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Research Article

**THE ROLE OF ULTRASOUND IN EVALUATION OF BENIGN
& MALIGNANT ADNEXAL MASSES; A SYSTEMATIC
REVIEW**¹ H/Dr. Muhammad Arshad, ² Dr. Syeda Khadija, ³ Asif Haider, ¹ Meryem Zulfiqar,
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Health Sciences the University of Lahore,³ asifhaider640@gmail.com¹ Meryemzulfiqar35@gmail.com¹ anumatirao@gmail.com**Article Received:** October 2020**Accepted:** November 2020**Published:** December 2020**Abstract:**

Adnexal masses are the most driving reason for death from gynecological malignancies. The differential analysis of adnexa masses speaks to the great exertion that has been made to improve the sonographically based determination. As of late, there have been numerous discussions about the connection between ultrasound and adnexa masses whether it's dangerous or generous looking. The current examination was directed to research the connection between kindhearted and threatening tumors assessments in women. Objective: To evaluate the diagnostic accuracy of ultrasonography in diagnosis & differentiation between benign & malignant adnexa masses.

Methods & Material: A review of the scientific literature concerning the association between the benign & malignant adnexa masses was done. In this study digital database base including PubMed, EMBASE and Google scholars were searched. The survey was carried out using Key word such as "Benign", Malignant, "adnexal masses", "ovarian cancer", "adnexal pathology", "neoplasms", "diagnosis", "risk assessment", "ultrasonography" variously associated together.

Key words: Adnexal benign & malignant masses, neoplasm, adnexal neoplasm, ovarian cancer.

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INTRODUCTION:

Adnexal mass is characterized as an expanded structure in the district of uterine adnexa climate it was touched on bimanual pelvic assessment or pictured by imaging modalities. The differential finding of adnexal masses actually speaks to a test regardless of the brilliant endeavors that have been made to improve the sonographically based analysis. Great preoperative separation among favorable and harmful adnexal masses may bring about more patients being precisely alluded for gynecological consideration.

Ultrasound is the primary indicative modalities for conclusion of adnexal masses. Late examinations have demonstrated that transvaginal ultrasound in addition to shading Doppler can separate benevolent from dangerous adnexal masses with an affectability of 99.1% and particularity 85.9% (5)

Harmful masses can be distinguished by their irregular vascularity as appeared on shading Doppler. This can be evaluated by the example of courses of action and vessel thickness of the vascular organization inside the mass. Non vascularization's of dangerous masses generally indicated an infiltrating design with expansion of vessels in to the focal point of the mass.

The motivation behind current investigation was to show the estimation of appraisal of measure of blood flow & the region of vessels appropriation inside the majority is separating them. Notwithstanding decide the precision of vascular records: pulsativity list (PI) and the resistivity file (RI) is separation of benevolent and threatening adnexal masses.

SYSTEMATIC REVIEWS:

1. A study was made on the role in between benign and malignant ovarian tumors by Charuwan Tantipalakorn in 2014. A study of diagnostic evaluations was conducted on women scheduled for elective surgery due to ovarian masses. He concluded that IOTA simple rules have high diagnostic evaluation in differentiating between benign & malignant adnexal masses ¹.

2. This is the study which is establish the diagnostic performance of simple ultrasound rules to know benignity/malignancy in an adnexal mass & to assess the performance of the risk of malignancy index by Dirk Timmerman in 2010. ².

3. The research was made by Rong Hu in 2013 to know the efficacy of the combination of 2-dimensional (2D) and 3-dimensional (3D) contrast-enhanced sonography in discriminating between benign and malignant small adnexal masses. Selected patients were evaluated with both 2D and 3D contrast-enhanced sonography after conventional sonography before undergoing any surgery. Forty-seven cases of benign and 10 cases of malignant small adnexal masses were discovered. Significant differences in perfusion patterns, time-intensity curve shapes for 2D contrast enhanced sonography, gray scale contrast-enhanced sonography, and blood flow imaging on 3D contrast-enhanced sonography were observed between benign and malignant masses ³.

