

ROLE OF COMPUTED TOMOGRAPHY IN EVALUATION OF CARCINOMA CERVIX

Radiodiagnosis

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ABSTRACT

Invasive cervical cancer is the second most common gynaecological malignancy. The prognosis is based on the stage, size, and histologic grade of the primary tumour and lymph nodes involvement. Assessment of the stage of disease is important in determining treatment. The official clinical staging system of the International Federation of Gynaecology and Obstetrics has led to errors of 65%–90% in stage III and IV disease; the result has been unofficial extended staging with cross-sectional imaging modalities such as computed tomography (CT). CT is useful in staging advanced disease and in monitoring patients for recurrence. The primary tumour is heterogeneously enhancing and hypoattenuating relative to normal stroma on contrast enhanced scans. Obliteration of the periureteral fat planes and a soft-tissue mass are the most reliable signs of parametrial extension. Less than 3 mm separation of the tumour from the pelvic muscles and vascular encasement are signs of pelvic side wall invasion. Lymphatic spread is along the external and internal iliac nodal chains and the presacral route to the paraaortic nodes. Distant metastases are seen with primary or recurrent disease and can involve liver, lung and bones.

METHODOLOGY: The study was conducted on females that presented with complaints of per vaginal bleeding to department of obstetrics and Gynaecology, New civil hospital, Surat and was referred to Department of radiodiagnosis and Imaging for Computed Tomography. Computed Tomography of abdomen and pelvis of 35 patients was done and they were included in this study.

Modified FIGO staging with the help of Computed Tomography is given and both the staging are finally compared with Histopathological report and the accuracy of the CT scan in diagnosing various parameters of ca cervix like parametrial invasion, lymph node etc are noted and hence finally helps in improving the staging of Ca cervix to give proper treatment.

Results: CT is useful in staging advanced disease and in monitoring patients for recurrence. CT can demonstrate pelvic side wall extension, ureteral obstruction, bladder and rectal involvement, lymph node status, and extrapelvic spread of disease CT can also be used to guide biopsy of enlarged nodes, plan radiation therapy ports, evaluation of treatment response and for diagnosis of recurrence.

KEYWORDS

INTRODUCTION:

Staging and treatment decisions for cervical cancer are based on clinical FIGO (International Federation of Gynaecology and Obstetrics) guidelines. The FIGO staging system uses findings from physical examination, colposcopy, lesion biopsy, radiologic studies [chest radiograph, intravenous urography (IVU), barium enema] and endoscopic studies (cystoscopy, sigmoidoscopy).

Major limitations of clinical evaluation are in the assessment of parametrial and pelvic side wall invasion, estimation of tumour size (especially in endocervical tumours) and the evaluation of lymph node and distant metastasis. In revised FIGO guidelines, the use of cross-sectional imaging techniques is encouraged but not considered as mandatory.

Computerised tomography (CT) is widely used to improve clinical staging of cervical carcinoma. CT is useful in evaluating tumour size, parametrial invasion, lymph node status and distant metastasis which are all critical prognostic factors in cervical carcinoma. Conventional techniques like IVU are being replaced by CT which can give details of the ureteral involvement and the functional status of kidneys.

Lymph node status is an important prognostic factor in cervical carcinoma. Both CT and MRI have similar accuracies in the evaluation of pelvic lymph nodes in patients with cervical carcinoma. Overall, CT is valuable in evaluation of advanced cervical cancer and clinical examination is better than CT and MRI for evaluation of early cervical cancer. However, there are no clear-cut guidelines regarding the role of CT scan in improving the FIGO staging of cervical cancer. In 2009, the FIGO revised the staging of cervical cancer and emphasized the role of radiological imaging but did not state as to which imaging was mandatory.

MATERIALS & METHODOLOGY:

The study was conducted on females that referred from the department of obstetrics and Gynaecology, New civil hospital, Surat to the

Department of radiodiagnosis and Imaging for Computed Tomography.

