

Classifying ovarian masses using IOTA

A retrospective study.

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INTRODUCTION

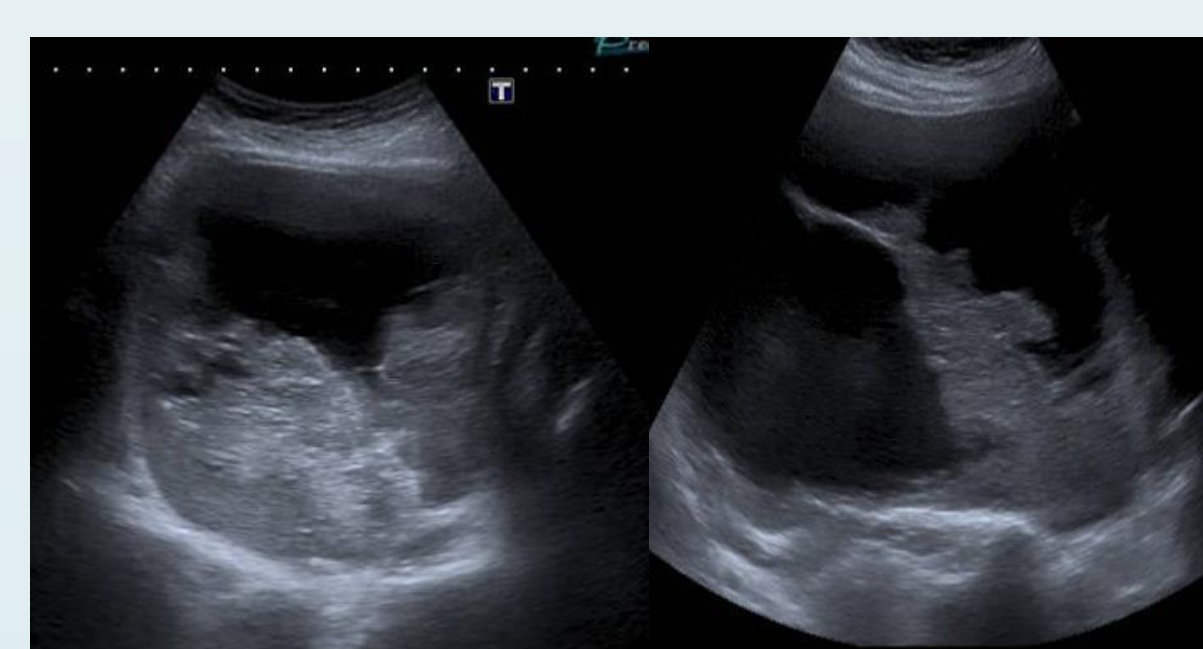
Management pathways for ovarian masses can be complex and differ greatly from patient to patient. A description of an ovarian mass in an ultrasound report is often lengthy and superfluous providing no clear direction to the Consultant Gynaecologist or the Multi-disciplinary Team. Striving for continual improvement, the need for succinct, less descriptive ultrasound reports should be considered along with standardisation of report writing terminology. In turn, the likely outcome of a piece of work addressing this, could provide the referring clinicians with a more clinically valuable report, potentially improve patient management by prioritising possible malignancy, reduce the increasing numbers of follow up scans requested and possibly unnecessary surgical intervention due to equivocal reporting. Currently NICE state there is currently not enough evidence to recommend the routine adoption of the IOTA guidelines but it does show promise and more research into its clinical impact is required.

