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STUDY ON EVALUATION OF NECK LESIONS BY MUTIDETECTOR COMPUTED TOMOGRAPHY

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ABSTRACT

BACKGROUND :- Neck swelling is a very common presentation encountered in clinical practise. Because of its highly complex anatomy and physiology, neck disease manifesting as neck swelling can be varied from etiological, pathological and prognostic point of view.

Current imaging with a high resolution helical CT and multiplanar reformations permit a detailed analysis of the complex anatomy in this region and is the key to understanding many of its disorders including mass lesions. Through such understanding we can recognize the issues involved in conservative surgery, neck nodal texture and functional assessment, brachial plexopathy, and the treated neck, appreciate the relevant surgical anatomy of the spaces in the neck.

MATERIALS & METHODS :- This study was carried out on 40 cases of clinically diagnosed neck masses, from outpatient departments and indoor wards of various departments, in the department of Radiodiagnosis, Ims & Sum Hospital, Bhubaneswar from July 2015 to August 2017. Patients from both sexes and all ages were included as part of the study.

Results & Conclusions :- The combination of soft tissue characterization and anatomical localization afforded by CT allows radiologists to make a substantial contribution to the preoperative assessment of the patients with neck masses. With multidetector CT scanners (MDCT) there is tremendous improvement in scanning time, tissue resolution and quality of three dimensional (3D) reconstruction. MDCT has brought about newer applications like excellent quality CT angiography and CT virtual endoscopy (CTVE) which will play significant role in head and neck mass lesions. Radiological evaluation with cross sectional modalities, i.e. CCT ensures accurate anatomical localization, tumour morphology and state of surrounding structures in benign lesions. In malignant tumours, it is invaluable for staging and provides essential information about the tumour extent that directly affects the surgical approach necessary for curatives resection.

KEYWORDS : multidetector CT scanners (MDCT), neck mass lesions

INTRODUCTION

Neck swelling is a very common presentation encountered in clinical practise. Because of it highly complex anatomy and physiology, neck disease manifesting as neck swelling can be varied from etiological, pathological and prognostic point of view. (1) Despite a vast array of etiologies, the most common neck masses are congenital lesions, lymphadenopathy and both benign and malignant neoplasias. [2]

The radiological evaluation of neck masses has changed dramatically since the advent of ultrasound (US), computed tomography (CT) and magnetic resonance (MRI). The use of these newer modalities permits precise anatomic localization and extent of the masses and allows for differentiation of solid cystic and mixed masses. (3)

Ultrasound is the ideal screening modality in infants and children because of the lack of ionizing radiation and is non-invasive. USG can define the location, size and extent of the mass, relation to surrounding normal structures and the internal characteristics of the mass. But, sonography of neck lacks specificity in certain instances. (4) The differentiation between inflammatory and malignant lymphadenopathy can not always be made.

Although MRI images the bone marrow effectively, unlike CT it can't examine cortical bone. CT also has superior spatial resolution and is generally a faster technique which may be very important in a patient with compromised airway. (5)

The development of modern cross-sectional imaging techniques has substantially altered the treatment and management of malignancies of upper aero-digestive tract. Cross-sectional imaging obtain provides detailed information about the extent and depth of tumours.

Imaging helps determine tumour resectability and the extent of surrounding tissue that must be resected to ensure adequate surgical margins. Because it improves the accuracy of staging, pre-treatment imaging is accepted as an important adjunct to physical examination in patients with malignancies of upper aero-digestive tract. (6)

Post-surgical and post-radiation surveillance imaging is now widely regarded as mainstay of patient follow-up. Imaging surveillance improves palliation and prolongs disease free survival.

Current imaging with a high resolution helical CT and multiplanar reformations permit a detailed analysis of the complex anatomy in this region and is the key to understanding many of its disorders including mass lesions.(7)

AIMS AND OBJECTIVES

To assess the role of helical CT in evaluation of neck masses in respect of : Pre-operative characterization based on location, morphological characteristics and enhancement pattern.Outlining the extent in terms of involvement of adjacent structures,vessels and possible adenopathy. Surgical and histopathological correlation whenever possible.

Post treatment (surgery and radiotherapy where applicable) status evaluation.

MATERIALS AND METHODS

This study was carried out on 40 cases of clinically diagnosed neck masses, in the department of Radiodiagnosis, Ims & Sum Hospital, Bhubaneswar from July 2015 to August 2017. All the patients were selected from outpatient departments and indoor wards of various departments(mostly from ENT department). Patients from both sexes and all ages were included as part of the study.

