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LEVELS OF ENDOMETRIAL CANCER OBSERVED THROUGH MAGNETIC RESONANCE ILLUSTRATIONS: RELATIONSHIP BETWEEN SURGICAL OUTCOMES AND TISSUE CHANGES

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Abstract:

Objective: This research study was conducted to calculate the efficiency of MRI in staging of endometrial carcinoma, & analogy with surgery and histopathological findings.

Methods: The research was conducted in the duration of one year from February 2018 to February 2019 in Mayo Hospital Lahore at the department of radiology. 52 participants with examine of endometrial carcinoma, referred for MRI to the department of radiology and had undergone surgery were included.

Results: The sensitivity of MRI result was found up to 79%, 85% limited & 80% perfect for organizing endometrial carcinoma while PPV were 97% & NPV were 66%.

Conclusion: MRI is excellent, compatible, efficient and noninvasive imaging modality in staging of endometrial carcinoma. This experience of therapy was used first time for the patients with endometrial carcinoma.

Keyword: *Therapy, Carcinoma, Endometrial, Radiology, Histopathological, Hysteroscopy.*

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INTRODUCTION:

The peak age at presentation for endometrial carcinoma is approximately sixty years. 90% of these female face with vaginal bleeding abnormality and seventy-five percent face with first stage disease. [1] Prognostic factors, which control the therapy methods in endometrial carcinoma consist of grade of tumor, histological type, deepness of myometrial invasion, cervical difficulty and lymphadenopathy. [2,3] Prior to 1998 used hysteroscopy to diagnosis the interior abnormality of endometrial carcinoma under anesthesia and D&C. By the help of this result we conducted 13 to 22 percent cases. Routine surgical staging was Suggested by FIGO in nineteen ninety-eight. Deep myometrial invasion to the outer half of the myometrium (FIGO stage 1C) is a poor prognostic factor, which is associated with an increased risk of pelvic and para-aortic lymphnode metastases. The current presentation of less- invasive surgical method need a more perfect study before surgery to decrease the risk to understand the disease and impair the treatment plan. [4-8] expansion of tumor to joint tissues is determine by a clinical combination and imaging approach. computed tomography & cut sectional imaging, MRI is not consider the part of FIGO staging, however pelvic Magnetic resonance imaging, has the benefit of multi planar information receiving and it result is better than CT and ultrasound because of inherent good soft tissue contrast. [9] multiple research have identify the good efficiency of Magnetic resonance imaging in the preoperative evaluation of the depth of myometrial invasion, the extent of cervical invasion, and labeling of swollen pelvic and lumboaortic lymph recorded respectively. This topic of study was considered new for research in local environment due to the present of new equipment imaging method and availability of MRI machine. The aim of this research was to assess the efficiency of MRI in the preoperative staging of endometrial cancer in our community and similarity with surgical and improvement.

MEATERIAL and METHODS:

The research was conducted in the duration of one year from February 2018 to February 2019 in Mayo Hospital Lahore, a total of fifty-two participants who suffered from endometrial cancer, histologically recorded by endometrial biopsy were referred for MRI analysis of the pelvis to our radiology department. Outside referrals patients also included. Informed approval was taken from all participants. Patients with histologically proved endometrial cancer were part of our research. Finally, fifty participants were studied. Premenopausal patients were 20 and postmenopausal patient were 30. Average clinical information was 60 percent patients face with postmenopausal bleeding while intermenstrual bleeding were 24 percent and only 16 percent patients faced with postictal bleeding. At histologic analysis, forty-one out of fifty tumors were endometriosis adenocarcinoma, papillary serous adenocarcinoma patient was five and four patients were adenocarcinoma with squamous distinction. Surgery was conducted for all patients. Type II radical hysterectomy method was carried for 44 patients, four patients type III hysterectomy and two patients had type 1 hysterectomy. Subjected to pelvic lymph node patients were 11, and systematic pelvic patients had 10 and lumboaortic lymphadenectomy. 1.5-T Superconducting magnet performed for MRI studies. For all patients the pelvic phased-array coil was used. Transverse T1- weighted, Transverse T2-weighted, Sagittal T2-weighted, short-axis (perpendicular to the main axis of the body of the uterus) T2-weighted RARE, dynamic MRI, after the organization of 0.1 mmol gadolinium/ kg of body weight, was conducted by using a quadraphasic method, which allow receiving of images at four phases (pre-contrast, arterial, venous, and equilibrium) relatively inter to the contrast material. Fast multiplanner spoiled gradient-echo (FMSPGR) was used to perform dynamic imaging. Working console and hard copies were used to reviewed Images.

