

BRENNER TUMORS: A DESCRIPTIVE RETROSPECTIVE IMAGING REVIEW

IMPERIAL

Zain Velji; George Lockett; Nina Cooper; Alex Novak; Nicholas Anson; Srdjan Saso; Patricia Cox; Tejal Amin; Tom Bourne; Joseph Yazbek; Mona El- Bahrawy; Chiara Landolfo; Maya Al-Memar
West London Cancer Centre, Queen Charlotte's and Chelsea NHS Trust, Imperial College Healthcare NHS Trust, Du Cane Road, W12 0HS, UK

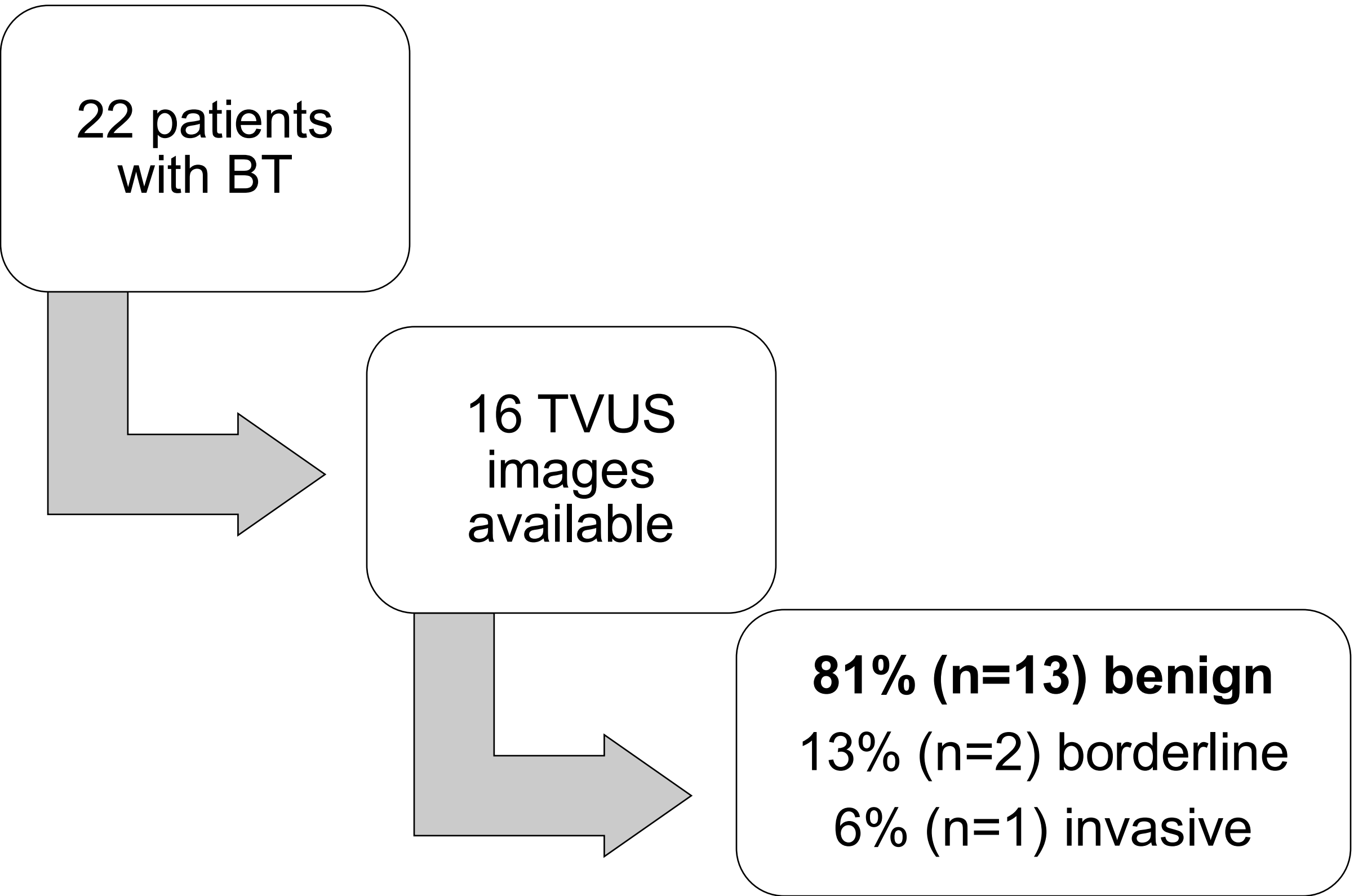
INTRODUCTION

- **Brenner Tumors** are rare ovarian **epithelial** tumors composed of **transitional (urothelial-like) epithelial cells** within a **fibrous stroma**
- **Most** are **benign**; borderline and malignant variants are uncommon
- Typically occurs in **middle-aged to older women**