Inclusion criteria - All cases of neck masses and cases of strong clinical suspicion of neck lesions which will be unrevealed through MDCT

Exclusion criteria

1. Neck masses with post operative status or post RT status
2. Claustrophobic patients.
3. Patients with history of hypersensitivity to contrast agents.

4. Patients with severe acute illness or neck masses with arousing emergency.

Preparation Of Patient - After taking proper history, clinical examination and laboratory investigations, the patient is prepared for CT scanning. Past history including previous treatment history and drug history is taken. Before performing the scan, the procedure and objective of performing the scan is explained to the patient and the attendants.

Informed consent of patients/attendant is taken for IV contrast examination. Non-ionic iodinated contrast, dose depending on body weight is given as rapid IV bolus by hand injection. The patient is kept on empty stomach for 4-6 hours prior to performing the scan.

CT Imaging Protocol - For CT imaging, patients were scanned in the supine position on the scanner gantry with the neck mildly hyperextended so that the hard palate is roughly perpendicular to the table top. When possible patients are scanned with quiet breathing and swallowing suspended. Contiguous 5mm thick axial images were obtained from the level of base of skull to lung apices. CT equipment used is GE 660 OPTIMA 128 SLICE.

POST PROCESSING – Multiplanar reforming (both coronal and saggital planes) were done whenever necessary. All images reconstructed with bone algorithm to detect bone and cartilage invasion.

RESULTS AND ANALYSIS

AETIOLOGICAL BREAK UP OF NECK MASSES ON CT (TABLE – 1)
(n = 40)

Aetiology	No. of Cases
Masses originating from aero-digestive tract	14
Nodal masses	6
Thyroid masses	5
Congenital lesions	5
Infective	2
Miscellaneous	8

AGE DISTRIBUTION OF CASES (TABLE – 2)

AGE GROUP	NO. OF CASES
0-10	3
11-20	2
21-30	2
31-40	3
41-50	6
51-60	8
61-70	9
71-80	7

GENDER DISTRIBUTION OF CASES (TABLE – 3)

GENDER	No. of Cases	Percentage (%)
Male	25	62.5%
Female	15	37.5%

DISTRIBUTION OF CASES OF AERO-DIGESTIVE TRACT (TABLE – 4)

	No. Of Cases	Percentage (%)
Larynx	10	71.4
Hypopharynx	4	28.6
Cervical oesophagus	0	0

DISTRIBUTION OF MALIGNANT LARYNGEAL LESIONS ACCORDING TO REGIONS OF LARYNX (TABLE – 5)

LOCATION OF MASS	NO.OF CASES	PERCENTAGE (%)	HISTOPATHOLOGY
Supraglottis	5	55.6	Sq. Cell Ca
Glottis	3	33.3	Sq. Cell Ca
Subglottis	1	11.1	Sq. Cell Ca

CT IMAGING FEATURES OF SUPRAGLOTTIC MASSES (TABLE – 6)

Criteria	Transglottic extension	Pyriform sinus invasion	Cartilage invasion	Pre-epiglottic invasion	Exolaryngeal spread	Adenopathy
No. of cases	3	3	1	2	1	3
Percentage	60%	60%	20%	40%	20%	60%

CT IMAGING FEATURES OF GLOTTIC MASSES (TABLE – 7)

Criteria	Transglottic extension	Pyriform sinus invasion	Cartilage invasion	Pre-epiglottic invasion	Exolaryngeal spread	Adenopathy
No. of cases	2	2	1	2	1	2

LOCATION OF HYPOPHARYNGEAL MASSES (TABLE – 8)

Location	Posterior Pharyngeal wall	Pyriform Sinuses	Post Cricoid Region	Lateral Pharyngeal Wall
No. of cases	0	2	1	1

CT FINDINGS IN HYPOPHARYNGEAL MASSES (TABLE – 9)

Imaging Feature	Extension Across Midline	Involvement of Pyriform Apex	Invasion of Laryngeal Cartilages	Paraglottic space invasion	Extension into Esophageal Inlet	Extension into Prevertebral muscles	Metastatic Adenopathy
No. of cases	2	3	2	1	0	0	3
Percentage	50%	75%	50%	25%	0%	0%	75%