MRI were conducted for, tumor signal intensity on T1- and T2-weighted images relate with that of adjoin myometrium, perceptibility of the joined zone on T2-weighted images as a encircle of low signal intensity rapidly Hazardous to the endometrial stripe, the plan of uterine enhancement at dynamic imaging, divided as subendometrial increase, myometrial penetration cached T2-weighted images on the foundation of interruption or cut off of the junction zone and/or irregular myometrial enhancement at the endometrium myometrium interaction in all three types of myometrial enhancement on penetration of the uterine cervix, high-signal- intensity mass was identify in the endocervical cavity and/or intensity of the normal low-signal-intensity cervical stroma and occupancy of swollen pelvis and/or lumboaortic lymph growth (cutoff value, 10 mm along the minimal transverse diameter). The signal-to-noise ratio in the tumor and myometrium was expressed by quantitative image analysis at the time of dynamic research work. Finally, MRI report was prepared by the help of experienced MRI radiologist. Initial stage of surgery was also noted of all patients. Surgical simple was divided longitudinally to the uterus plane. Myometrial incursion deepness was The depth of was assumed commonly, and it occurrence

may see without MRI by the help of microscope, and International Federation of Gynecology and Obstetrics classification techniques were used for classification. The quantity lymph buds, their location, and quantity metastatic lymph buds were finally noted by histopathologic. Both histologic and operative findings were compared with imaging findings. For the collection of information Predefined Performa was used, SPSS program (version 15) was used for data entry and for analyzing data. All the necessary data for staging endometrial cancer was determined like sensitivity, specificity, accuracy, NPV and PPV of MRI.

RESULTS:
For the accurate detection of myometrial invasion we conducted MRI by the help of MRI we studied myometrial invasion in 39 (78%) patients and myometrial invasion were not seen in five (10%) out of fifty participants (Table), stage IA (five), stage IB (twenty), stage IC (nine), stage IIA (eight), stage IIIC (one), stage IIB (one) which was statged as IIA even though it was accurately analyzed myometrial invasion. Myometrial invasion was under examination among five (10%) participants. Those patients who IB <50 percent myometrial invasion on surgery/histological staging and they were staged as IA. That Cases in which had presence IB was staged as IA. The problem was that the bulky polypoid tumour swollen the endometrial cavity thus weakens myometrial tissue. Small uterus less than 4 cms had seen in one patient, thinning of myometrium due to the longitudinal diameter & demonstrated marked.

Table: Accuracy of MRI in Staging of Endometrial Carcinoma

Author	Total patients Sensitivity	Specificity	Positive predictive value	Negative predictive value	Accuracy	
Eun Jung Lee						
Pakkal MV	46	Not mentioned	Not mentioned	Not mentioned	Not mentioned	80 percent
Hricak H[13]	28	Not mentioned	Not mentioned	Not mentioned	Not mentioned	78 percent
Ricardo	107	91.6	97.4	Not mentioned	Not mentioned	92 percent
Manfredi	37	71.4	92.3	Not mentioned	Not mentioned	89 percent
Sironi S	56	94.4	92.1	Not mentioned	Not mentioned	87.5 percent
Fatima et al	50	79	85	97	66	80 percent
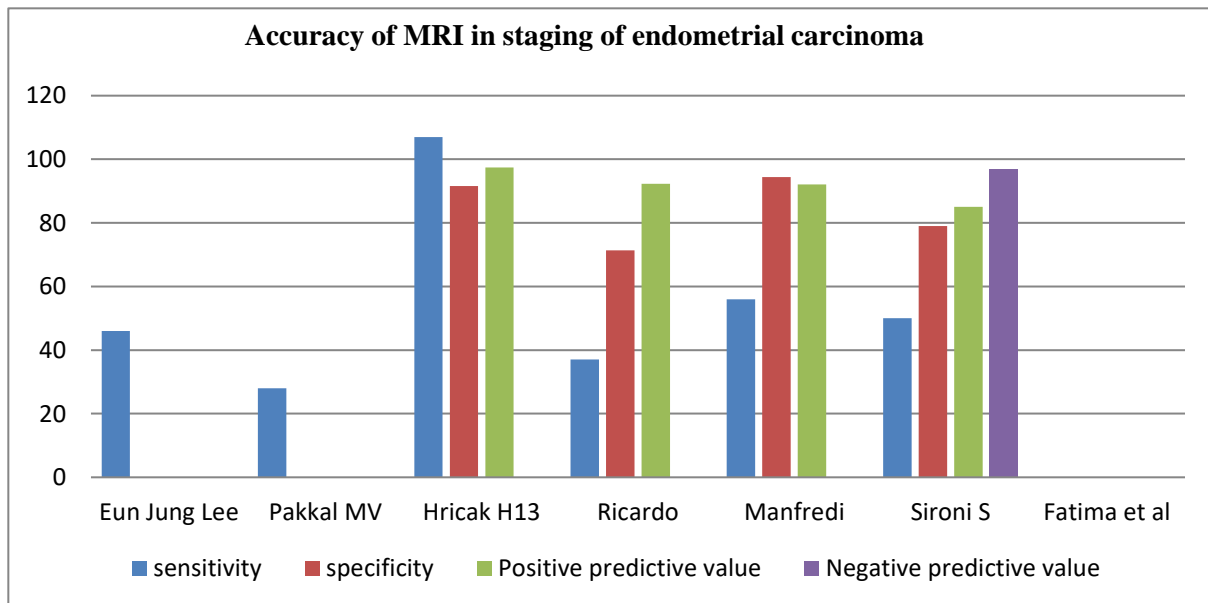
Leiomyoma distorting uterine cavity had seen in two patients. retroverted uterus & adenomyosis had examined in two patients respectively. IA over staged to IIA examined on MRI up to two percent cases, because MR not shown cervical stroma due to swollen and it was considered as stage IIA. Overall, MRI sensitivity were 88 percent specificity were 83 percent, diagnostic accuracy were 97 percent, positive predictive values were 50 percent and negative predictive values were 88 percent in assessing myometrial infiltration. Absence and presence of cervical invasion were also studied accurately through MRI we seen it in 40 (80%) & 8 (16%) out of 50 patients respectively. One participant was under analysis with cervical invasion. It was IIB and was staged as IIA due to small uterus. We over staged one case of IA as IIA, because we didn't clearly see on MRI the cervical stroma due to swollen and we conclude it as stage IIA. Overall MRI sensitivity were 64 percent, specificity were 66 percent, diagnostic accuracy were 65 percent, and positive predictive values were 91 percent and negative predictive values were 25 percent in the diagnosis of cervical infiltration.