4. In 2014 a study was made by Hakki Sencer Simsek. The purpose of this study was to know & search the risk of malignancies between benign and malignant adnexal masses preoperatively. This was the retrospective study was conducted in Turkey. In this study it was found that the evaluation of tumor were significant marker & was fruitful for referring the patient to central care units. The study tell us the increased diagnostic accuracy rate in preoperative evaluations of adnexal masses whether its benign or malignant⁴.

5. The examination was made via Caroline Van Holsbeke in 2009. The purpose of this study to classify the benign & malignant masses. In this study the well expert sonographer accurately classified the adnexal masses. Later on the same cases after surgery show malignant histopathologies, however the histopathological assessments is very costly. This study shows how to evaluate the static ultrasound images of the masses⁵.

6. On 2013 an examination was made by Moszynski Rafal. The point of study is to appraise the danger of bogus negative outcomes in abstract translation of the ultrasound assessment of ovarian tumor as per menopausal status. The study shows an end that ultrasound assessment of the adnexal masses has high explicitness yet even in the gathering of tumor considered benevolent in premenopausal just as post-menopausal ladies harm can be found ⁶.

7. In 2010 the examination was done by C. VAN HOLSBEKE to decide the affectability and specificity of the 'ovarian sickle sign'. The sonography creates the difference among the benign and harmful adnexal masses. This examination confirms past reports that the presence of the OCS in adnexal masses or ovarian masses ⁷.

8. . In 2011 the exploration was made by Maria A Pascual To assess intra eyewitness repeatability and bury spectator understanding in: (1) portraying adnexal masses utilizing the International Ovarian Tumor Analysis . Intra-and entomb onlooker arrangement in characterizing tumors as benevolent or threatening utilizing the danger of harm cut-off of 10% for LR1 and LR2 was reasonable or acceptable, while the reproducibility of abstract appraisal was brilliant.

9. This examination was made by Milan Terzi on 2011 on evaluation of the risk of malignancy index diagnostic value in patient with adnexal masses. The purpose of this study was to verify the effectiveness of risk of malignancy index in the difference between benign & malignant adnexal lesions I respect of clinical practices. The examination shows that RMI is entirely dependable in separation considerate from harmful adnexal masses. The study shows that the risk of malignant index is very accurate in creating difference in benign & malignant adnexal masses⁹.

10. The examination is made that can segregate among amiable and dangerous adnexal masses by VALENTIN in 2011. In this investigation the information of 3511 patients with an adnexal mass remembered for the International Ovarian Tumor Analysis (IOTA) contemplates. The sum total of what patients had been inspected utilizing transvaginal dim scale and Doppler ultrasound following a normalized research convention did by an accomplished ultrasound analyst utilizing a top-of-the-line ultrasound framework. About 7% of adnexal masses that are viewed as suitable for careful expulsion can't be classified as amiable or threatening by experienced ultrasound inspectors utilizing emotional appraisal. Strategic relapse models to gauge the danger of threat, CA 125 estimations and the RMI are not useful in these masses¹⁰.

11. In 2007 an exploration was made by Ben van calster on separation among favorable and harmful adnexal masses. This was a multicenter study based .The Gray scale & Doppler ultrasound studies of lower abdominal adnexal lesions ovarian, par ovarian or tubal masses are used to create the difference in benign & malignant masses . In this study it is suggested that the ultrasound-based evaluation of adnexal masses & their pattern is superior to serum Ca 125¹¹.

12. In 1994 Sharon made an investigation on separation of considerate and harmful adenaxal masses. The motivation behind this investigation was

to assess tentatively the overall value of shading Doppler, phantom Doppler, and dim scale sonography in separating generous from dangerous adnexal masses by Sharon M in 1994. In this examination all out of 170 adnexal masses in 161 patients were grouped tentatively as reminiscent of or not reminiscent of harmful tumor based on dim scale morphology, interior stream versus fringe or no stream. On dim scale examination, 46 of the 47 harmful masses were named reminiscent of tumor, and 76 of the 123 kind masses were delegated not reminiscent of tumor¹².

