

Longitudinal ultrasound morphology and radiomic features of decidualised endometriomas and borderline ovarian tumours in pregnancy

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AIMS

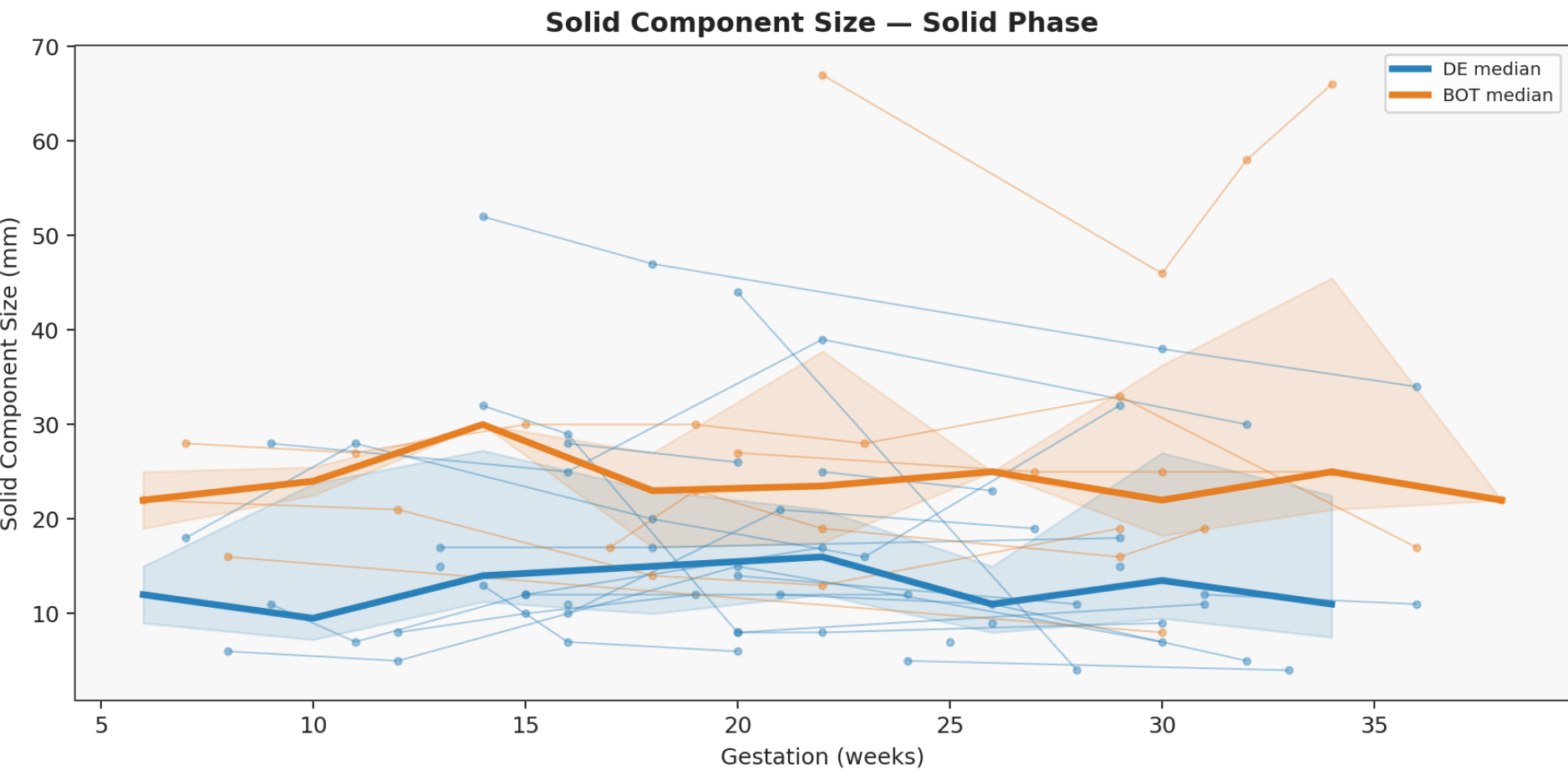
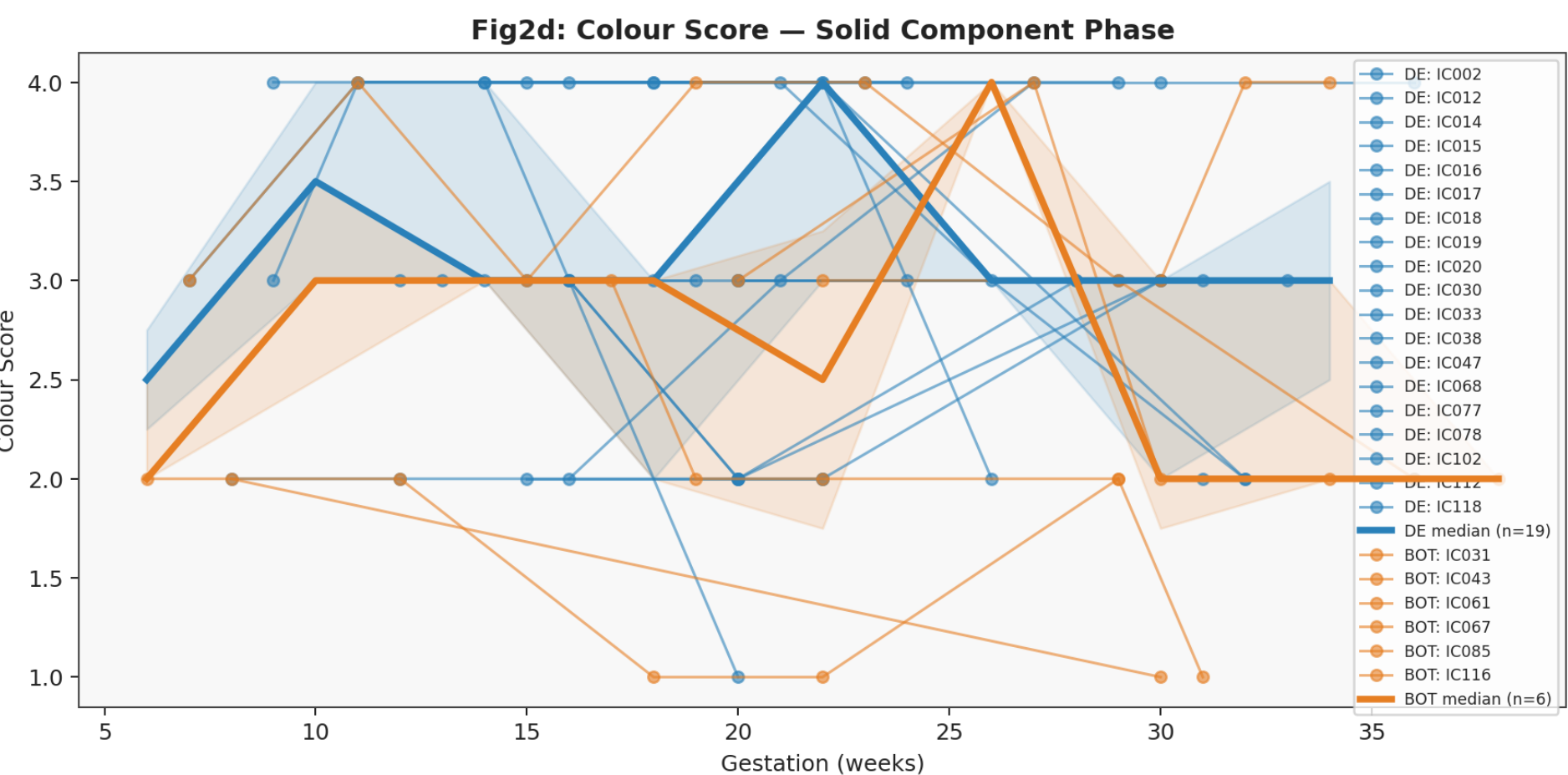