DISCUSSION:

This research study was conducted to provide all the required factors through MRI which needed to the gynecologic oncologist for surgical treatment. T2-weighted MRI was used to detect endometrial carcinoma than the detection on T1 weighted images because endometrial relaxation time is equal to that of adjoin myometrium, and that is way the two tissues seemed isointense on T1- weighted images. It was highly critical factor to identify the presence and deepness of myometrial invasion, to identify nodal metastases as is used in many organization, those patients myometrial invasion were fifty percent or more than 50have a six- to seven fold ascending popularity of pelvic & lumboaortic lymph node metastases with respect to those patients with myometrial invasion in whom is not or < 50 percent. The availability and deepness of myometrial penetration can be determine on T2-weighted images as an interference of the junction zone, which present hypo intense, opposed to endometrial adenocarcinoma, which present hyper intense. The junctional zone may be poorly visible in postmenopausal women, however myometrium may be narrow due to uterine involution, making the availability and deepness of myometrial penetration more difficult to determine. In fact, in our research study, the junction zone poor visibility occurs in only eight patients. Due to the presence of these difficulty, dynamic MR imaging should be conducted, because it can represent different improvement duration of the adenocarcinoma with respect to those of the adjoin myometrium, which increase in this manner the contrast determination of the tumour & myometrium. In our research, by joining T2-weighted & dynamic MR

imaging, there was an important interaction among MRI and histopathologic findings in the determinant of myometrial penetration.

In this research study we examined only the local-patients staging of endometrial adenocarcinoma, we working on those parameters which change the plan of surgery for the gynaecologist. The analysis efficiency of MR imaging is improve to that in past research (Table) with sensitivity 79 percent and specificity 85 percent. It presents a limitation of this research, since a final analysis of these participants should include the search for distant metastases or peritoneal implants. However, in 12 percent-19 percent of patients suffered from malignant peritoneal cytologic with endometrial carcinoma and in women with early-stage disease the determination of malignant peritoneal cytologic features was not identifying. Another disadvantage of the research is that some participants had followed histologic examination to determined their lymph node status; the other lymph nodes were determined by means of palpation, which has a lower certainty than histopathologic examination. Cases which were IB and were staged as IA, because of bulky polypoid tumour distended the endometrial cavity, thus attenuating the myometrium. Small uterus less than 4 cms had seen in one patient, thinning of myometrium due to the longitudinal diameter & demonstrated marked. Leiomyoma distorting uterine cavity had seen in two patients. retroverted uterus & adenomyosis had examined in two patients respectively. IA overstaged to IIA studied on MRI up to two percent cases, because MR not shown cervical stroma due to swollen and it was considered as stage IIA. Disadvantage of our research study were that participant with II B, III A & IV disease were not representing.

CONCLUSION:

MRI is compatible and noninvasive imaging modality in staging of endometrial carcinoma. This experience of therapy was used first time for the patients with endometrial carcinoma.

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