- **Often asymptomatic**; may be an incidental finding or present with abdominal pain/mass effect
- We aimed to review ultrasound features of Brenner tumors and to assess the validity of models in the analyses these tumors

METHOD

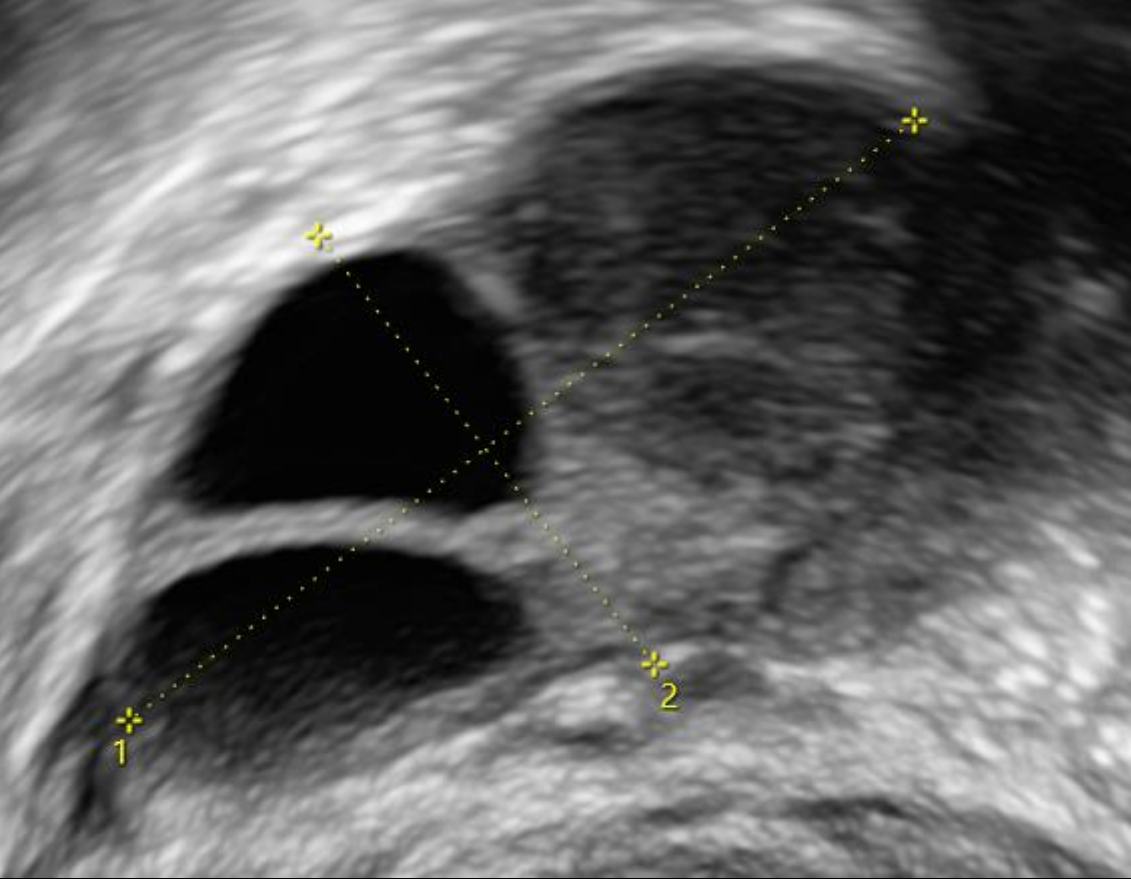
- A **ten-year retrospective review** of ultrasound images of patients diagnosed with a histologically confirmed BT at a tertiary cancer centre was conducted.
- Images retrospectively reviewed by two level 1 and two level 3 examiners and described using IOTA terms and definitions.
- Findings were compared to previously published data.
- IOTA simple rules SRs and ADNEX were retrospectively applied to predict whether these lesions were benign or malignant (borderline or invasive).