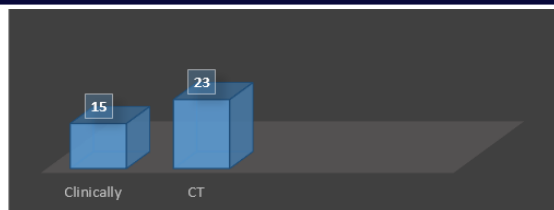
Patients that presented with the complaints of per vaginal bleeding were examined in the Department of Obstetrics and Gynaecology and with help of initial evaluation FIGO staging of the lesion was done and patient was sent for histopathological examination and was also sent for Computed Tomography of the pelvis. The patients that fulfil both the criteria that is the patient that are undergoing Computed tomography and has their Histopathological examination done are included in the study. Total of 35 random patients were selected. Clinical FIGO staging given by Gynaecologist is registered. Then modified FIGO staging with the help of Computed Tomography is given this finally helps in improving the staging of Ca cervix to give proper treatment 35 patients (range age: 35 to 78 years; mean age: 60 years) were studied during the period of one and half years. The study was approved by ethics committee of institution. The procedure was explained to the patient and a written informed consent was taken from each patient prior to conducting the CT scan. Adequate pre-procedural counselling of the patient alleviated anxiety and ensured patient cooperation. All patients were first evaluated with per vaginal examination then biopsy taken for histopathological examination, then computed tomography done for better delineation of anatomy, border and extension of carcinoma of cervix.

RESULT AND DISCUSSION:

Among 35 patients, 15 patients constituting 42.8 % were found to have parametrial invasion clinically, 23 patients constituting 65.7% were found to have parametrial invasion on CT scan.

Table 1

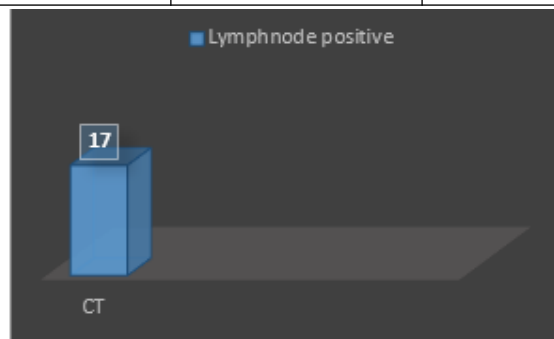
	Patients	%
Clinically	15	42.8
CT	23	65.7%

**Chart 1**

Among 35 patients 17 patients constituting 48.7% were found to be lymph node positive status on CT scan.

Table 2:

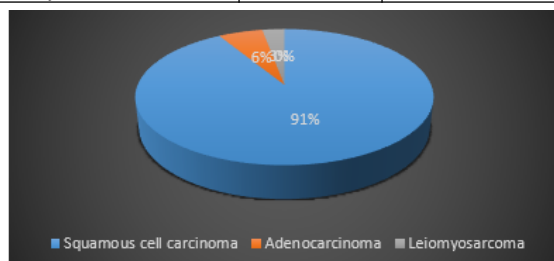
	Lymph node positive	Percentage
CT	17	48.7%

**Chart 2**

Most common type of carcinoma cervix that has been documented so far is squamous cell carcinoma. In my study 35 patients, 32 patients (91.4%) of the patients were diagnosed to have squamous cell carcinoma. Only 2 cases (5.7%) were histopathologically revealed to have adenocarcinoma of cervix and only 1 case (2.9%) constitutes leiomyosarcoma of cervix.

Table 3.

	Cases	Percentage
Squamous cell carcinoma	32	91.4%
Adenocarcinoma	2	5.7%
Leiomyosarcoma	1	2.9%

**Chart 3.**

CONCLUSION:

The first clinician that the patient come in touch with is usually gynaecologist and with clinical examinations initial diagnosis of carcinoma cervix is made. Clinical examination also helps ascertain status of rectum and parametrial invasion and give an initial FIGO staging.

Biopsy of the patient is advised to get histopathological diagnosis of the disease and then CT scan is advised to get a proper extent of the disease and to give a final staging.

Proper staging of the patients with carcinoma cervix is very important as treatment is totally dependent on staging. The results given by computed tomography imaging had definitely improved the staging of the patient.

The benefits of CT scan include the rectal invasion assessment, parametrial invasion. These all are also assessed on clinical

examination but they are very accurately seen on CT scan. In addition to these, Lymph node status and urinary bladder invasion are additionally assessed on CT scan. Lymph node status is very crucial to be assessed on Ct scan as they are important in radiotherapy planning of the patient.

Cervical cancer staging is done clinically by FIGO staging, while Computed tomography can be used as an adjuvant to clinical staging done by FIGO.

While FIGO staging has limited role in lymph node status detection and urinary bladder involvement, Computed tomography has 100% negative predictive value to exclude of bladder and rectal involvement. It can also detect lymph node enlargement and lung metastasis which influence further management.

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