MEDICAL CHANNEL

Original Article

THE CORRELATION OF PREOPERATIVE CT, MRI FINDINGS WITH INTRA-OPERATIVE FINDINGS IN PRIMARY GYNECOLOGICAL CANCERS

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ABSTRACT

Purpose: To compare the preoperative findings of abdomino-pelvic CT and MRI with the intra-operative findings in patients with primary gynecological cancers.
Materials and Methods: The study was conducted in the Department of Radiology and MCH Centre at Pakistan Institute of Medical Sciences, Islamabad from 1st January 2012 to 31st July 2012. Thirty-four patients with the diagnosis of gynaecological cancers were included in the study. Various parameters were looked for radiologically in the pre-operative imaging which were then compared with per-operartive findings.
Results: Out of total of 34 patients, 18 patients were diagnosed to have cancer ovary while 10 patients had cancer cervix. Cancer endometrium was diagnosed in 06 patients. All the parameters were rightly diagnosed at the time of pre-operative imaging (CT or MRI). However, omental and peritoneal deposits were not detected radiologically in 13 patients. (Statistically significant p value=0.017).
Conclusion: The study highlighted the fact that the presence of omental /peritoneal deposits was missed in pre operative CT/MRI scans and was subsequently identified intra-operatively.
Hence, it can be concluded that we need to improve our detection rate for peritoneal/ omental deposits for better patient management.

Key Words: CT, MRI Gynecological cancers.

INTRODUCTION

One of the common causes of mortality and morbidity in females of all ages is gynaecological malignancies. Gynaecological cancers refer to five major types of neoplasm originating from the female reproductive tract. These include ovarian, endometrial, cervical, vaginal, and vulvar cancer. A very rare 6th type can also included in this group and is called fallopian tube cancer.[1]

In 2008, gynaecological cancers were diagnosed in 83,662 females while 27,813 females died of them in United States. [2] In 2002, gynaecological malignancies were reported in 19% of 5.1 million estimated new cancers and caused 2.9 million deaths in women in the world. Cervical cancer was diagnosed in 493000 females and was the cause of death in 27300 women. Similarly, uterine body cancer accounted for 19900 new cases with death toll of 50,000; ovarian cancer was diagnosed in 204000 new cases and caused death in 125000. Vaginal, vulvar and choriocarcinoma together accounted for 45900 new cases. [3]

The most common of these five neoplasms is the endometrial cancer occurring most frequently between the age of 60 – 70 years but sometimes can also occur before 40 years.[4] Cervical cancer ranks third among these neoplasms [5] whereas ovarian cancer is labelled as the most lethal cancer as more than 70 % of the patients present to the

hospital with signs and symptoms of the tumour when it has already progressed to an advanced stage.[6] Cervical cancer is predominantly present in the developing countries, that is around 80 % while 2/3rds of endometrial cancers are present in the developed world.[3]

A number of prognostic factors have been described for various types of gynaecological malignancies including patient age at diagnosis, histology, histologic grade, race, ascites and lymph node status [7]. However the stage of the disease remains the main determinant. Establishing the stage of the gynaecological cancer is a main cornerstone not only in planning the treatment protocol for the patient but also for giving the patient a brief idea about the prognosis. Besides clinical staging, various cross sectional imaging techniques have also been employed to detect and follow the patient's known of having the malignancy. Currently, the imaging modalities that are used most frequently for the diagnosis of any pelvic pathology are Ultrasonography, Computed Tomography and Magnetic Resonance Imaging. USG can assist in the identification of pelvic neoplasm followed by C.T. or MRI that can further highlight the benign or malignant nature of the disease, its extent, involvement of the surrounding organs and distant metastasis. The cross sectional imaging is considered as a complementary tool with the surgical evaluation for staging the cancer. This emphasizes the fact to establish the sensitivity and specificity of the cross sectional imaging in staging the malignancy. A number of studies have been conducted in the past indicating the high sensitivity and specificity of C.T. and MRI in the diagnosis, staging and prognosis of gynaecological malignancies. [8,9,10,11] This study was carried out to evaluate the diagnostic accuracy of the CT and MRI reported in the department of Radiology at PIMS by comparing the pre operative imaging report with the per operative findings in patients of gynaecological malignancies.