RESULTS

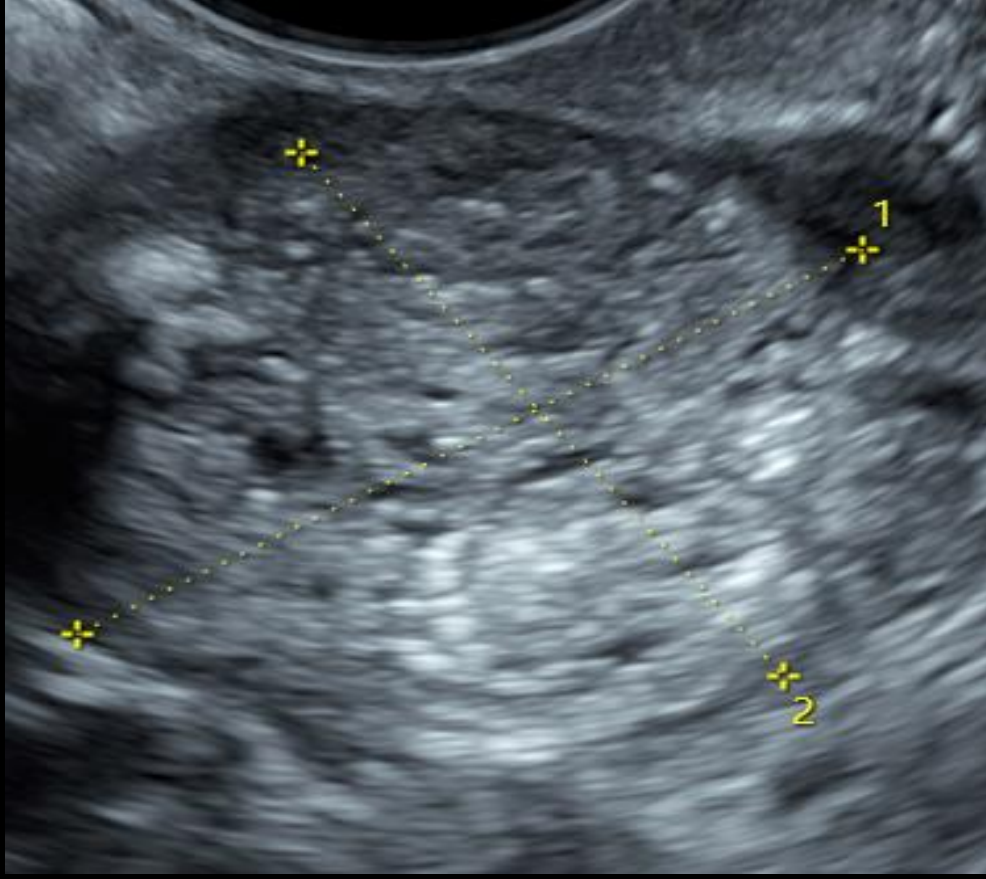


BENIGN LESIONS

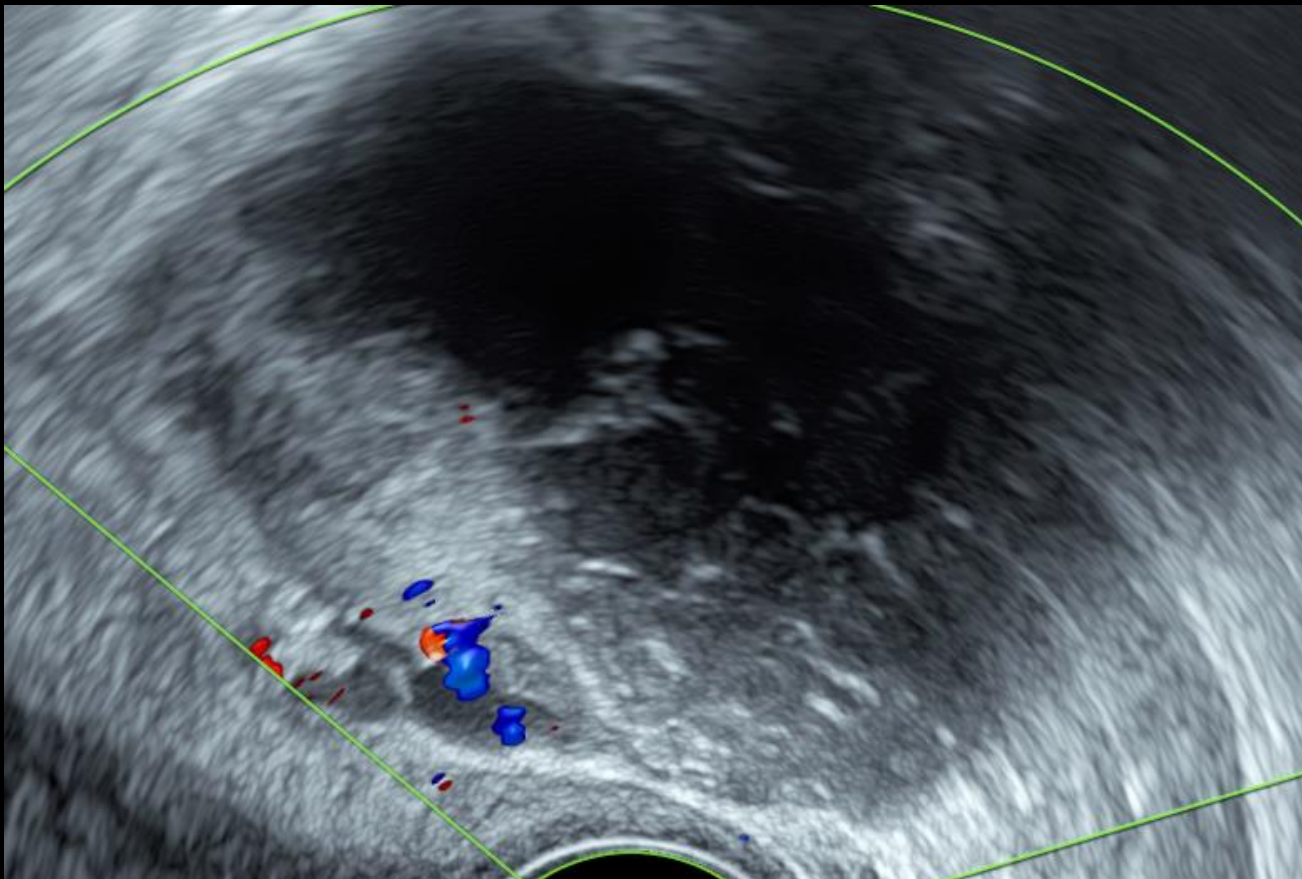
- 77% (10/13) of lesions had a solid element.
- 62 % (8/13) had irregular internal cyst walls.
- A key feature was cyst contents with heterogenous echogenicity
- Calcifications were seen in 46% (6/13) of cases.