METHOD

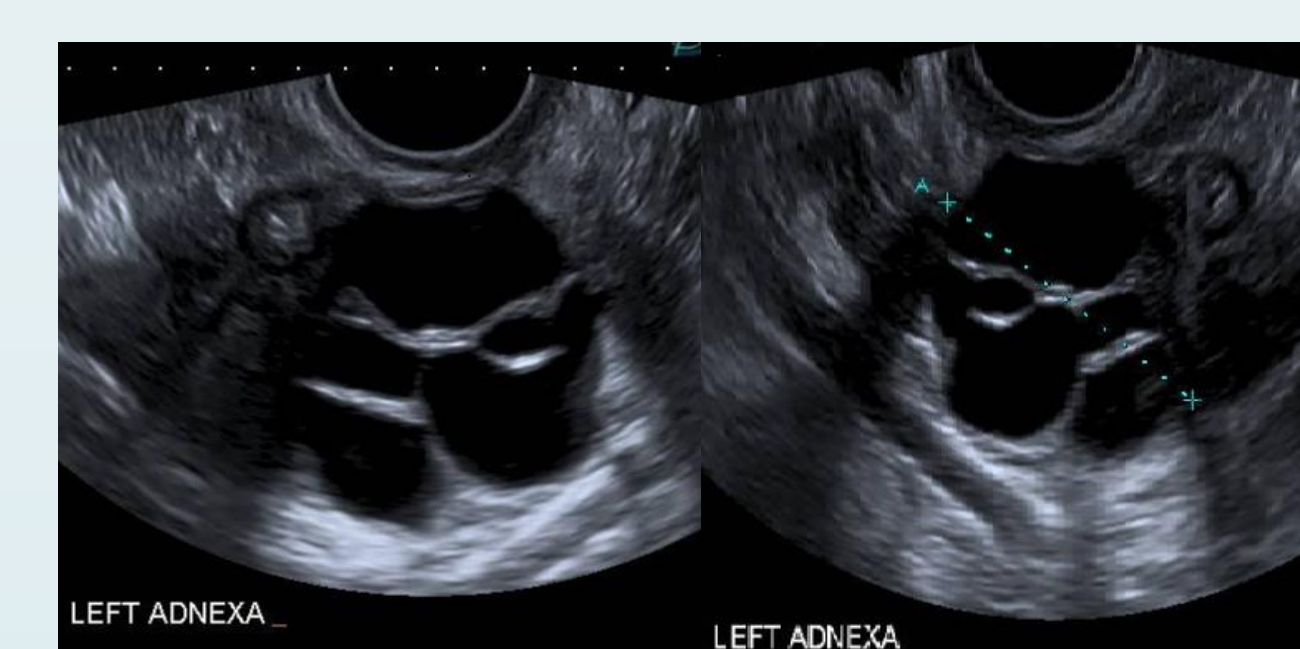
The aim of this audit was to classify ovarian masses using the IOTA (International Ovarian tumour Analysis) classification system and correlate these results with the associated histology in order to support the introduction of a scoring system to ultrasound reporting. A retrospective search of pelvic ultrasound examinations was performed over a two year period using the key words 'ovarian mass', 'ovarian malignancy' and 'ovarian tumour'. The search returned 215 results. 92 out of 215 results identified ovarian masses for classification using IOTA. The remainder of the results were excluded from the study as the key words had been identified in the clinical information rather than in the body of the ultrasound scan report.

DISCUSSION AND RESULTS

IOTA are a set of simple rules that can be used to classify ovarian masses as benign, malignant or indeterminate on ultrasound. The image seen below displays a list of benign and malignant features set out by IOTA which can be applied to determine the likelihood of sinister pathology. The use of a scoring system is recommended by BMUS & ISUOG.



Irregular, multi-locular solid tumour with M4 features. Classification with IOTA suggested malignant features, which was confirmed by histology.

