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Correlation between ultrasound features, surgical findings, and histopatholy of ovarian masses

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Introduction

The evaluation of ovarian masses poses a diagnostic challenge due to their wide spectrum of benign and malignant etiologies. Ultrasound is the primary imaging modality for initial assessment, yet variability in its diagnostic accuracy persists. While intraoperative findings contribute further insights, histopathology remains the definitive standard for diagnosis.

Methods

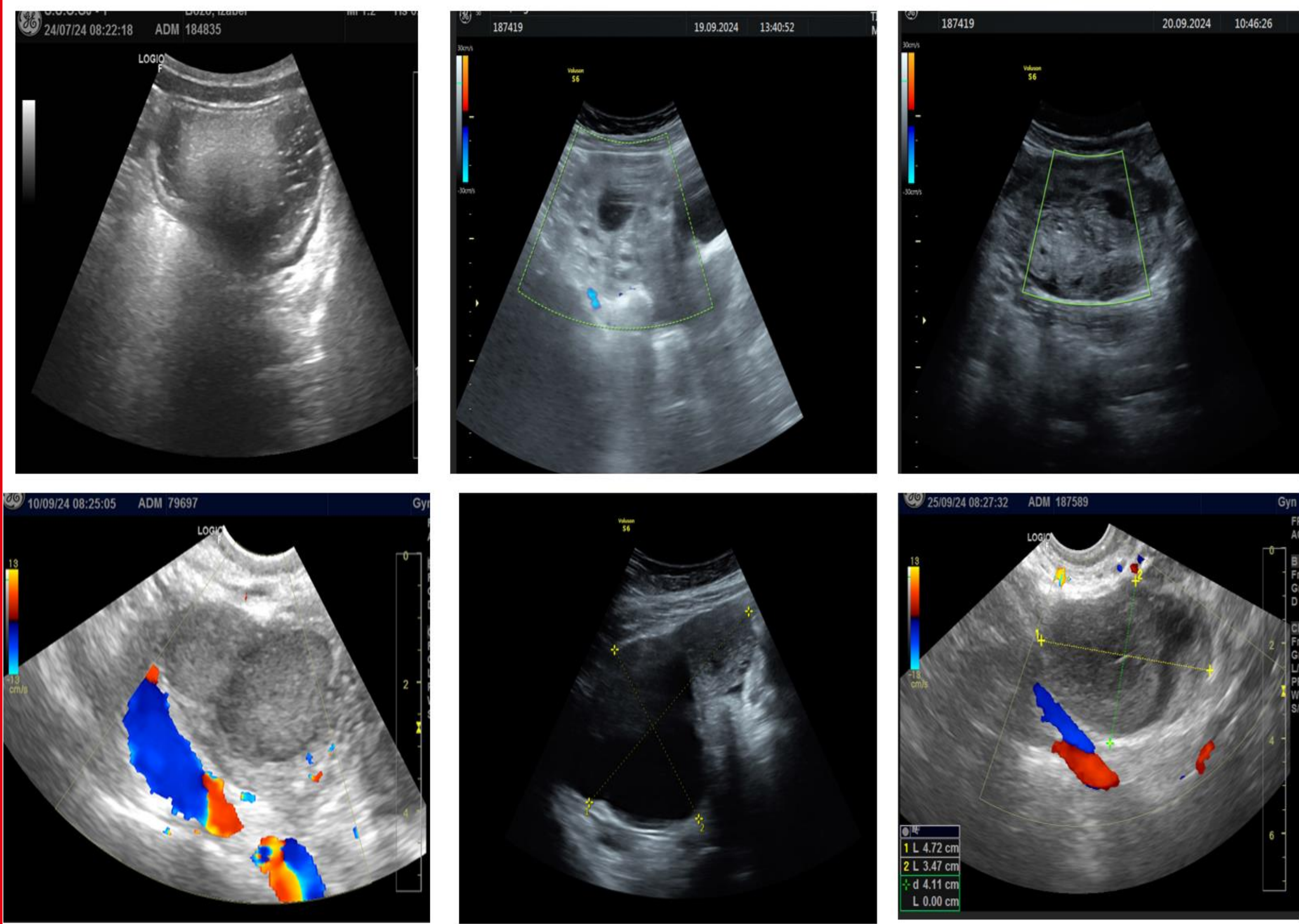
We analyzed retrospectively a series of 28 cases of ovarian masses excised laparoscopically in our hospital, focusing on ultrasound features like cyst size, morphology, septations, vascularity, and solid components, and compared them with intraoperative findings for the same features, but also for adhesions, cyst rupture, and ovarian preservation. We applied the O-RADS algorithm to classify the cases and we compared the performance between expert opinion and O-RADS US. Final histopathological outcomes were used as gold standard for excluding malignancy.

Results

Cohen’s kappa indicated high agreement between ultrasound and intraoperative findings for multilocularity and cyst wall thickness, while showing moderate agreement for cyst size measurements and presence of solid components. Endometriosis was more commonly observed in cases involving adhesions and cyst rupture during surgery. There was only one case of malignant which was a mixed germinal tumor. Serous cysts (32%) and endometriomas (21%) were the most frequent. The sensitivity and specificity of O-RADS US for excluding malignancy was excellent, compared to expert evaluation, 100 % vs 96% and 93% vs 49%. The ovary was preserved in 86% of cases.

Conclusion

The major characteristics to look for when trying to exclude malignancy are multilocularity, thick septations, solid components, and increased Doppler vascularity. While ultrasound provides valuable preoperative risk stratification, surgical findings may refine intraoperative decision-making. Many systems can stratify neoplasia risk, but in our study, ORADS was easy to use and very accurate. The added value of this system is the recommendations for appropriate management of each case.



Hystopathology	Number of patients	
Serous cyst + hydrosalpingitis	1	
Dermoid Cyst	3	
Endometrioma	6	
Peritonela inclusion cyst + serous cystadenoma	1	
Paratubal cyst	1	
Serous Cyst	1	
Serous cystadenofibroma	1	
Serous cystadenoma	9	
Fibrothecoma	1	
Theka-lutein cyst	1	
Mature teratoma	2	
Germinal mixed tumor	1	
Grand Total	28	

Results	Benign	Malignant
Histopathology	27	1
O-RADS US	25	3