ORIGINAL RESEARCH PAPER

Radiodiagnosis

ROLE OF CT IN THE EVALUATION OF PARANASAL SINUS PATHOLOGIES

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ABSTRACT

Introduction : Paranasal sinus (PNS) diseases affect a wide range of population and include broad spectrum of diseases ranging from inflammatory conditions to neoplasms. CT is currently the modality of choice in the evaluation of PNS and adjacent structures.

Aims : 1. To evaluate the various pathologies affecting the paranasal sinuses on C T
  2.To determine the extent of lesion into the surrounding structures and to assess bony involvement

MATERIALS AND METHODS : Imaging of 40 patients between age group of 18 – 60 years came to department of Radio –diagnosis at MGM , Navi Mumbai was done using 64 –slice MDCT scan during November 2016 to April 2017 period.

RESULTS : Of the 40 cases , abnormal findings were present in 36 cases ; the commonest disease was sinusitis

CONCLUSION: Multi slice CT can be used as gold standard imaging modality in evaluating PNS pathologies.

INTRODUCTION

Diseases of paranasal sinuses are a major health problem.Most of the times physical examination is nonspecific and radiological evaluation has been relied as an aid in confirming the diagnosis.Traditionally , plain radiographs were modality of choice .But the degree of chronic inflammatory diseases are undere stimated. Also complications like intracranial and intraorbital involvement cannot be assessed. Due to superimpo sition of structures it prevents accurate evaluation of osteomeatal units.[1]

CT shows accurate anatomy and extent of disease in PNS. Anatomy of osteomeatal unit can be studied.[2] Together the coronal and axial sections of a PNS CT can help to understand three dimensional structure of paranasal sinuses.[3] Anatomical variants and their significance can also be assessed.

MATERIALS AND METHODS :-

1) The study included 40 patients between the age group 18-60 years who were clinically suspected of having PNS diseases and excluded all traumatic conditions requiring PNS CT . It was conducted in the department of radio –diagnosis , at MGM institute of health sciences , Navi Mumbai From November 2016 to April 2017.

INCLUSION CRITERIA :-

1) Patients presenting   with history of   head ache, nasal obstruction ,nasal discharge, anosmia,   epistaxis .
2) Clinically diagnosed / suspected cases of sinusitis ; benign/ malignant neoplasms

EXCLUSION CRITERIA :-

1)   Patients with trauma to facial bones.
2)   Pregnant women
3)   Patients not willing to be part of the study.
4)   Patient <18years and >60 years of age .

Methods :-

These patients were scanned using a 64 slice Toshiba Aquillon MDCT machine. Routinely axial scanning was done is supine position by taking 0.7mm thin and 3mm thick sections. Reformatting in coronal and sagittal planes was done using software and on workstation provided.

Results :-

In our study 40 patient with clinically suspected PNS diseases were studied. Of which 60%   were male and 40% were female patients.

CT PNS scan was reported as   normal in 4 (10%) patients and abnormal findings were seen in 36 patients (90%).

Table 1:- Summary of CT Findings

S.No.	CT Findings	No.of Cases	Percentage of Cases
1	Acute and Chronic Sinusitis	21	52%
2	Polyp	13	32.5%
3	Fungal Sinusitis	1	2.5%
4	Others(tumours)	1	2.5%
5	Normal	4	10%

Table 2:- Distribution of data by chief complaints

Sr.No.	Chief Complaints	Number of Cases	Percentage
1	Nasal Obstruction	18	45%
2	Headache	9	22.5%
3	Nasal discharge	12	30%
4	Epistaxis	1	2.5%
	Total	40	100%

Table 3 :- Distribution of data by sex

Sr. No.	Sex	Number Of Cases	Percentage
1	Male	24	60%
2	Female	16	40%
	Total	40	100%

Fig 1:-Bilateral chronic maxillary sinusitis

Fig:2 . polyp noted in right maxillary sinus

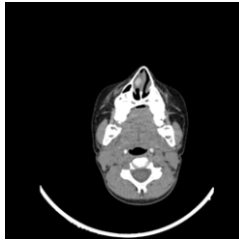**Fig 3:- Fungal sinusitis involving Left maxillary sinus with erosion of medial bony wall of maxillary sinus**

Fig 4:- papilloma – heterogeneous density mass with central hyperdensity arising from Right side of nasal septum

DISCUSSION:

In the present study maximum number of patients were aged between 21 – 40years .Majority were male patients.More commonly involved sinuses were maxillary followed by anterior ethmoid sinuses.

Maximum number of patients were seen to have sinusitis followed by polyps.The common presenting symptoms in patients with sinusitis were nasal blockage followed by nasal discharge and headache.[4]

Multiple sinuses were affected in patients with sinusitis and spread to contiguous sinuses was common. Pansinusitis was noted in 1 patient.The patients with chronic sinusitis showed mucosal thickening.[5] In acute sinusitis commonest CT findings were those of air fluid level and total opacification of sinuses.[6]

Polyps were seen as soft tissue density masses showing high density in centre and low watery density in periphery.

One patient had fungal sinusitis involving Left maxillary sinus with erosion of medial bony wall of maxillary sinus.The soft tissue was of high density.Fungal sinusitis was found less accurate on CT most likely due to its inability to accurately differentiate it from other high density lesions.Confirmation done by doing MRI which shows hypointensities on T1WI and T2WI sequences due to Manganeese metal in fungal products.

Other benign lesion diagnosed in our study was papilloma .CT scan revealed a solid heterogeneously enhancing soft tissue mass occupying the nasal cavity.7 In such suspected cases of tumours contrast enhanced CT scan studies are indicated.

CONCLUSION :

Multislice CT was found to characterize the PNS diseases along with their extension and can be used as gold standard technique in evaluating PNS pathologies.It is very fast study and can be done on less cooperative patients without having to change the positions of patient.

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