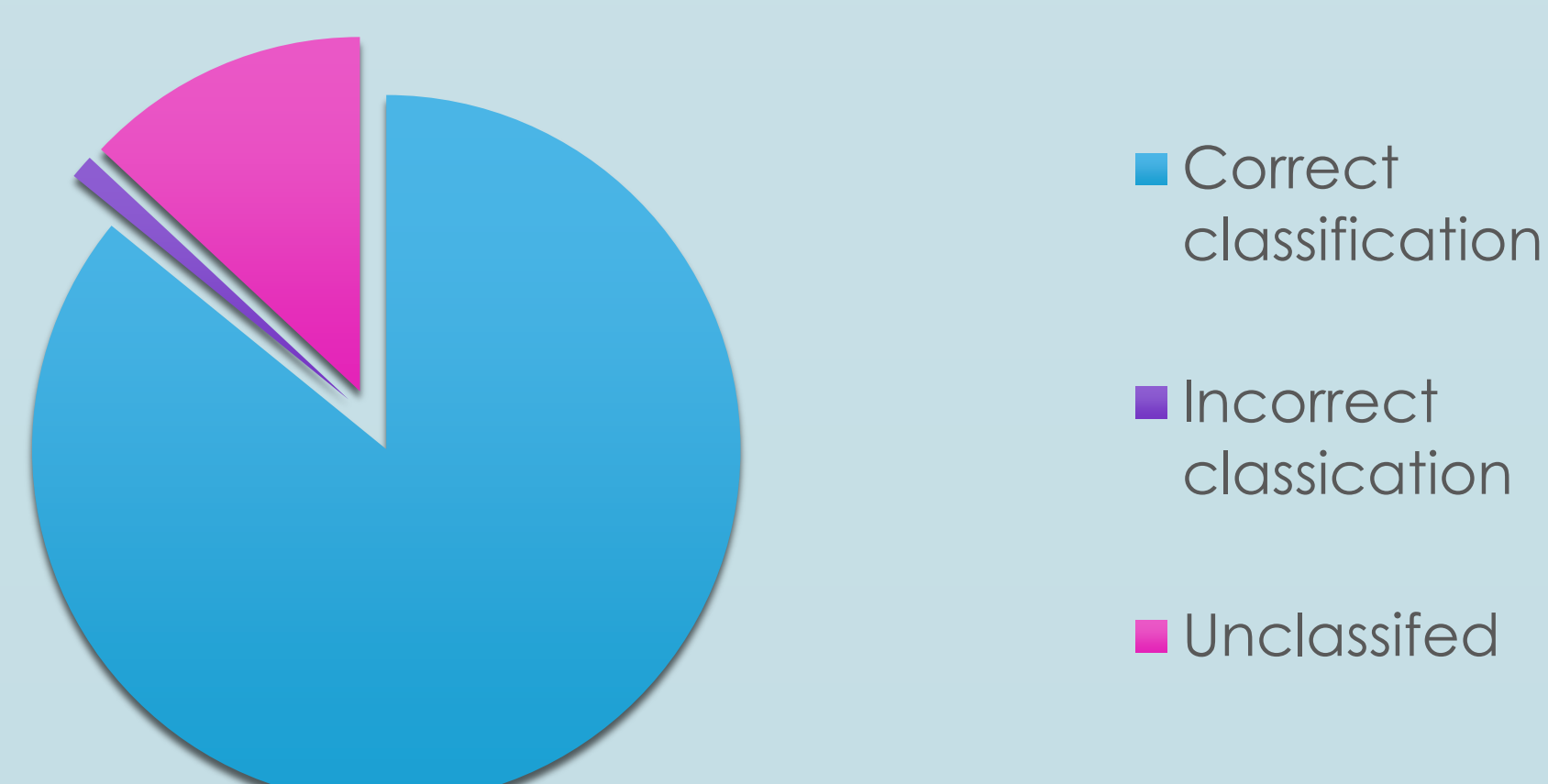


Smooth, multi-locular tumour with B4 features. Classification with IOTA suggested benign features, which was confirmed by histology.

Features for predicting a malignant tumor (M-features)		Features for predicting a benign tumor (B-features)	
M1	Irregular solid tumor	B1	Unilocular
M2	Presence of ascites	B2	Presence of solid components where the largest solid component has a diameter < 7mm
M3	≥ 4 papillary structures	B3	Presence of acoustic shadows
M4	Irregular multilocular solid tumor with largest diameter ≥ 100 mm	B4	Smooth multilocular tumor with largest diameter < 100 mm
M5	Very strong blood flow (color score 4)	B5	No blood flow (color score 1)

> If one or more M-features apply in the absence of a B-feature, the mass is classified as malignant.
 > If one or more B-features apply in the absence of a M-feature, the mass is classified as benign.
 > If both M-features and B-features apply, the mass cannot be classified.
 > If no features are present, the mass cannot be classified.

Although the study was performed on a small sample size, overall the results were encouraging with only one case being incorrectly classified as malignant when in fact the histology returned as a benign ovarian mass. It was important to recognise that classification of ovarian masses remained subjective and operator dependant and therefore support to implement a scoring system is essential.



CONCLUSION

The results of this study were presented at a local departmental CPD evening which was followed up by a tutorial on how to classify ovarian masses using IOTA. There has been a noticeable increase in sonographer confidence when reporting ovarian pathology reflected in the report writing; assessed at re-audit. Due to this retrospective audit, there has been increased referring clinician confidence in the report due to the standard parameters of assessment and terminology leading to a reduction in inter-observer variation.

Due to the time frame of the audit, it is too early to notice a reduction in numbers and assess the direct change on the patient pathway quantitatively, however early anecdotal evidence is promising.

References:

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