38% (5/13) were described as multilocular-solid



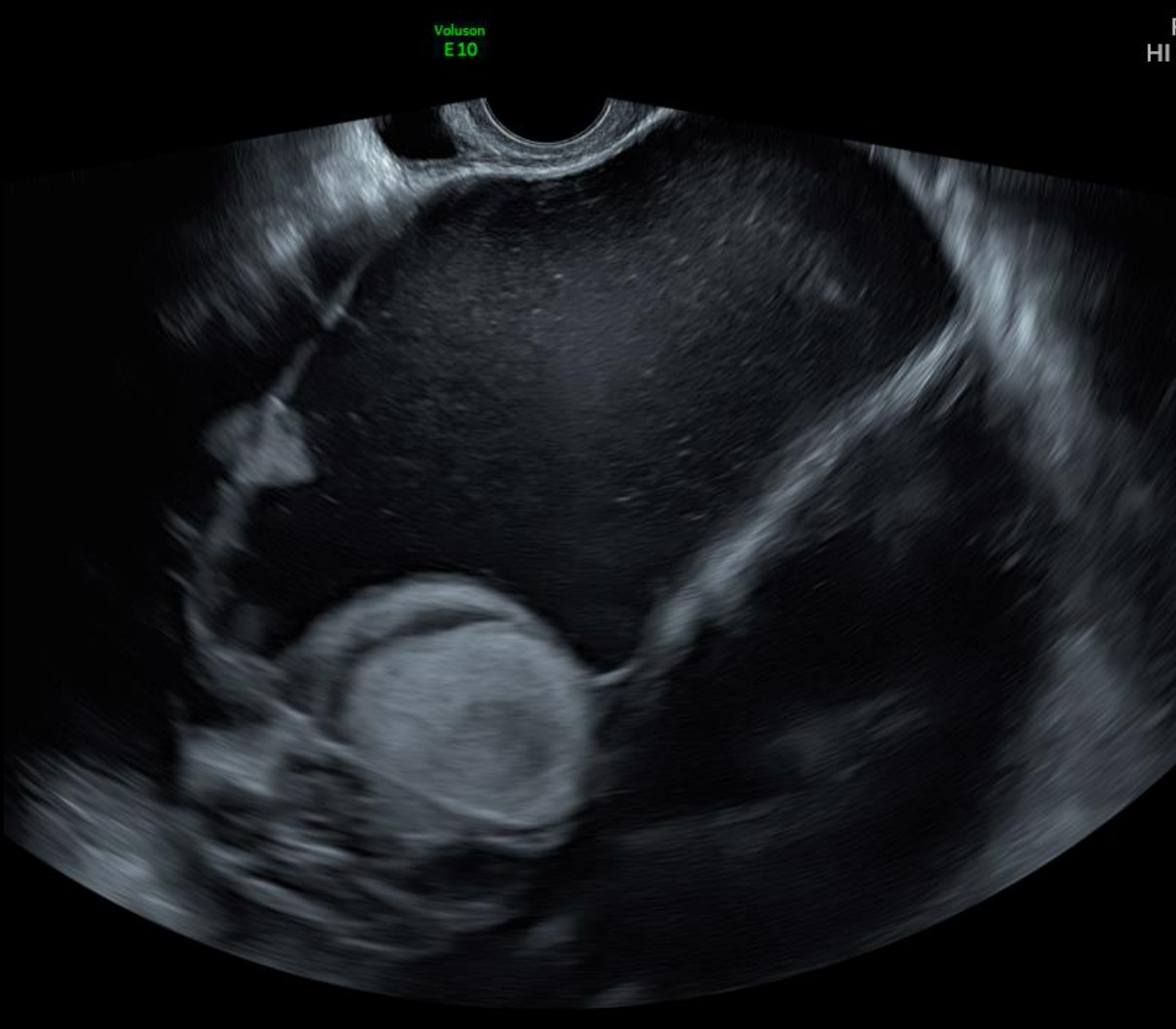
38% (5/13) were described as solid lesions



