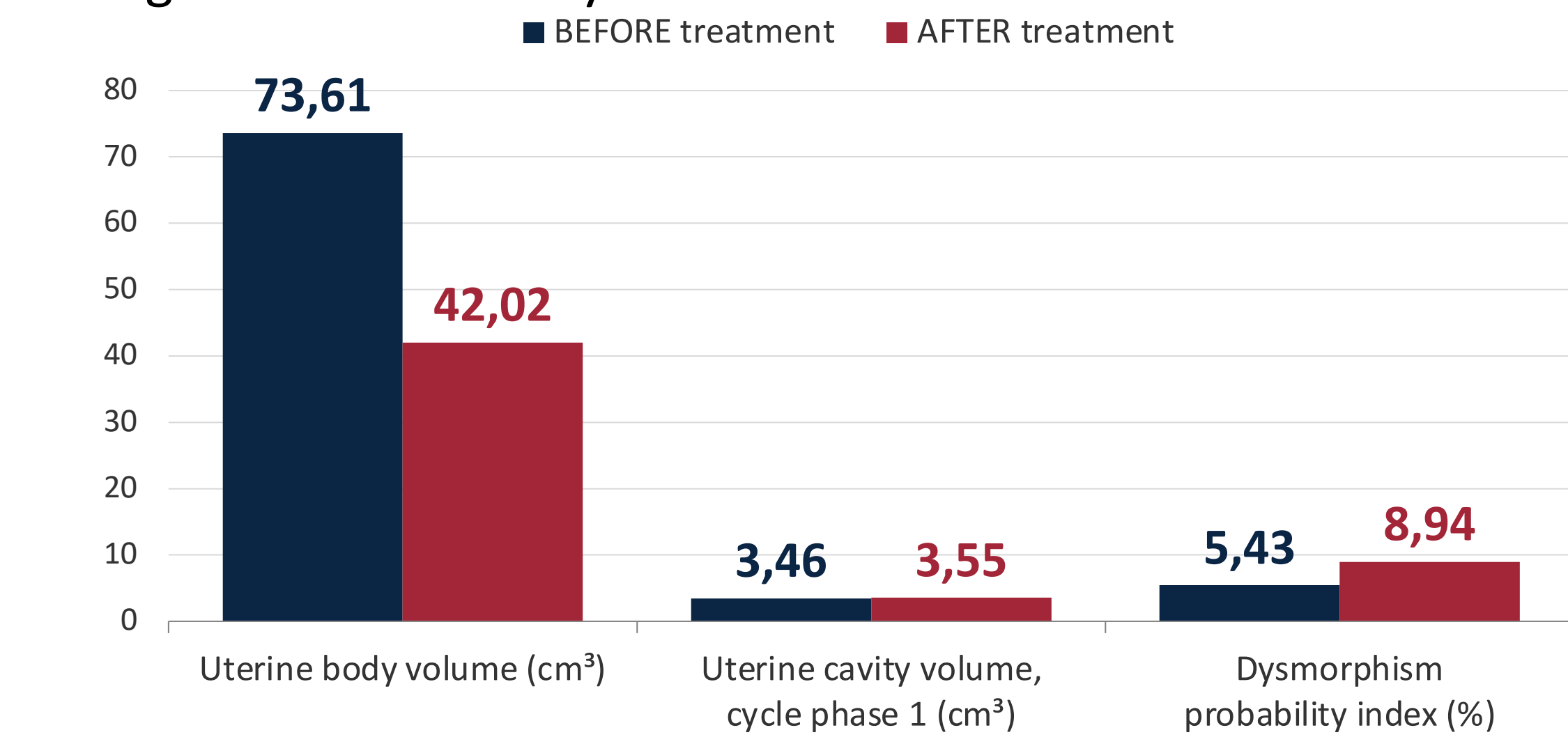
ACUM Volumetric Ratio (AVR)+VAS: three clinical phenotypes of ACUM

AVR (ACUM volume / uterine body volume) ranged 0.93–56.9% (mean 24.9%; r = –0.65, p = 0.016 with pain severity):

- Acute - AVR <10%, VAS 7–9, ± syncope
- Mixed - AVR 10–28%, VAS 4–5, ± infertility
- Chronic compressive - AVR ≥28%, VAS 4–5, ± infertility, AUB

CHANGES IN UTERINE MORPHOMETRY AFTER ACUM RESECTION

ACUM resection significantly reduced uterine body volume and normalized the dysmorphism probability index, with only minimal change in uterine cavity volume.



5-YEAR OUTCOMES

- No complications
- Durable pain relief, no recurrence
- Adequate uterine scar
- 2 full-term deliveries (C-section)

Conclusions

- 3DUS enables accurate non-invasive diagnosis and differentiation of ACUM from mimics.
- Residual myometrial thickness and FIGO-based topographic location support surgical planning.
- 3DUS-informed surgical management provides durable symptom relief while preserving the uterus.
- The identified morphometric parameters and ACUM phenotypes provide objective support for the need for surgical correction.

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