AETIOLOGICAL BREAK UP OF NODAL MASSES (TABLE –10)

AETIOLOGY	METASTATIC AERODIGESTIVE TRACT MALIGNANCY	LYMPHOMATOUS	TUBERCULAR	UNKNOWN PRIMARY
NO.OF CASES	3	1	1	1
PERCENTAGE	50%	16.6%	16.6%	16.6%

CT CHARACTERISTICS OF NODAL MASSES (TABLE – 11)

IMAGING FEATURE	CALCIFICATION	VESSEL INVASION	EXTRCAPSULAR SPREAD	NECROSIS	RIM ENHANCEMENT	HOMOGENOUS
NO.OF CASES	1	3	3	6	8	2

CT CHARACTERISTIC OF THYROID LESIONS (TABLE – 12)

CATEGORY	NO.OF CASES	PERCENTAGE (%)
Multi nodular goitre	2	40
Papillary carcinoma	2	40
Follicular carcinoma	1	20

CT IMAGING FEATURES OF THYROID MASSES (TABLE –13)

CRITERIA	CALCIFICATION & HAEMORRHAGE	NECROSIS	THYROID CAPSULE INVASION	VASCULAR INVASION	INVOLVEMENT OF TRACHEA & OESOPHAGUS	MEDIASTINAL EXTENSION	ADENOPATHY	RETROSTERNAL EXTENSION
NO.OF CASES	3	2	5	2	2	2	2	2

INCIDENCE OF CONGENITAL NECK MASSES IN OUR STUDY (TABLE – 14)

CATEGORY	NO.OF CASES	PERCENTAGE (%)
Cystic hygroma	1	20
Branchial cyst	2	40
Thyroglossal cyst	1	20
Dermoid	1	20

AETIOLOGICAL BREAK UP OF MISCELLANEOUS MASSES IN OUR STUDY (TABLE – 15)

CATEGORY	NO.OF CASES
Glomus tumour	3
Neurogenic tumour	3
Deep lobe parotid mixed tumour	2

DISCUSSION

Out of the 40 cases evaluated in our study, most cases were of masses arising from aerodigestive tract (35%) and nodal masses (15%).Thyroid masses and congenital masses constituted 12.5% and 12.5% respectively; with the rest comprising of infective masses(5%) and miscellaneous(20%).This aetiological break up has been show in TABLE 1.

TABLE 2 shows the age distribution of cases with the maximum number of cases being found in 61-70 years age group followed by 51-60 years and 71-80 years age group. These finding were consistent with the study conducted by Sasaki CT,Carlson RD 2013.

Gender distribution of the cases is shown in TABLE 3.Out of the 40 cases studied in total, 25(62.5%) were males and 15(37.5%) were females. This was due to a high incidence of aerodigestive tract masses in males as reported by Sasaki CT,Carlson RD.

Mass lesions arising from aerodigestive tract constituted 35%(14 cases) of the total cases.Of the 14 cases,10 cases (71.4%) were seen in relation to larynx and 4 cases (28.6) were seen in the hypopharynx. No cases of mass lesion of the cervical oesophagus were found. This distribution of aerodigestive tract masses is shown in TABLE 4.

All the masses arising from the hypopharynx and 9 cases of laryngeal masses were histopathologically proven to be cases of squamous cell carcinomas of different grades (varying from well differentiated to poorly differentiated).These findings are in accordance with the findings of Casselman JW,Biebau J,who noted that masses in this region are usually malignant, and virtually all malignancies are squamous cell carcinomas.

The guidelines proposed by S.K.Mukherjee,Pillsbury,Castillo et al, on the information that imaging should provide in cases of malignancies of upper aerodigestive tract,were followed in my study.

Of the 9 cases of malignant laryngeal masses,5 were seen in relation to supraglottis and 3 in the glottis.1 case of subglottic mass was seen.The distribution of malignant laryngeal masses according to the regions of larynx is depicted in Table5.According to Harnsberger HR and Vogl TJ et al,approximately 30% of laryngeal masses are seen in the supraglottis.50-70% are seen in the glottis and 6-8% are present in the subglottis. In our study supraglottic masses formed the predominant group.

Table 6 shows the imaging characteristics of supraglottic masses.CT characterization of supraglottic masses was based on the following criteria- location,size of the lesion,transglottic extension (3 cases),pyriform sinus invansion(3 cases),cartilage invasion (2 cases),involvement of pre-epiglottic space(2 cases), features of exolaryngeal spread (1 case) and associated adenopathy (3 cases).There finding were consistent with those of Harnsberger HR who found that more than 50% of supraglottic masses present with metastatic adenopathy.

