



## EVALUATION OF ADNEXAL LESIONS USING 1.5 TESLA MRI WITH HPE CORRELATION

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## KEYWORDS :

## INTRODUCTION

Ovarian cancer is the third commonest cancer in Indian Women accounting for 5 %of cancers<sup>1</sup>. The age adjusted incidence rates vary from 2.2 to 8.3 in various registries across the country, highest being in Delhi at 8.3 %.The cumulative rate (0-69 years) in India is 0.93%<sup>2</sup>. Ovarian tumour in young age is quite rare and are reported to be 2% of all the cases seen<sup>3</sup>. Due to infrequent occurrence most gynecologists are not familiar with special problems inherent with these neoplasms<sup>4</sup>. They range from benign cysts to highly aggressive malignant tumour. Ovarian masses are divided into non-neoplastic and neoplastic entities according to World Health Organization (WHO) criteria<sup>5</sup>. Ovarian masses pose diagnostic as well as therapeutic challenges because of their rarity and presentation Ultrasound is the imaging modality of choice for the female pelvis. It is widely available, has broadly acceptance by patients as a familiar test, and is relatively inexpensive. High resolution imaging of transvaginal ultrasound provides high diagnostic accuracy for pelvic pathology. However, there are some shortcomings with this modality, such as limited field of view, obscuration of pelvic organs by bowel gas, inherent limitations dependent on patient size, and its dependence on the skill and experience of the operator.<sup>1</sup>

Sometimes ovarian tumours are diagnosed incidentally on ultrasound. Ovarian tumours that occur in young girls can be discovered due to symptoms, on physical examination and through imaging studies<sup>7</sup>. Most ovarian cysts in young girls are asymptomatic. Management of such cases should be done very carefully, and should be managed conservatively. Counselling of the patient and relatives is very important. If surgery is indicated then the aim should be toward preservation of functional ovarian tissue .

Pelvic imaging techniques such as computed tomography and ultrasonography provide a limited capability for tissue characterization. With its excellent soft tissue contrast, larger field of view, and its multiplanar imaging capabilities, Magnetic resonance imaging is increasingly used to evaluate pelvic pathology as it delineate and characterize normal female pelvic anatomy and pelvic pathology as either benign or malignant. Magnetic resonance imaging is non-invasive, has no risk of radiation, and is less operator dependent.<sup>1</sup>

In this study we are attempting to evaluate pelvic pathology by ultrasound and magnetic resonance imaging for better tissue delineation and the same is confirmed by histological correlation. Magnetic resonance imaging also has high sensitivity in differentiating malignant mass from benign entity. If the present study justifies then Magnetic resonance imaging of pelvis should be considered as a frontline investigation in the pelvic pathology. To describe the ultrasound and MRI features in determining the benign/malignant nature of uterine, cervical, fallopian tube and adnexal masses. To correlate the imaging findings with histopathological correlation.

## MATERIALS AND METHODS

A Hospital based prospective study descriptive, observational study on patients attending the department of obg and radiologyvb and also patient referred from other departments of Yenepoya Medical College, Mangalore form the subjects with clinical suspicion of pelvic masses and incidentally detected pelvic masses on ultrasonography coming to opd and admitted cases in ymch with clinical suspected cases of cervical, uterine, adnexal and fallopian tube masses.during the study period of sep 2019 to January 2019 . Under the guidance of my guide

and co guide Ultrasonography of pelvis will be done in GE Voluson 730 equipment, using a high frequency endocavity probe as well as curvilinear trans abdominal probe. MRI of the Pelvis will be done on GE Signa HDxt 1.5 T system. The following sequences will be performed as a part of MR evaluation- Axial T1 Fast Recovery Fast Spin Echo, Sagittal T2, Coronal Short Time Inversion Recovery, Axial 2 Dimensional Fast Imaging Employing Steady State Acquisition, Coronal 2 Dimensional Fast Imaging Employing Steady State Acquisition and Diffusion Weighted Imaging. Contrast agent were used in patients where ever required for better tissue delineation .

## RESULTS

In the present study we had a total of 50 cases 25 cases who had dyspepsia and the endoscopy was RUT negative and then 2 groups were done the 25 cases received the H -p kit (group – b) In spite being rut negative cases and 25 cases did not receive HP kit (group – b) only the antacids .

Age group	(benign)	(malignant)
Less than 25 years	11	0
26-30 years	9	0
31-35 years	7	0
36- 40 years	3	0
41-45 years	1	8
46-50 years	0	2
51-60 years	0	10
Total	30	20

The most common age of presentation of the benign group was 21-25 years and of the malignant group was 51-60 years ,81% of the cases in the study in each group were married As per our study malignant ovarian masses were more common in the nulliparous as compared to the benign group p value <0003 Malignant were more common in the upper middle class and in the higher socio-economic class p value < 0.0001 Malignancy has strong association infertility as shown above with a p value < 0.05, a positive co-relation with drugs used to induce ovulation in infertility cases . abdominal pain was seen in 65 and 66% of cases of benign and malignant masses, In all cases of benign ovarian masses the level of ca 125 was less than 500 and in the malignant cases the level was above 1000. The mean ca125 in the benign and malignant group was 144 and 1444.75 respectively. above on evaluation of the histology serous cystadenocarcinoma was the most common neoplasm in the malignancy group and endometrioma was the common lesion on benign masses The sensitivity, specificity, positive predictive value and negative predictive value of MRI to differentiate benign from malignant masses were 100%, 87.05%, 90.96% and 100% respectively.

