

**Original Research Paper** 

# STUDY OF VARIOUS PNS PATHOLOGIES USING CT SCANS.

## **DR. SONALI** ASSISTANT PROFESSOR, MGM MEDICAL COLLEGE AND HOSPITAL, KAMOTHE, **MHASKE KADAM** NAVIMUMBAI Resident, Department of Radio diagnosis, MGM MEDICAL COLLEGE AND **DR. SIDDHI PATIL** HOSPITAL, KAMOTHE, NAVIMUMBAI INTRODUCTION: Pathological lesions of PNS include a wide spectrum of conditions ranging from inflammation to benign and ABSTRACT malignant neoplasms. Early evaluations of these lesions is an important feature. 1 CT is the modality of choice for PNS pathologies as it optimally displays bony details and air and outlines soft tissues very well.1 AIM: To study various PNS pathologies using CT

scans in 50 patients. ATERIALS AND METHODS: maging studies of 50 patients from age group of 15-45 years came to Radiodiagnosis at MGM Hospital, Kamothe, Navi Mumbai was done using CT scan during APRIL 2016 TO NOVEMBER 2016 period. RESULTS: Of the 50 cases, abnormal findings were present in 41 patients. CONCLUSION: CT is gold standard technique for diagnosis of various PNS pathologies. Early detection and intervention helps to prevent serious morbidity and mortality.

(WORDS	Paranasal sinuses (PNS), Computed Tomography (CT)
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## INTRODUCTION:

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Anatomy of PNS: The maxillary, frontal and anterior ethmoidal sinuses drain into the middle meatus and the drainage system for these sinuses is known as ostiomeatal unit (OMU). The important components of the OMU are the uncinate process, the ethmoidal bulla, basal lamella of the middle turbinate, and the anterior wall of the sphenoid sinus which are important landmarks during surgery. The posterior ostiomeatal complex includes drainage of the sphenoid and posterior ethmoid sinuses into the superior meatus via the sphenoethmoid recess. The sphenoid sinus ostium is situated anterosuperiorly. All these structures can be clearly seen on CT scans.<sup>3</sup>

Computerized tomography of the PNS is the road map for the surgeon. A study of the normal bony pattern of the Paranasal sinuses along with the mucosal covering of the bony structures is mandatory before embarking on endoscopic sinus surgery which is done using CT.<sup>2</sup>

It is the modality of choice for imaging inflammatory disease of the sinuses and the ostiomeatal complex. Intracranial complications of inflammatory diseases are best assessed by MRI. For sinonasal tumors, CT provides bone detail and anatomic landmarks at the skull base, while MRI has the potential to differentiate tumor from adiacent inflammation.<sup>4</sup>

A good quality CT demonstrates different various pathologies of PNS.

## MATERIALS AND METHODS:

A total of 50 patients who were clinically suspected of having PNS pathologies between the age group of 15 to 45 years attending MGM Hospital, Kamothe, Navi Mumbai constituted our study.

The study was conducted for a period of 8 months from April 2016 to November 2016 using Computed Tomography scan. Patients were selected on the basis of clinical history, laboratory data or modality such as Diagnostic nasal endoscopy findings suggestive of PNS pathologies. Each patient underwent a thorough clinical evaluation including a detailed history and physical examination.

## **INCLUSION CRITERIA:**

1. Patients between age groups 15-45 years who were clinically suspected of having PNS pathologies.

## **EXCLUSION CRITERIA:**

- 1. Patients who were not ready to undergo CT scan.
- 2. Patients < 15 years and > 45 years of age.
- 3. Pregnant females.
- 4. Patients who were lost to follow up without a definite diagnosis.

## METHODS:

- These patients were scanned using a 64 slice Toshiba Aquilion CT machine.
- Patients were positioned head first & supine.
- Axial CT sections were taken at 1mm intervals with angulation parallel to the IOML (Inferior orbito - meatal line).
- Coronal sections were taken with the patient in prone position with extension of the neck.

## **RESULTS:**

In our study, 50 patients with suspected PNS pathologies were studied. Of which, 30(60%) were male and 20(40%) were female patients.

CT scans were reported as normal in 9 (18%) patients and abnormal findings were seen in 41 patients (82%).