There were 3 cases of glottis masses in total.Masses originating in relation to glottis larynx were evaluated on the basis of following imaging findings-size of the lesion,transglottic extension (2 cases),subglottic spread (2 cases),evidence of cartilage destruction (1 case).involvement of anterior commissure (2 cases) and posterior commissure (1 case).Metastasis to ipsilateral level III groups was detected in (2 cases) Table7.According to Casselman JW,Biebau G,50-75% of glottis masses involve the anterior commissure.

In our study 66% of glottis masses had anterior commissure involvement.

Masses originating from the subglottic region comprised of 1 case in our study.It was assessed in terms of tumour size,downward extension of the mass,involvement of vocal cord,cartilage invasion and exolaryngeal spread (e.g. trachea, soft tissue of neck,including thyroid and oesophagus).

The distribution of hypopharyngeal masses is depicted in Table 8.Of the 4 cases of hypopharyngeal masses,2 were seen arising from the pyriform sinus and 1 each from the post cricoids region and lateral pharyngeal wall.According to the study of Adams GL and Brown J,60% of hypopharyngeal masses arising from the pyriform sinus and 25% from the post cricoids region.The findings in our study consistent with their studies.

Apart from tumour size and location,the imaging parameters that were evaluated in the 4 cases of hypopharyngeal masses include extension across midline,involvement of pyriform sinus,involvement of laryngeal cartilage,paraglottic space imvasion,extension into oesophageal inlet and prevertebral muscles;and metastatic adenopathy (Table 9).In our study 75%of hypopharngeal masses had metastaic adenopathy,this finding was in accordance to the study by Adams GL and Brown J who stated that almost 80% of hypopharyngeal masses had adenopathy at presentation.

Tumour involvement of cricoids or thyroid cartilage is considered a negative predictor for the prognosis of patients and is a contraindication to partial larygectomy (Becker M,Zbaren P,et al).According to Kirchner JA et al,a tumour confined to supraglottic larynx very rarely invades cartilage; it is much more of a problem in tumours of true cord , subglottis and hypopharynx. In my study 20% of cases of supraglottic carcinomas had evidence of cartilage invasion, while it was 33.3% in glottis carcinomas. The hypopharyngeal masses had 50% incidence of cartilage invasion.

Out of total 14 cases of nodal masses 9 cases were diagnosed as metastic adenopathy from aerodigestive tract primary malignancy and the rest included isolated nodal masses in 4 cases 1 case was considered as secondary adenopathy from unknown primary after clinicopathological correlation (Table 10).

The lymph nodes were assessed in terms od nodal size (short axis diameter), attenuation characteristics,features of necrosis, enhancement pattern (homogenous/non-homogenous/ring like), conglomeration, extra capsular spreat, calcification and vascular invasion (primarily internal jugular vein and carotid vessels) (Table 11); which was in accordance to the guidelines provided by Dillon WP, Harnsberger HR 2004 and Mancuso AA, Harnsberger HR, Muuraki AS et al 2010.

In our study adenopathy was assumed when a lymph node was greater than 1.5cm in diameter either in the jugulodigastric region (level II) or in the submandibular triangles (level I) or, when a node was greater than 10mm (1cm) in greatest diameter elsewhere in neck (Castelijns JA 2011).

Metastatic nodes show a central nodal necrosis with a thick enhancing rim, which was similar to that observed by van der Breckel 2009.

In our study of the lymph nodes, we identified rim enhancement in 8 case, homogenous attenuation characteristics in 2 cases, features of necrosis in 6 cases, extracapsular spread in 3 cases, and vascular invasion (primarily internal jugular vein and carotid vessels) in 3 cases.

The tubercular lymph nodes (2 cases) had the appearance of multichambered nodal mass with rim like areas of enhancement and preservation of fascial planes around them. Mostly they were seen in the posterior triangle. These findings were similar to those described by Deborah L Reed, R Thomas Bergeron et al 2013.

The two cases which were diagnosed as lymphomas and were histopathologically confirmed as Hodgkin's disease, showed enlarged

nodes with variable enhancement and relatively homogenous central attenuation. As previously noted by Som PM, Brandwein Margaret S et al 2004, central necrosis was not as frequently seen as in comparably sized nodes containing metastatic squamous cell carcinoma.