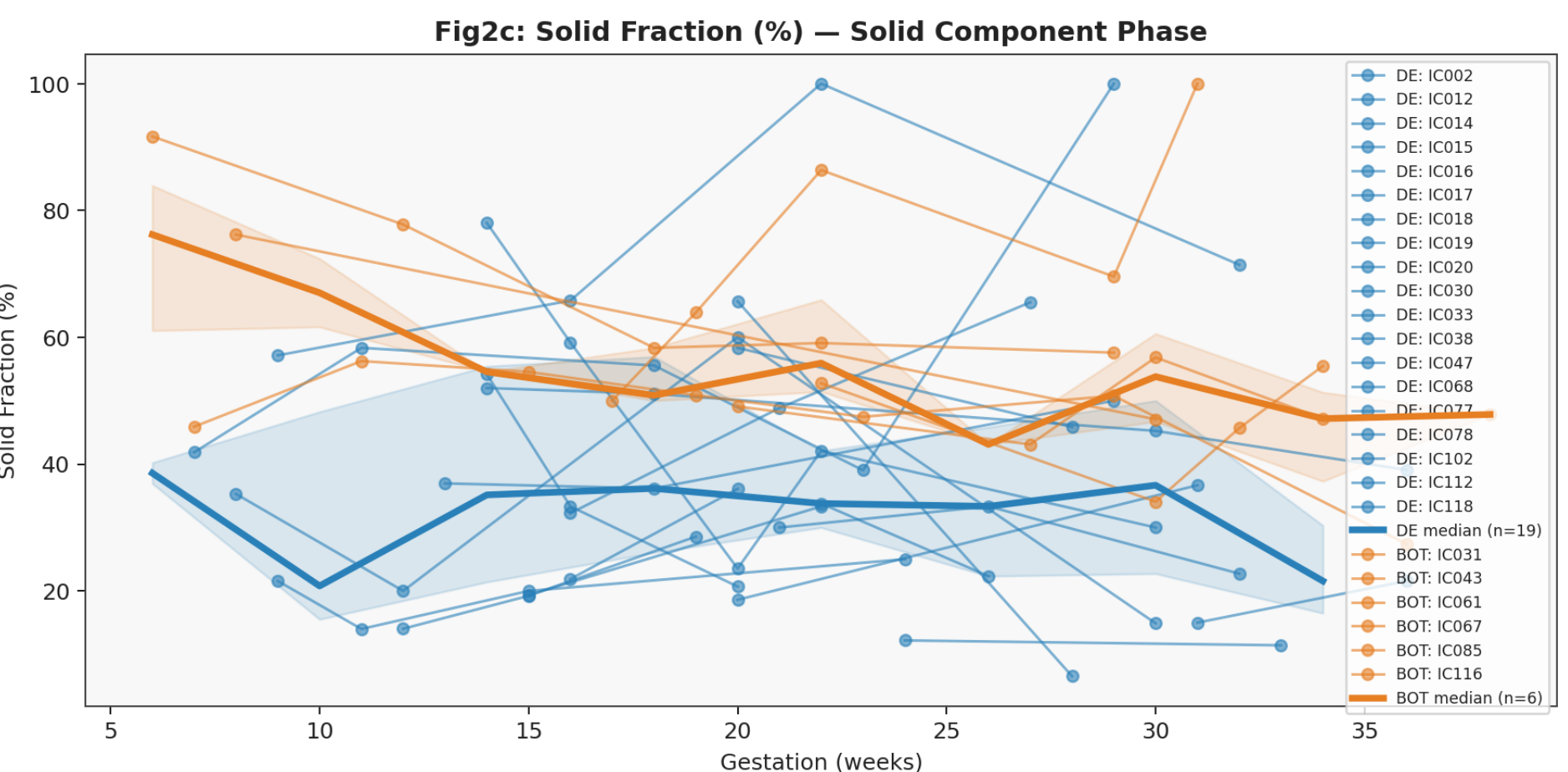
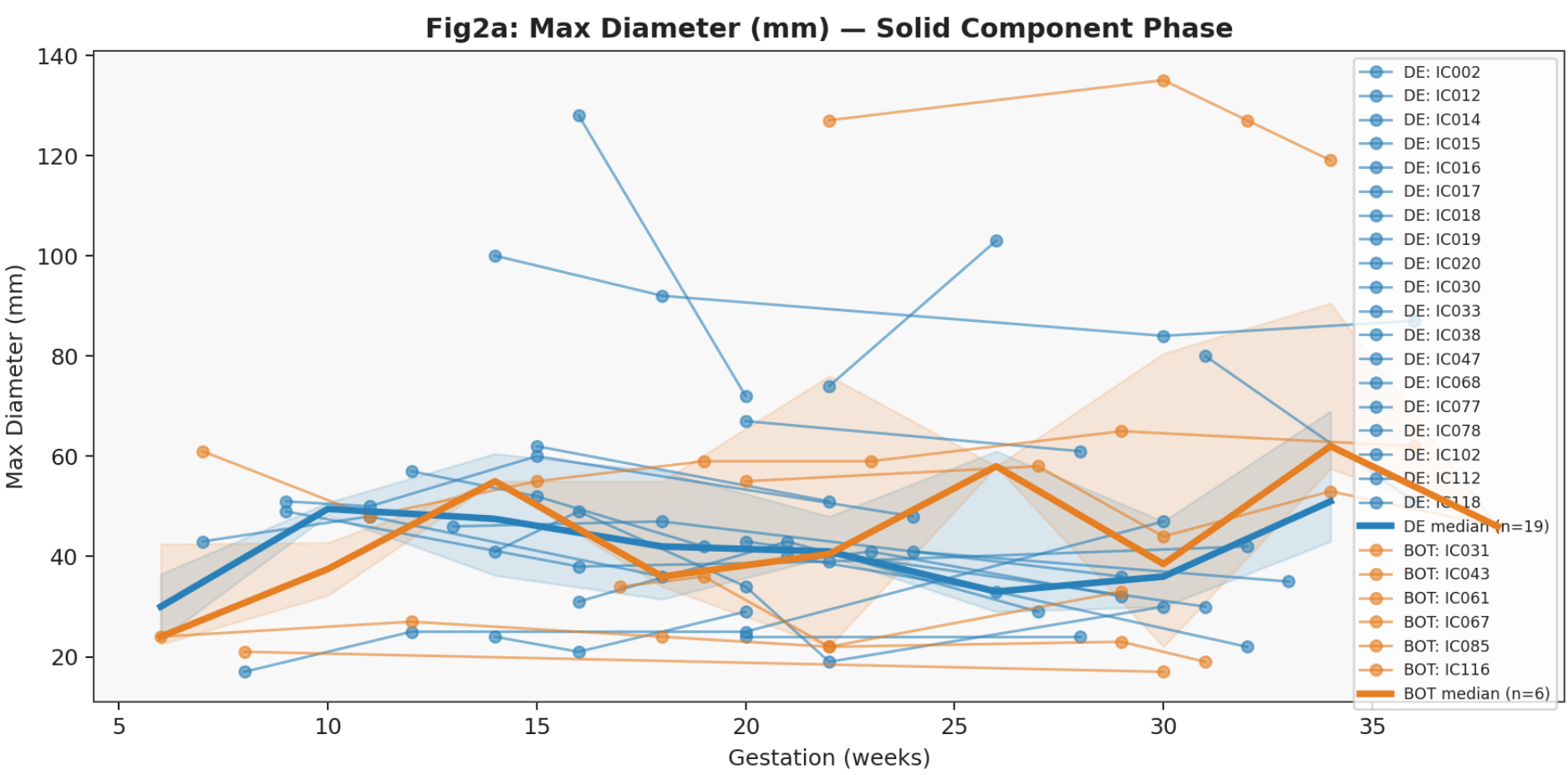
To compare the **longitudinal behaviour** and **radiomics** profile of **decidualised endometriomas** (DEs) and **borderline ovarian tumours** (BOTs) in pregnancy

