EVALUATION OF CERVICAL LYMPH NODES IN HEAD AND NECK CANCER BY MULTIDETECTOR COMPUTED TOMOGRAPHY

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INTRODUCTION

Head and neck cancer ranks sixth among all cancers world wide. LNs levels can be categorized and used for staging and treatment planning of tumors. Metastasis of the LN decreases survival from HNSCC by 50%.

Contrast-enhanced CT is considered a noninvasive method for metastatic cervical nodes detection, as it yields information about size, shape, and morphology with high anatomic resolution. PET/CT is more preferable than CT for evaluating cervical nodes metastasis because morphological criteria of CT for cervical lymph nodes metastasis diagnosis has limited value.

According to their size, shape, morphology, margins, arrangement, and distribution, abnormal LN are categorized. Metastatic disease can be diagnosed using a variety of criteria. If there is central necrosis or extracapsular dissemination, regardless of size, or if the shortest axial diameter in the jugulodigastric nodes is 11mm and 10mm in other cervical areas, the jugulodigastric LN are considered metastatic. Clustering sign is more common in head and neck carcinoma, primarily SCC.

AIM OF THE WORK

The aim of the study was to assess the role of multi-detector computed tomography in detection of metastatic cervical lymph nodes as early as possible in patients with head and neck cancer.

PATIENTS AND METHODS

The study was carried out on 20 patients with metastatic cervical lymph nodes presented with different primary tumor sites, who were referred to the Radiology Department of Alexandria Main University Hospital – Faculty of Medicine in the period between January 2020 and November 2021.

MDCT technique:

A-*Equipment:* CT was performed using Siemens SOMATOM Germany 32 detectors row helical scanner.

B-*Patient preparation:* Fasted and hydrated for 6 hours before performing the scan.

Patient Positioning: Patients lying in supine position with head in comfortable neutral position with chin elevated and the shoulders down.

D-*Contrast enhanced MDCT:* The nonionic contrast media (Optiray TM, Mallinckrodt) is injected intravenously through an 18-20 gauge cannula, depending on the size of the vein, into the antecubital vein by using a power injector.

E-*Image Analysis (Interpretation):* Using the workstation, post-processing was done and images were evaluated by using dedicated analysis software.
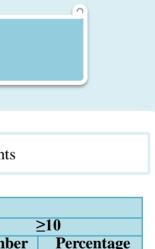

Figure: Axial contrast enhancing CT showing metastatic cervical lymph nodes.

RESULTS

Table 1: Size criteria of 45 lymph nodes in 20 patients

C.T findings	Size in mm			
	<10		≥10	
	Number	Percentage	Number	Percentage
Shortest axial diameter	13	28.9%	32	71.1%

Table 2: CT criteria of 45 lymph nodes in 20 cases

Criteria	Number of Metastatic lymph nodes	Percentage
Central necrosis	32	71%
ECS	13	28%
Clustering	0	0%
Calcification	0	0%
Deformed shape	21	45%

CONCLUSION

- Due to its availability, non-invasiveness, and speed, CT plays a significant role in the examination and staging of cervical lymph nodes. CT image evaluation should be carried out with coronal, sagittal and axial reconstruction to allow adequate visualization. CT is the most preferable scan for metastatic lymph nodes because it can evaluate head and neck tumors in the same session and can reveal deep cervical lymph nodes that are challenging to detect by US. In any radiological report dealing with cervical lymphadenopathy, the imaging-based classification should be used.

- Lymph nodes assessed by CT based on their small axial diameter (size of 10 mm or greater) were classified as metastatic lymph nodes. Distortion of the normal shape of lymph node, helps to determine lymph node abnormality, but is not specific indicator. The central node necrosis is the most reliable feature of lymph node metastasis, regardless of its size. The intense enhancement and calcification are not specific features of a certain nature of lymph node.

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