In our study there were seven cases which were considered originating from the thyroid gland. Subsquently 2 cases were diagnosed as multinodular goiter and the rest 5 cases were histopathologically proven to be thyroid malignancies (Papillary carcinoma – 2 acses, Follicular carcinoma – 2 cases and 1 case of anaplastic carcinoma) (Table 12).

According to Som PM, Brandwein T 2011 papillary thyroid carcinomas comprised 55% to 75% of thyroid cancer; with follicular carcinoma being 15% to 20% of the cases. This finding was similar in our study.

As advocated by Laurie A Lovner et al 2003, the main role of cross-sectional imaging in thyroid neoplasms is not in the characterization of an intrathyroid lesion, as there are no imaging findings that are histologically specific. The role of the radiologist is to assess the findings related to a thyroid mass which will influence treatment decisions, including invasion through thyroid capsule and infiltration of adjacent tissues and structures of neck and to identify presence of cervical lymph node metastasis.

Accordingly we assesses the following parameters in thyroid masses – size and location of the lesion, presence of calcifications, hemorrhage (3 cases), necrosis (2 cases), thyroid capsule invasion (5 cases), vascular invasion (2 cases) involvement of trachea and esophagus (2 cases), mediastinal extension (2 cases) and adenopathy (2 cases). 2 cases of thyroid masses had shown retrosternal extension (Table 13).

In our study were diagnosed as of congenital origin,which included branchial cysts (2),dermoid(1),cystic hygroma(1) and thyroglossal duct cyst (1) (Table 14).These findings were constituent with those of Hogan D,Wilkinson RD et al who found that the most common congenital lesions are thyroglossal duct cysts, branchial cleft anomalies and cystic hygroma.

All the branchial cysts were second branchial cysts (Type II cysts).Bailey H et al.They were located in relation to angle of mandible as cystic masses with post contrast thin rim like enhancement & displacement of ipisilateral sternocleidomastoid posterolaterally.

In our study relatively few (2)cases were diagnosed as masses of infective origin,probably as adequate clinical assessement is possible in such cases,where as imaging is essential to delineate the exent of the infective process. The cases comprised of 1 case of parapharyngeal abscess.

The parapaharyngeal abscess was 3.2 cm and 4.0 cm in greatest crosssectional diameters and showed central low density with pheripheral irregular rim like enhancement.The case with cellulitis showed massive swelling of neck with diffuse stranding of subcutaneous fat,low attenuation phelegmonous change and blood muscle margins.

Neck masses arising in the parapharyngeal spaces are difficult to examine clinically.Each is buried deep in the upper neck beneath the ramus of the mandible,Parotid gland and the sternocleidomastoid muscle.So,Cross-sectional imaging is vital for pretreatment evaluation of these masses.

Table 15 Shows 8 cases that were diagnosed as arising from the parapharnygeal space including neurogenic tumours (3),paraganglioma(3)Salivary gland mass (deep lobe parotid mixed tumour,2 cases).

Som PM,Sacher M et al found that major and minor salivary gland tumoyrs accounted for 40- 50% of all masses in the parapharyngeal space(PPS),Neurogenic tumours for 17-25% and glomus tumours for 10-15%.The remaining 10-33% cases in their study represented a diverse group of lesions that includes the pathological lymphnodes,branchial cleft cysts,Lipomatous lesions etc.The findings in our study were close to that observed by them.

The parotid and extra parotid nature of these masses was established by identifying a fat plane between the mass and parotid gland as advocated by Carter BL,Hammerschlag SB et al.According to them neuromas tended to displace the Internal Carotid Artery(ICA) anteriorly, whereas salivary tumours displaced this vessel posteriorly. Similar pattern of vascular displacement was seen in our study.

The neural origin masses in the parapharyngeal space were confirmed to be schwannoma arising from vagus nerve at surgery and subsequently at histopathological examination.

In our study 3 cases were diagnosed as paraganglioma (glomus tumour) in the PPS. The 3 cases showed a strongly enhancing mass in relation to the carotid bifurcation.