METHOD:

Prospective observational study using **serial US** to a standardised protocol.

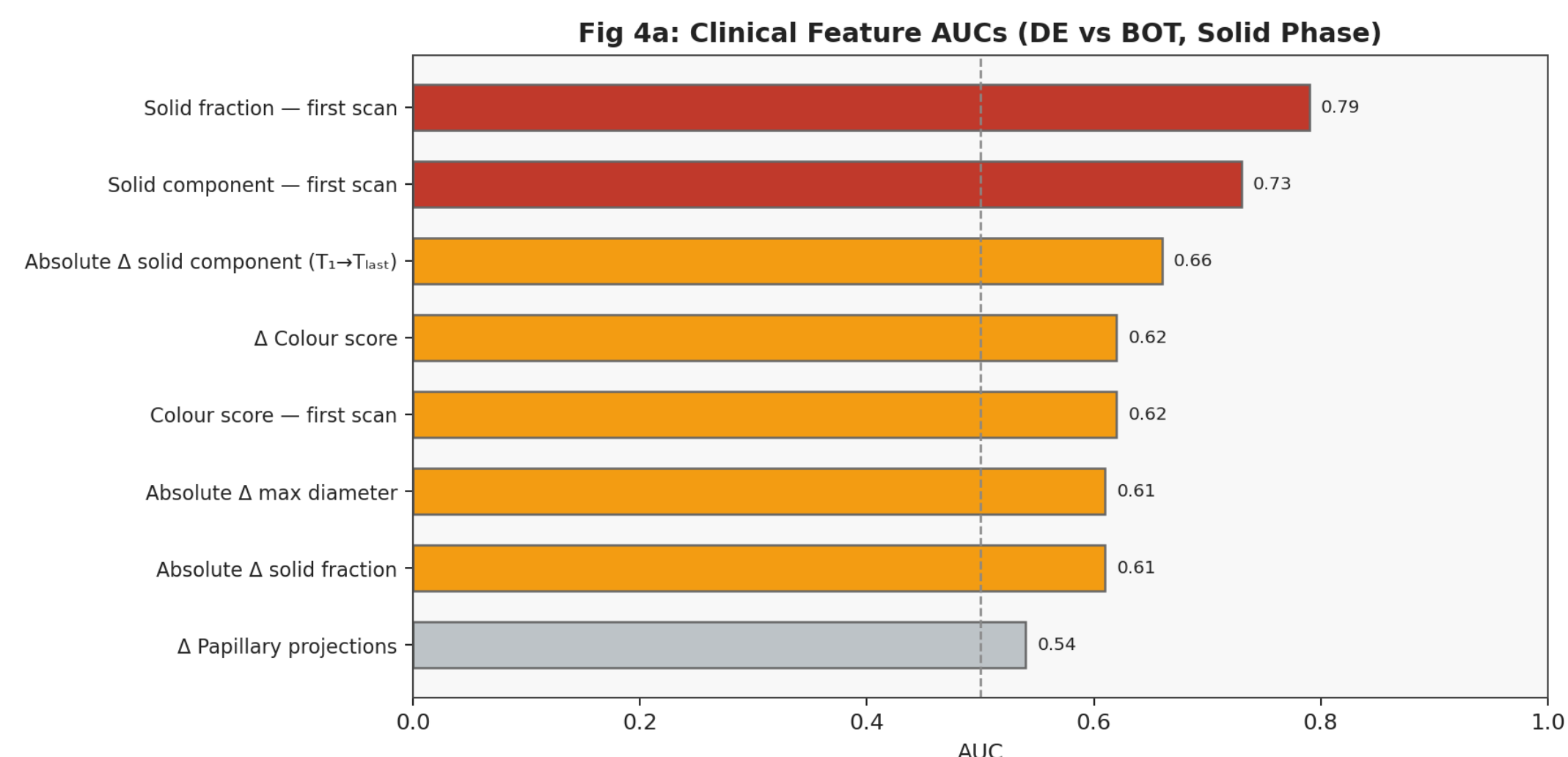
IOTA descriptors and **939 radiomics features** (PyRadiomics) were analysed in the **solid component phase**.

Endpoint: **histologically** confirmed BOT or postpartum **resolution** of a DE.