69% (9/13) of lesions had colour score 1 or 2 on Doppler examination

MALIGNANT LESIONS

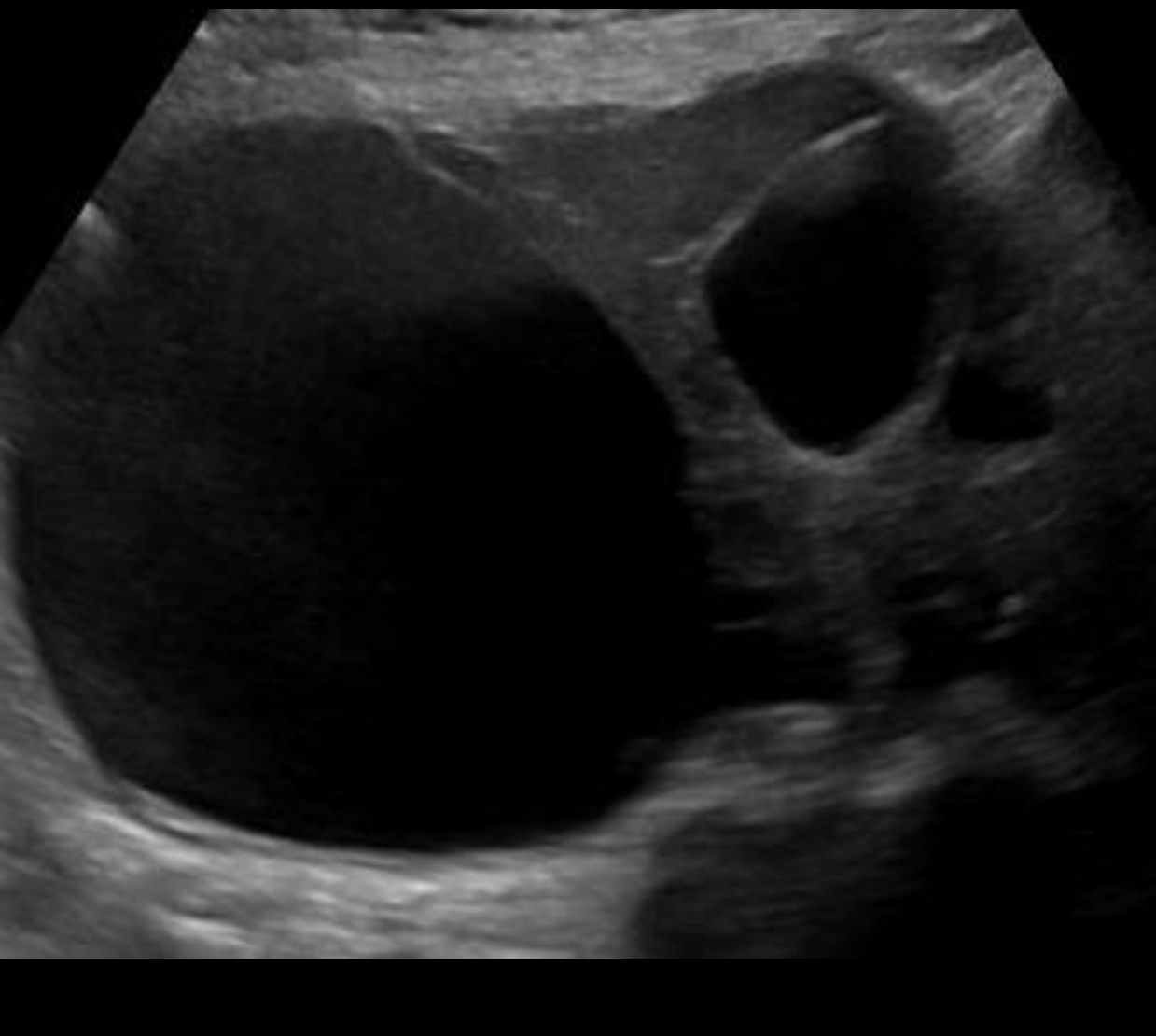
- Malignant tumors were **larger**, with a **mean size of 133mm** (93–199) compared to 45mm (18–155) in benign tumors.
- All had **colour scores 2-3**



Borderline BT described as multilocular-solid lesion, measuring 199mm, with locules with mixed echogenicity (low level/anechoic/fibrosis)



Borderline BT described as a solid lesion, measuring 93 mm. Features of calcification and fibrosis are seen.



Invasive BT tumour, described as multilocular-solid measuring 103mm.

Performance of SRs & ADNEX-Two Step Strategy

The SRs were applicable in 50% of masses (n = 8)

- Sensitivity 100%
- Specificity 85.7%
- PPV 50%
- NPV 100%.

In the remaining 8 masses, ADNEX was applied as a second step

- Sensitivity 100%
- Specificity 50%
- PPV 40%
- NPV 100%

Performance of ADNEX (alone)

Sensitivity 100%
Specificity 61.5%
PPV 37.5%
NPV 100%

ADNEX incorrectly classified 5 benign cases as having a risk of malignancy >10%, with greatest relative risks for metastasis (n = 3) and borderline ovarian tumor (n = 2).

CONCLUSIONS

- Brenner tumours often exhibit features such as solid areas, heterogenous echogenicity and calcifications as with previously published data
- Models such as SRs and ADNEX overclassify benign tumors as malignant, likely due to the rarity of these tumors.
- As such expert opinion is vital in the diagnosis of this tumor type

References

Dierickx I, Valentin L, Van Holsbeke C, Jacomen G, Lissoni AA, Licameli A, Testa A, Bourne T, Timmerman D. Imaging in gynecological disease (7): clinical and ultrasound features of Brenner tumors of the ovary. Ultrasound Obstet Gynecol. 2012 Dec;40(6):706-13.