13. The investigation was made by Henri Marret, in 2013. This study was done to examine the expected adequacy of continuous difference with power Doppler sonography in the separation of kind and harmful adnexal masses in study. Before to careful treatment, adnexal masses were mostly assessed with power Doppler sonography . Ongoing post injection successions were mechanized with time-power examination programming to decide an upgrade bend and difference boundaries. Difference improved Doppler imaging may effectively and accurately separations mostly from dangerous adnexal injuries. Bigger investigations are expected to decide the fitting use and advantages of this new system¹³.

14. In 2019 the study is made by J. J. HIDALGO .This study is performed for external validation of diagnostic evaluation of three step strategy which is suggested by international ovarian tumor analysis group to make a difference in between adnexal masses whether these are benign or malignant tumor or masses. In this study the patient diagnose with adnexal masses were admitted in two centers during the research & assigned the duty to ultrasound specialist in various center. All the data & the patients were given a code & all the data were handled using these code. However, it is a poor discriminator between benign and malignant adnexal masses¹⁴.

15. In 2002 a research was mad by Juan Luis A cazar. The aim of this study was to create and cross-acceptance of a new sonographic scoring system for making differences between benign and malignant adnexal lesions. In the study a new scoring system which is creating differentiation in between malignant & benign masses were used In the first part of the study. The scoring system was use on the basis of clinical, morphological, color Doppler & gray scale adnexal masses. In this study the scoring system was designed to use only the parameters that are found to be predictors of malignancy. In the second part of the study, we prospectively cross-acceptance.

This study shows that new sonographic scoring system had a much better diagnostic performance than three previously published scoring systems¹⁵.

Study selections:

Multiple articles were reviewed. Prospective studies and case reports were excluded from the data. Retrospective studies were included in the study. Results: Using the search criteria, 15 researches were examined based on the title and abstract. All the 15 studies were considered in their full versions. Of these works, including literature review or meta-analysis reports, it was concluded that ultrasound gray scale & Doppler studies has a positive relationship with adnexal benign & malignant tumors. Discussion: This investigation shows that histopathological assessments of the adnexal sore is the best quality level for the last analysis of malignancies, clinical, Doppler ultrasound assessment, 2D ultrasound, 3 D ultrasound concentrates notwithstanding tumor marker are sensibly exact, supportive and non-obtrusive devices for evaluation of the adnexal masses especially recognizing favorable from harmful ovarian tumors.

In my examination I uphold the songraphic assessment of tumor may assist with improving separation among favorable and threatening adnexal masses.

Contrasts in sonographic experience diverse affectability in ultrasound machines absence of normalization of Doppler estimations can be sensible components for the clashing data in the writing. The examined persistent from our populace all the more oftentimes had generous adnexal masses which were more regular in premenopausal ladies. Then again threatening tumors were fundamentally more established than those with generous masses so in postmenopausal ladies had harmful tumors were generally normal.

The investigations were performed outer approvals of the global ovarian tumor appraisal basic guidelines in separating between generous and harmful adnexal masses. The outcomes show that utilization of the standards yielded high demonstrative execution however around 20% of the tests were uncertain.

The separation of benevolent from threatening tumor can be accomplished by a few procedure, for example, clinical appraisal, serum CA 125, Sonographic morphology or otherworldly Doppler assessment, anyway most proposed sonographic morphology evaluations needs high ability, restricting them from generally use in clinical practice, accordingly Timmerman the global ovarian tumor

appraisals built up the ultrasound straightforward standards and approved for demonstrative execution. The straightforward standard is more alluring and reasonable on the grounds that they are simple and easy to use in ordering an adnexal mass as kind or dangerous.

CONCLUSION:

Our outcome proposes that the use of sonography is significant in differential analysis of adnexal masses. Ultrasound is the better choice for initial evaluation & screening of adnexal masses because it is widely available, cheaper than other investigations & also noninvasive.

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