MATERIALS AND METHODS: -

Design:-Cross sectional study

Setting:- Department of Radiology and MCH Centre at Pakistan Institute of Medical Sciences, Islamabad

Duration:- 1st January 2012 to 31st July 2012.

Sample size:- 36

Sampling techinque:-non probability consecutive sampling.

Inclusion Criteria:- all the patients who were diagnosed to have gynecological cancers (Ca ovary, Ca cervix, Ca endometrium, Ca vagina and Ca Vulva) at pre-operative biopsy and histopathological reports.

Exclusion Criteria:- Any patient whose data was incomplete or whose imaging was done from outside the hospital.

Data Collection Procedure:- Informed consent was obtained from all the patients who were diagnosed to have gynecological malignancies. This allowed use of their data in the study. A pre-operative imaging (either CT or MRI) was done. CT scan was done using 16 slice Toshiba aquilion machine. Contrast was given intravenously in all patients, the dose being adjusted according to the patient size. Axial images were obtained initially which were later on reformatted to obtain coronal and sagittal sections. MRI was done using Philips 1.5 Tesla scanner. A pilot study was conducted which refined the Performa. The data was then entered on it. The scans were reported by a single consultant radiologist. Radiologically studied parameters were the presence and extent of tumour, involvement of gut, bladder, rectum, omental/ peritoneal deposits, abdominal wall, and ascites. Same parameters were looked for intra-operatively by a senior gynecologist at the MCHC PIMS The pre-operative imaging findings were then compared with the intra-operative findings .

Data analysis:- All the data was entered on SPSS 10 for analysis. Values for sensitivy, and specificity were calculated. P-value was calculated for all the parameters.

RESULTS:-

Out of total of 36 patients, 2 patients were excluded as data was incomplete for 1 patient while for other, Imaging was done from outside. Of 34 patients, 18 patients were diagnosed to have Ca ovary while 10 patients had cervical carcinoma. Cancer endometrium was diagnosed in 06 patients. All the parameters were rightly diagnosed at the time of pre-operative imaging (CT or MRI). However, omental and peritoneal deposits were not detected radiologically in 13 patients. (Statistically significant p value=0.017).

Findings		pre-op n (%)	post-op n (%)	p-value	S / NS
gut		1 (2.9)	2 (5.9)	0.325	NS
bladder		3 (9.1)	3 (9.1)	1.000	NS
rectum		3 (9.1)	3 (9.1)	1.000	NS
omentum		6 (17.6)	13 (38.2)	0.017*	S
abdominal wall		1 (3)	2 (5.9)	0.325	NS
lymph nodes		10 (29.4)	5 (14.7)	0.096	NS
ascites	nil	21 (61.8)	20 (58.8)	1.000	NS
	mild	5 (14.7)	6 (17.6)		
	moderate	1 (2.9)	2 (5.9)		
	severe	7 (20.6)	6 (17.6)		

*p<0.05 taken as level of significance

The sensitivity of cross-sectional imaging for detecting omental deposits was 83% and specificity came out to be 28%.

DISCUSSION: -

A number of past studies proved that cross sectional imaging has a high sensitivity and specificity in gynaecological cancers. In a study conducted by Tsili et al, the sensitivity was shown to be 90% and specificity of 88.76% for multidetector CT in diagnosing malignancy in pelvic and suspected recurrences[8] Another study carried out by Tempany et al, the sensitivity and specificity were 85–93% and 78–96%, respectively on CECT and 95 and 80 % respectively on Contrast enhanced MRI [9] Revathy BI et al proved in their study in 2007 that sensitivity of MRI is 91 % in diagnosing gynaecological malignancies.[12]Similarly it was concluded by Akush et al that specificity of MRI is 87% [13] for gynaecological cancers. Hence the results of this study were acceptable in the light of previous studies. However, it is recommended to carry out further studies with an improved sample size to get more reliable results.

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