## DISCUSSION

Dhoot NM *et al.*, (2012) have conducted a study to evaluate carcinoma of cervix using magnetic resonance imaging (MRI), correlate with clinical approach of International Federation of Gynecology and Obstetrics(FIGO) staging system and to study the impact of MRI findings on patient management. The study included pathologically confirmed 75 cases of carcinoma cervix. MRI staging had an accuracy of 89.3% (67/75), while clinical FIGO staging had 61.3% (46/75) accuracy. MRI and FIGO staging occurred in 65.6% of patients and differed in 34.4% of the patients. In about 30.6% ( 23/75) of the patients, there were relevant additional MRI findings not suspected clinically. The common significant MRI findings were detection of pelvic lymphadenopathy and clinically unsuspected bowel or bladder invasion. The management protocol was significantly altered in 86.9% (20/23) of patients with additional MRI findings constituting 26.6%

(20/75) of the total population. They concluded that MRI is highly accurate in evaluating carcinoma of cervix and MR findings significantly altered therapeutic decisions in 26.6% of the patients. They also concluded that MRI should be considered prior to treatment planning in every patient.<sup>7</sup>

John A. Spencer *et al.*, (2010) have conducted a study on Magnetic resonance imaging of the sonographically indeterminate adnexal mass to guide patient care and reduce the costs of investigation and treatment and to avoid unnecessary or inappropriate surgery if the masses are benign. If indeterminate masses are malignant the use of Magnetic resonance imaging rather than a wait and watch strategy of interval re-examination with ultrasonography offers a more timely diagnosis.<sup>8</sup>

Hebert Alberto Vargas, *et al.*, (2011) have conducted a study to assess the value of magnetic resonance imaging in determining the site of origin of newly diagnosed uterine cancer when clinical or histologic evaluation is indeterminate. The study included 59 women who underwent Magnetic resonance imaging and out of which 48 patients had undergone hysterectomy. Two radiologists independently retrospectively assessed all Magnetic resonance imaging studies. Surgical pathologic findings were the reference standard. At hysterectomy, 32 patients had uterine corpus cancer and 16 had cervical cancer. Over all test yields for reader 1 and 2 were 0.85 and 0.88 respectively. Accuracy levels in detecting invasion of the myometrium, cervical stroma, parametria and adnexa, and vagina, respectively were 72%, 69%, 74%, and 85% for reader 1 and 78%, 77%, 76%, and 85% for reader 2. They concluded that Magnetic resonance imaging is useful for determining the anatomic origin of uterine cancer and provides helpful information regarding invasion of adjacent structures.<sup>9</sup>

Adusumilli S *et al.*, (2006) have conducted a retrospective study to assess the ability of Magnetic resonance imaging to characterize sonographically indeterminate adnexal masses by reviewing the Magnetic resonance imaging examinations of 87 patients with 95 sonographically indeterminate adnexal masses. The sensitivity of Magnetic resonance imaging for identifying malignancy was 100% and its specificity for benignity was 94%. Excellent agreement was seen between Magnetic resonance imaging and final diagnosis for determining origin and tissue content of mass. Sonography had poor agreement with final diagnosis for origin and tissue content for mass. Main reasons for indeterminate sonographic diagnosis were inability to determine the origin because of location and large mass size and appearance of purely solid or complex cystic masses. They concluded that Sonographically indeterminate mass of uncertain origin and solid or complex cystic content will benefit from further evaluation by MRI.<sup>10</sup>

S A Aslam Sohaib *et al.*, (2003) have conducted a study to evaluate the accuracy of Magnetic resonance imaging in the detection and characterisation of adnexal mass lesion and to determine the imaging features predictive of malignancy. The study included 104 patients with clinically or sonographically detected complex adnexal masses. A total of 163 lesions—94 benign and 69 malignant lesions were examined. On Magnetic resonance imaging, 95% (155/163) of the lesions were detected. The overall accuracy for the diagnosis of malignancy was 91%. On univariate analysis, the imaging features associated with malignancy were a solid-cystic lesion, irregularity, and vegetation on the wall and septum in a cystic lesion, the large size of the lesion, an early enhancement on dynamic contrast-enhanced MR images, and the presence of ascites, peritoneal disease, or adenopathy. On multiple logistic regression analysis, ascites and vegetation in a cystic lesion were the factors most significantly indicative of malignancy. They concluded that Magnetic resonance imaging is highly accurate in the characterization of adnexal mass lesions, and the best predictors of malignancy are vegetation in a cystic lesion and ascites.<sup>11</sup>

Approximately 80% of all ovarian tumors represents benign tumors and only 16% are malignant and rest are borderline malignant Couto *et al.* which is similar to our study<sup>12</sup>.

On evaluation of the histological pattern. In our study among the The serous cystadenocarcinoma variety was the commonest as seen in various studies which show that in the Indian population the commonest histological pattern ovarian neoplasm is the serous cystadenocarcinoma variety.

## CONCLUSION

We concluded that risk factors for malignancy are Nulliparity ,Infertility ,Positive family it is better to evaluate adnexal lesions using 1.5 Tesla MRI As there is a good HPE correlation of MRI and adnexal lesions.

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