## **TABLE 1: SUMMARY OF CT FINDINGS**

CT FINDINGS	NO OF CASES	PERCENTAGE OF CASES
Sinonasal polyposis	28	56%
Fungal sinusitis	6	12%
Nasopharyngeal angiofibroma	1	2%
Polyps	14	28%
'S shaped Deviated nasal septum	5	10%
Pansinusitis	19	38%
Blockage of Osteomeatal Unit causing mucosal thickening	10	20%
Other findings:		
1. Absent frontal sinus	1	2%

2.	Osteoma in sinus	1	2%
3.	Thinning of nasal turbinate	2	4%
4.	Bony spur with deviated nasal septum	29	58%

#### TABLE 2: BASED ON GENDER

TOTAL NO OF	NO OF MALE	NO OF FEMALE
PATIENTS	PATIENTS (%)	PATIENTS (%)
50	30(60%)	20(40%)

#### CASE FINDINGS:





FIGURE 1: SINONASAL POLYPOSIS



FIGURE 2: FUNGUAL SINUSITIS



FIGURE 3: NASOPHARYNGEAL ANGIOFIRBOMA

# Discussion:

Most patients of PNS pathologies present with symptoms of nasal

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discharge, nasal obstruction, headache and nasal allergy. The patient of Paranasal mass usually presents with facial deformity, swelling or repeated episodes of epistaxis.<sup>4</sup>

Various commonest PNS pathologies are:

1. Acute sinusitis: Acute sinusitis is diagnosed when there is air fluid level and enhancing mucosal thickening.

2. Chronic sinusitis shows decrease in sinus size with sclerosis and thickening of the walls.  $^{\scriptscriptstyle 5}$ 

3. Fungal sinusitis is a chronic form of inflammation which shows complete opacification of sinus, bony erosion, and calcification with involved sinus showing higher attenuation than bacterial sinusitis.

4. Antrochoanal polyp is an inflammatory growth with bone remodeling and sinonasal involvement.

5. Mucocele is an expansile, cystic, hypodense to isodense lesion with bony erosion and intraorbital extension with no contrast enhancement

Other pathologies include: angiofibroma, carcinoma, granulomatous diseases, papilloma, enthesioneuroblastoma and fibrous dysplasia.<sup>4</sup>

In our study, the male: female ratio was found to be 3:2.

28 (56%) cases of sinonasal polyposis, 6 (12%) cases of fungal sinusitis and 19(38%) cases of pan sinusitis were evaluated.

1 (2%) case of nasopharyngeal angiofibroma was also found in our study.

In our study, 5 (10%) cases showed S shaped deviated nasal septum, whereas 9 (18%) cases were reported as normal.

Other associated findings included 1 (2%) case each of absent frontal sinus and osteoma in sinus, thinning of nasal turbinate in 2 (4%) cases and bony spur with deviated nasal septum in 29 (58%) cases.

## **References:**

- Computed tomography of Paranasal sinuses pathologies with functional endoscopic sinus surgery/ nasal endoscopy correction. Kiran Rao. AIJCR Reaseach Article.10.5005/jp-journals-10013-1253; Clinical rhinology: an international journal, January-april2016; 9(1):1-5
- CT of Para nasal sinuses (PNS) A surgeon's view point. IAIM, 2015; 2(11): 39-45. Original Research Article. G. Lakhpati2 1Associate Professor, 2Assistant Professor Department ENT, Govt. Medical College, Nizamabad, Telangana, India
- Plain radiography and imaging of Paranasal sinuses Meher Ursekar Consultant, Departments of CT and MRI, Bombay Hospital and Medical Research Centre, Mumbai 400020. Issue special
- Computed tomography of paranasal sinuses for early and proper diagnosis of nasal and sinus pathology Jagram Verma 1, Sushant Tyagi 1, Mohit Srivastava 2, Aman Agarwal 1. International Journal of Otorhinolaryngology and Head and Neck Surgery. Research Article.
- Computed Tomography Study of Paranasal Sinuses Pathologies; Manjit Bagul Senior Resident, Department of Radio diagnosis, RKDF Medical College, Bhopal, Madhya Pradesh, India; IJSS Original article.