EVALUATION OF ALCAZAR SCORING SYSTEM IN DIFFERENTIATING BENIGN AND MALIGNANT ADNEXAL MASSES

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ABSTRACT

OBJECTIVE

To evaluate the role of ultrasound scoring system by Alcazar in differentiating benign and malignant adnexal masses.

METHODS

This is a prospective cohort study done from September 2013 to august 2015 on 19 patients with adnexal mass presented to the department of obstetrics and gynaecology, king George hospital, Visakhapatnam. Ultrasonography with colour Doppler was done in these cases. Alcazar score was calculated and compared with post-operative histopathology report.

RESULTS

Alcazar scoring system could identify 8 out of 9 malignant adnexal masses and 9 out of 10 benign adnexal masses. Ultrasonography and colour Doppler score by Alcazar was able to differentiate benign and malignant adnexal masses.

CONCLUSION

Alcazar scoring system by using ultrasonography and colour Doppler is able to differentiate benign and malignant adnexal masses.

KEYWORDS

Alcazar score, Malignant, Benign, Adnexal masses.

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INTRODUCTION: Adnexal mass is a common finding in gynaecological practice. They are classified into non neoplastic and neoplastic masses, the latter are again classified into benign and malignant masses.¹

Non neoplastic causes are follicular cysts, corpus luteal cysts, theca lutein and granulosa lutein cysts, polycystic ovaries, endometriotic cysts.¹

Neoplastic masses are classified into epithelial tumour, sex cord stromal tumor, lipid cell tumour, germ cell tumour, gonadoblastoma, unclassified tumours and secondary metastases.¹

Benign and malignant ovarian tumours can be differentiated by clinical examination, blood analysis for tumour markers, ultrasonography, diagnostic laparoscopy or laparotomy

The diagnosis of an ovarian cancer requires an exploratory laparotomy.² Ultrasonography is the most useful modality of investigation for diagnosis of ovarian tumour, since it is easily available, non-invasive and have high

Submission 18-02-2016, Peer Review 26-02-2016, Acceptance 10-03-2016, Published 21-03-2016. Corresponding Author: Dr. Vani Isukapalli, Associate Professor, Department of Obstetrics and Gynaecology, Andhra Medical College, Visakhapatnam. E-mail: irani_20@yahoo.com DOI: 10.18410/jebmh/2016/239 negative predictive value. But it is highly operator dependent and extreme variability of macroscopic characteristics make a precise diagnosis difficult by sonography alone. Alcazar scoring includes ultrasonographic and colour Doppler parameters, hence overcomes these parameters.³

METHODS: A prospective study was done from September 2013 to August 2015 on 19 patients admitted with adnexal mass in the Department of Obstetrics and Gynecology at King George Hospital, Visakhapatnam. They were subjected to preoperative transvaginal or transabdominal ultrasound and colour Doppler. Alcazar score for probability of malignancy was calculated. Efficacy of the scoring system was evaluated using histopathology of specimen obtained from laparotomy as gold standard.

Score	Thick papillary projections	Solid areas or purely solid echogenicity	Blood flow location	Velocimetry		
0	Absent	Absent	Absent	Other		
2	Present	-	-	High velocity/ Low resistance		
4	-	Present	Central	-		
Table 1: Alcazar scoring system ⁴						

Ultrasonographic Parameters: Papillary projections (not present, thin <3 mm length, thick \geq 3 mm length).

Solid areas ($\geq 1x1$ cm in internal wall surface or septum.

Colour Doppler Parameters: Blood flow location: Peripheral (tumour wall) or central (in septa, papillary projection or central part of a solid tumour or solid areas).

Doppler Velocimetry:

- Low velocity/ low resistance (PSV <10 cm/sec/ RI \leq 0.45).
- Low velocity/ high resistance (PSV <10 cm/sec/ RI >0.45).
- High velocity/ high resistance (PSV ≥10 cm/sec/ RI >0.45).
- High velocity/ low resistance (PSV ≥10 cm/sec/ RI ≤0.45).

Low Risk for Malignancy: Score 0 to 6. High Risk for Malignancy: Score 7 to 12.

RESULTS: Alcazar score was calculated using ultrasound and colour Doppler for all these 19 cases presented with adnexal mass. Surgery was done for all these cases. Alcazar score was compared with post-operative histopathology report. High Alcazar score (6-12) was obtained for 9 cases out of which 8 cases were found to be malignant ovarian tumours and 1 was found to be benign ovarian tumour by post- operative histopathology. The false positive case was due to dermoid cyst.

Low Alcazar score was obtained for 10 cases out of which cases 9 were found to be benign ovarian tumours and one case was found to be malignant by postoperative histopathology. False negative case was due to serous cystadeno-carcinoma.

	Histopathology					
Score	Malignant	Benign	Total			
6-12	8	1	9			
0-5	1	9	10			
Total	9	10	19			
Table 2: Comparison between						
Alcazar score and histopathology						

Parameters	Percentage (%)			
Sensitivity	88.9			
Specificity	90			
Positive predictive value	80			
Negative predictive value	90			
Table 3: Efficacy of Alcazar scoring system fordiagnosing malignant ovarian tumors				

DISCUSSION: Sasson et al., and Depriest et al., are morphologic scoring systems which used ultrasound.

Sasson et al.,⁵ scoring system considers inner wall structure, wall thickness, septal thickness, echogenicity.

Score is 4-15; <9 is low risk \geq 9 is high risk. Depriest et al.,⁶ scoring system includes cyst wall structure, volume, septum structure; score >5 suggests malignancy.

Both the above scores are associated with high false positive results. The false positive results in Alcazar study⁷ are due to high scoring of benign lesions like teratoma, endometrioma and ovarian fibroma. Alcazar scoring system is found to be superior to Sasson and Depreist with high sensitivity, specificity, PPV and NPV with advantage of including colour doppler parameters. Alcazar scoring is simple and easy to memorize. It is more sensitive and specific in differentiating benign and malignant ovarian masses. But it is highly operator dependent, which needs expert sonologist.

The following points are to be considered while following Alcazar scoring system.

The false positive results in the scoring system of Alcazar et al., were because of benign lesions like ovarian cystadenofibroma and ovarian fibroma that are frequently encountered as unilocular cysts with solid areas and central flow. And this scoring cannot differentiate between primary and metastatic ovarian tumours.

CONCLUSION: Of all the ultrasonographic parameters, thick papillary projections and solid areas/echogenicity are most consistently associated with malignancy. Presence of central vascularization and high velocity/low resistance flow on colour Doppler are most consistently associated with malignancy. Addition of colour doppler increases the specificity and diagnostic performance of Alcazar's scoring system.

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