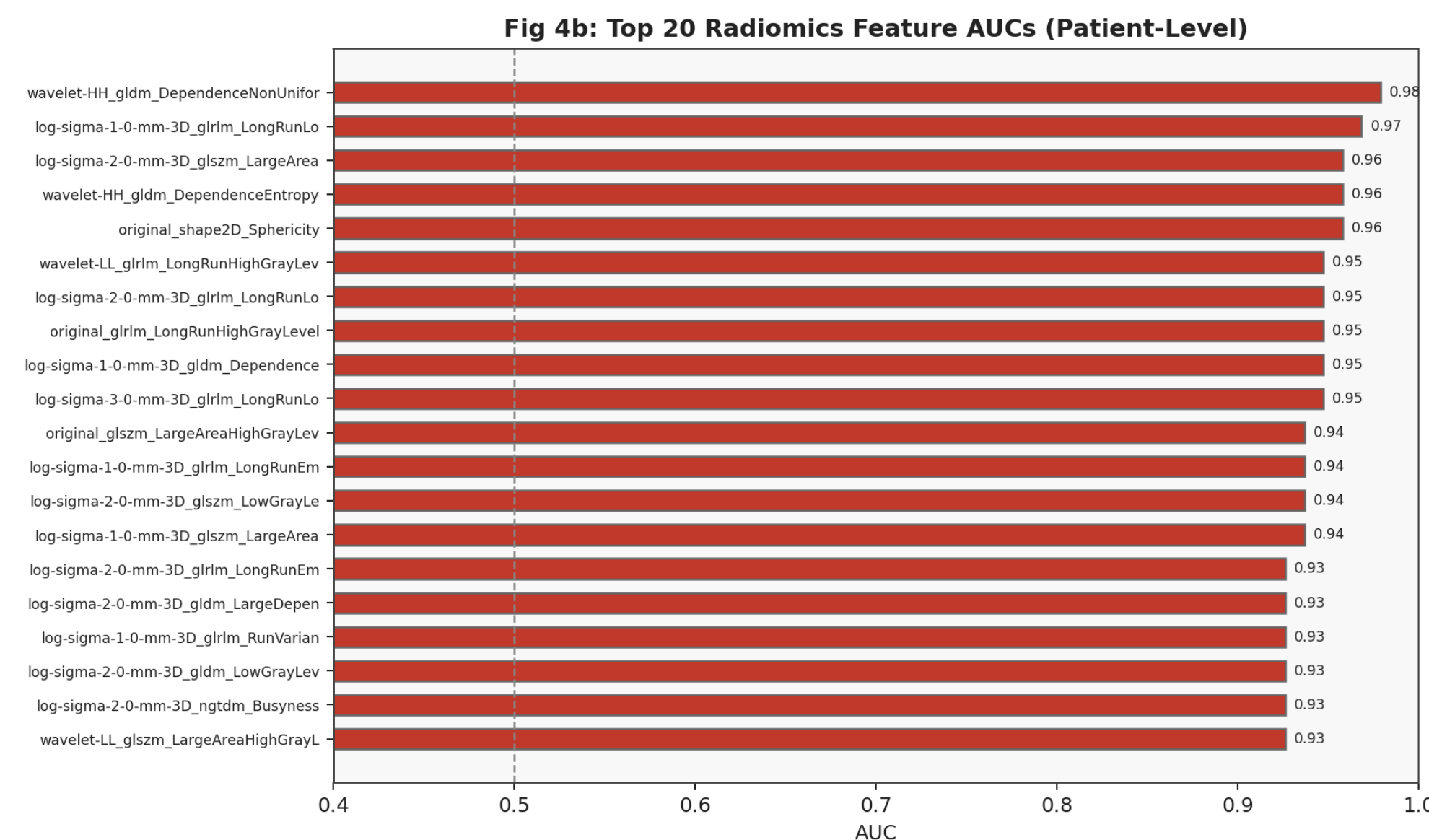


RESULTS

- **25 DEs** (102 scans) vs **6 BOTs** (32 scans); solid component phase: 19 DEs vs 6 BOTs
- **No significant difference** in maximum lesion diameter (median **Δ -10 mm** DEs vs **-6 mm** BOTs, p = 0.445)
- **Solid fraction at first scan** was the **only clinical feature to differ significantly** (51% vs 34%, p = 0.036)
- **No significant difference** in papillary projections (median Δ 0 in both, p = 0.810) or colour score (median 3, p = 0.346)
- Solid components shrank in both groups (Δ -4 mm BOTs vs -1 mm DEs, p = 0.264), but **resolved postpartum in 20/23 DEs (87%)** and **persisted in all BOTs**.



INDIVIDUAL ULTRASOUND FEATURES VS RADIOMICS FEATURES



However, where there is no antecedent image of a ‘typical’ endometrioma available, there is **no significant difference** in the **longitudinal behaviour** or **appearance** of DEs vs BOTs **during** pregnancy. **Rapid postpartum regression** is the most **robust differentiator** between DEs and BOTs where imaging of a typical preceding endometrioma is not available.

CONCLUSIONS

- Once **solid components develop**, the longitudinal ultrasound behaviour of DEs is **not sufficiently distinct from BOTs** to allow reliable differentiation during pregnancy
- A **preceding typical endometrioma** and **rapid postpartum regression** are the most reliable indicators of benign disease; BOT solid components **persist postpartum**
- Radiomics demonstrates **promising discriminatory performance** and may provide an **objective adjunct** where ultrasound findings are indeterminate, although **further validation is required**