SUMMARY AND CONCLUSION

SUMMARY

This was a study carried out on 40 patients of both sexes and all ages in the Department of Radiodiagnosis, IMS & SUM HOSPITAL, Bhubaneswar over a duration of 2 years. Both clinically benign as well as malignant neck masses in patients from various departments were included as part of the study. Aim of the study was to assess role of MULTI DETECTOR CT in evaluation of neck masses. Throughout the study there was an endeavour to provide information that will directly affect treatment and care of patients with neck masses. Cytopathologic, histopathologic and operative correlation was done in all possible cases. The relevant embryology and anatomy were discussed briefly in relation to the neck swellings. After taking proper history, clinical examination and laboratory investigations, CT scanning of neck was performed (both plain as well as contrast enhanced CT) by spiral/conventional CT scanner (GE 660 OPTIMA 128 SLICE). Review of the study group comprising of 40 patients of both sexes reveal that masses originating from aerodigestive tract and nodal masses form the predominant group with 14 cases (35%) each. Thyroid masses comprised 17.5%, while congenital lesions like cystic hygroma and branchial cysts had a similar incidence. Infectious origin masses had a 5% incidence. Miscellaneous masses including schwanomma, paraganglioma, etc constituted approximately 20%. The highest number of cases was seen in the 61-70years age group. The male:female ratio in the study group was 1.67:1. All the masses originating from hypopharynx and most cases of laryngeal masses were histopathologically proven to be cases of squamous cell carcinomas of different grades (varying from well differentiated to poorly differentiated). One case was diagnosed as laryngocele.

Of the 9 cases of malignant laryngeal mass lesions, 5 cases were in supraglottic larynx (55.6 %), 3 cases in glottis larynx (33.3%) and 1 case was seen in relation to subglottis (11.1%). So, supraglottic masses comprised the predominant group in this study. Out of total 14 cases of nodal masses, 9 cases were diagnosed as metastatic adenopathy from aerodigestive tract primary malignancy and the rest included isolated nodal masses in 4 cases. 1 case was considered as secondary adenopathy from unknown primary after clinicopathological correlation. The metastatic lymph nodes (10cases) had a thick enhancing rim with a central area of low attenuation (necrosis). The tubercular lymph nodes(2cases) had the apperarance of multi-chambered nodal mass with rim like areas of enhancement and preservation of facial planes around them. Mostly they were seen in the posterior triangle. The 2 cases of lymphomas, which were histopathologically confirmed as Hodgkin's lymphoma, showed enlarged nodes with variable enhancemet and relatively homogenous central attenuation. We assessed the following parameters in thyroid masses – size and location of the lesion, presence of calfcification, haemorrhage (3 cases), necrosis (2 cases), thyroid capsule invasion(5 cases), vascular invasion (2 cases), involvement of trachea and esophagus (2 cases), mediastinal extension (2 cases) and adenopathy (2 cases). 5 cases were diagnosed as congenital origin in the study, which included branchial cysts (2), dermoid (1) and cystic hygroma (1). 1 case was diagnosed as thyroglossal cyst. In our study relatively few (2) cases were diagnosed as masses of infective origin. The cases comprised of 1 case of cellulitis and another case of parapharyngeal abscess. The 8 cases of miscellaneous group masses were seen arising from the parapharyngeal space including neurogenic tumours (3), paraganglioma (3) and salivary gland mass (deep lobe parotid mixed tumour, 2 cases). The parotid and extraparotid nature of these masses were established by identifying a fat plane between the mass and parotid gland. Neurogenic tumours tended to displace the internal carotid artery anteriorly, whereas salivary tumours displaced this vessel posteriorly.

The neural origin masses in the parapharyngeal space were confirmed to be schwannoma arising from vagus nerve at surgery and subsequently at histopathological examination. 3 cases were diagnosed as paragangliomas (glomus tumours) in the parapharyngeal space. They were seen at the carotid bifurcation with splaying of the internal and external carotid arteries.

CONCLUSION

The combination of soft tissue characterization and anatomical localization afforded by CT allows radiologists to make a substantial contribution to the preoperative assessment of the patients with neck masses. With multidetector CT scanners (MDCT) there is tremendous improvement in scanning time, tissue resolution and quality of three dimensional (3D) reconstruction. MDCT has brought about newer applications like excellent quality CT angiography and CT virtual endoscopy (CTVE) which will play significant role in head and neck mass lesions. Radiological evaluation with cross sectional modalities, i.e. CCT ensures accurate anatomical localization, tumour morphology and state of surrounding structures in benign lesions. In malignant tumours, it is invaluable for staging and provides essential information about the tumour extent that directly affects the surgical approach necessary for curatives resection.

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