



**ORIGINAL RESEARCH PAPER**

**Radiology**

**ADVANCE OF CT SCAN AS AN IMPORTANT IMAGING TOOL IN EVALUATION OF NASAL POLYPOIDAL MASSES**

**KEY WORDS:** Nasal Polypoidal Masses, Computed Tomography (CT) Scan Imaging, Radiology in Nasal Polypoidal Masses

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**ABSTRACT**

**Introduction:** Nasal polyposis is a relatively common condition found in the general population and in high percentage among some selected group of patients. The polyps are found in patients with aspirin intolerance, asthma, cystic fibrosis and chronic rhinosinusitis. The characteristic radiological changes of nasal polyposis are familiar to ENT surgeons and radiologists and are well demonstrated and characterized on CT.

**Objectives:** To study the CT scan imaging profile of nasal polypoidal lesions and characteristic imaging features of different nasal polypoidal lesions. To study the comparison between CT Scan Imaging diagnostic consistency in Non-neoplastic and neoplastic polypoidal lesions.

**Methods:** Study of 50 patients of all ages and of either sex presenting with nasal polypoidal lesions in the Department of ENT, MGM Medical College and Hospital, Kamothe, Navi Mumbai for a period of 1 year. Plain and contrast enhanced CT sequences of nose, paranasal sinuses, orbit and brain with 3-5mm thin slices of axial and coronal views were obtained on soft tissue and bone window settings

**Results:** Unilateral involvement of sinuses was found in (60%) and bilateral involvement of sinuses was found in (38%) patients. Widening, ballooning or destruction of the osteomeatal complex was revealed in 100% of our patients while evidence of fungal disease with double density sign was present in (10%) patients. Intraorbital extension with destruction of lamina papyracea was found in (6%) and destruction of sinus wall with expansion or thinning was noted in (20%). Extension to the anterior cranial fossa via the cribriform plate and middle cranial fossa via the sphenoid sinus was found in (6%) cases each. Pressure erosion on the septum (4%) cases each.

**INTRODUCTION:**

Nasal polyposis is very common condition found in 1-4% of the general population and in high percentage among some selected group of patients. The polyps are found to be associated with conditions like aspirin intolerance, asthma, cystic fibrosis and chronic rhinosinusitis etc. The characteristic of nasal polyposis seen on radiological imaging are highly varied. These findings include widening and destruction of osteomeatal units, nasal cavity and sinus walls. It can also show extension into orbit, or cranial fossa – anterior and middle or lead to formation of mucocele. Imaging findings of thickened mucosa, soft tissue attenuation in sinus, bone thinning or destruction, presence of calcification are noted.

This study is done to know the CT Imaging profile of nasal polypoidal lesions and to study the characteristic imaging features of different nasal polypoidal lesions.

**AIMS AND OBJECTIVES:**

To study the CT scan imaging profile of nasal polypoidal lesions and characteristic imaging features of different nasal polypoidal lesions.

**MATERIALS AND METHODS:**

The prospective non randomized study was conducted on patients of all ages and of either sex presenting with nasal polypoidal lesions in the Department of ENT, MGM Medical College and Hospital, Kamothe, Navi Mumbai for a period of 1 year. Fifty patients with unilateral or bilateral nasal polypoidal lesions were studied.

Patients included were:

- a. Cases clinically and radiologically diagnosed as having unilateral or bilateral nasal polypoidal lesions
- b. Patients with recurrent nasal polyps
- c. Patients who had developed any complications due to sinonasal pathology

Patients excluded were:

- a. Patients presenting with congenital masses
- b. Patients presenting with nasal mass of intracranial origin

Radiological examination with CT scan (N.C.C.T.), P.N.S. axial, coronal and sagittal sections was done. C.T. scan with contrast was done in cases of recurrences and suspected vascular lesions. Plain and contrast enhanced CT sequences of nose, paranasal sinuses, orbit and brain with 3-5 mm thin slices of axial and coronal views were obtained on soft tissue and bone window settings.

**RESULTS:**

**Radiological Profile of Nasal Polypoidal Lesions**

**Table 1(i): Involvement of Sinuses by Nasal Polypoidal Lesions**

SR.NO	INVOLVEMENT OF SINUS	NO. OF SINUSES	TOTAL
1.	UNILATERAL		
	RIGHT	14	14
	LEFT	11	11
2.	BILATERAL	24	24
3.	NONE	1	1

**Table 1(ii): Unilateral Involvement of different Sinuses by Nasal Polypoidal Lesions**

SR. NO	INVOLVEMENT OF SINUSES	RIGHT	LEFT	TOTAL
	UNILATERAL			
1.	MAXILLARY	14	9	23
2.	FRONTAL	4	4	8
3.	ETHMOID	5	5	10
4.	SPHENOID	3	3	6
	TOTAL	26	21	47

\*Total includes multiple sinuses on unilateral side

**Table 1(iii): Bilateral Involvement of Different Sinuses by Nasal Polypoidal Lesions**

SR.NO	INVOLVEMENT OF SINUSES	TOTAL
	BILATERAL	
1.	MAXILLARY	45
2.	ETHMOID	33

3.	SPHENOID	24
4.	FRONTAL	18
	TOTAL	120

**Table 1(iv): Radiological Findings of Nasal Polypoidal Lesions**

SR. NO	RADIOLOGICAL FINDINGS		NO. OF CASES
1.	OMC	WIDENED	28
		BALLOONED	20
		DESTROYED	02
2.	RADIOLOGICAL SIGNS	PEDICLE SIGNS	9
		DOUBLE DENSITY	5
		GROUND GLASS APPEARANCE	3
3.	INTRAORBITAL EXTENSION WITH EXPANSION OF SINUS		3
4.	SINUS WALL EXPANSION WITH THINNING		5
5.	DESTRUCTION WITH MEDIAL WALL OF MAX SINUS		5
6.	EXTENSION TO ANT CRANIAL FOSSA		3
7.	EXTENSION TO MIDDLE CRANIAL FOSSA		3
8.	PARAPHARYNGEAL/INFRATEMPORAL		2
9.	NASOPHARYNX/OROPHARYNX		3
10.	PRESSURE EFFECT ON SEPTUM		2
11.	DESTRUCTION OF SEPTUM		4
12.	DNS		34
13.	ANATOMICAL VARIANT		5

**DISCUSSION:**

This research focused on to study the CT scan imaging profile of nasal polypoidal lesions and characteristic imaging features of different nasal polypoidal lesions. It showed that out of 50 patients, 50% had unilateral and 48% patients had bilateral involvement of sinuses. Accessory findings thereby deciding the course of management and characterization of diseases like Widening, ballooning or destruction of the osteomeatal complex was revealed in 100% of our patients while evidence of fungal disease with double density sign was seen in 10% patients. Also extensions into orbit, in anterior cranial and middle cranial fossa was thereby studied.

**CONCLUSION:**

This study theu concludes that CT of the nose and paranasal sinuses is still the ideal imaging method and mainstay to investigate nasal and paranasal sinus diseases with a high sensitivity signifying the importance of radiological assessment in all cases of nasal polyposis. Radiology proves to be indispensable in cases of nasal polyps as it provide a road map to the endoscopic surgeon and warns one of any existing or impending complications.

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