

A CLINICOPATHOLOGICAL STUDY OF NASAL POLYPS

Ear, Nose & Throat

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Abstract:

Objectives: This study was done to assess the clinical presentation of various lesions manifesting as nasal and paranasal sinus polyps and to evaluate them by histopathological examination and ascertain their relative prevalence. This aids in their treatment protocol and also helps in the assessment of the prognosis of the individual disease. This study was done during a period of two years in our department.

Materials and Methods: 75 Patients presented with nasal or paranasal sinus polypoidal masses to ENT department, Government General Hospital, Guntur during a period of two years from January 2015 to January 2017. All the patients were thoroughly investigated by complete blood chemistry, urine analysis, x-ray of paranasal sinuses and chest, ECG, Echocardiogram, and CT scan of PNS with or without contrast. They were treated surgically by endoscopic excision, lateral rhinotomy or by radical surgery. All the excised masses were sent for histopathological examination to determine their final diagnosis.

Results: All the 75 patients in our study were treated surgically, mainly by FESS and were analysed. Non-neoplastic masses were commonest [59 cases - 78.67%]. 16 cases proved to be neoplastic [21.33%]. Non-neoplastic masses were found in all age groups whereas neoplastic masses were common in adult and elderly age groups [40 - 70 years]. Both benign and malignant masses were more common in males than females. Nasal obstruction was the commonest and major symptom in all the patients. Ethmoidal sinuses were the commonest sinuses to be affected in our study. Benign lesions were more common than malignant [12:4: 16%: 5.33%].

Conclusion: Polypoid lesions in the nasal cavity and paranasal sinuses may range widely from benign to malignant affecting all the ages. They also differ widely in their histological patterns. Clinically benign looking lesions may reveal their true nature only when subjected to histopathological examination. This not only makes a gross difference in their management but also determines the prognosis of the individual patient. Hence, any excised polypoid lesion from nasal cavity or paranasal sinuses must be subjected to histopathological examination.

Key words: Polyps, FESS, Histopathological examination.

Introduction

Polypoid masses in the nose are quite common in otorhinolaryngological practice. In fact, the most common benign mass in nose is the nasal polyp. Interestingly, this condition affects only humans and chimpanzees. A nasal polyp is simply a physical finding but not a diagnosis by itself because a variety of lesions, ranging from

simple allergic nasal polyp to malignancy can mimic a similar presentation.

The primary symptoms of almost all nasal masses are similar. They commonly present as nasal obstruction or nasal mass. Associated symptoms may be excessive sneezing, rhinorrhoea, headache, post nasal discharge, epistaxis or hyposmia. Only with advanced investigations like

CT or MRI scan [with or without contrast], a presumptive diagnosis can be made with some certainty.

Nasal polyps appear as smooth, shiny, boggy, grey to pink, oedematous mass. But, microscopically, the same oedematous stroma can be covered by metaplastic squamous epithelium associated with an inflammatory reaction which may vary from a benign lesion to a malignant neoplasm. Hence, a careful histopathological examination, with immunohistochemistry at times, is necessary to decide the true nature of the nasal mass.

A 10 year study of 345 cases of polypoidal masses in nose and paranasal sinuses by Dasgupta.A, Ghosh RN and Mukherjee C, in which the incidence of non-neoplastic and neoplastic lesions was almost equal, reiterates the fact that a polypoidal mass in the nose carries a vast differential diagnosis.

The various lesions which may present as a nasal polypoidal mass are listed in Table no. 1.

History

Nasal polyps were described to affect mankind as far back as 1000BC by ancient Indians. Poly-pous, meaning many footed in Greek language, was also noted by Hippocrates [460-370BC] and by other physicians from Arabia. Hippocrates even designed 'Sponge method' of polypectomy to treat the disease.¹ Later, in the middle ages; forceps for removal of polyps was designed. Gabriel Fallopius [1523-1562] developed wire snare for polypectomy. Billroth [1864] described nasal polyps as dynamotous swellings and considered them to be neoplastic. Zuckerkandle considered them as an inflammatory condition. Virchow [1863] described them as myxomata. Lack [1900] supposed that they are inflammatory in origin.²

Killian [1906] classified nasal polyps into different groups based on their origin and first identified Antro-choanal polyp. Hence, it is also known as Killian's polyp. Subsequently, Fairbanks classified them into two groups, as Antro-choanal and Ethmoidal polyps.

Berdal [1959] was the first to differentiate benign and malignant lesions based on histopathological characteristics.³

Samter [1968] identified association between aspirin hypersensitivity, asthma and nasal polyps. This was later termed as Samter's triad. Par Larson and Mirko-Tos confirmed the origin of nasal polyps from nasal mucosa and their relation to sinus ostia.⁴

Ward [1854] identified nasal papilloma.⁵ Later, Billroth and Ringertz noted the invasions of underlying connective tissue in some papillomata. These were termed as Inverted papillomata. Hymns [1920] divided papillomata into Inverted, Fusiform and Cylindrical cell types according to their histology. Resplar determined Human Papilloma Virus as an important aetiological factor.⁶

Chaveauk [1906] described Juvenile Nasopharyngeal Angiofibroma to occur exclusively in adolescent males.⁷ Later, Chelsus [1947], Laguart [1965], Osborn [1965], Girgis [1973] and Ringertz [1978] proposed various theories regarding its origin.⁸

Rhinosporeidiosis was identified by Seeberi [1900] and later by Kinealyi [1903]. Krishnamurthy [1989] was the first to cultivate its spores.⁹

Materials And Methods

Our study was done on 75 patients, who presented themselves to ENT department, GGH, Guntur during a period of two years from January 2015 to January 2017 with nasal or sinonasal polypoidal masses. Of these 75 patients, 43 were males and 32 were females. 5 patients were children aged below 10 years and the rest ranged from 11 to 70 years. 59 cases were non-neoplastic lesions and 16 were neoplastic in nature. Of these 16 cases, 12 were benign lesions and 4 cases were malignant.

Among the non-neoplastic lesions, Ethmoidal polyps amounted to 34, Antro-choanal polyps 22, both ethmoidal and antro-choanal polyps 2 and Fronto-ethmoidal mucocoele 1 [Table No.2].

All the patients were thoroughly examined clinically after taking a detailed history regarding their habits, occupation; onset, progression and duration of illness and other general aspects. Anterior rhinoscopy and Posterior rhinoscopy were done. Diagnostic Nasal Endoscopic was done with 0 degree Nasal Endoscope under 4% lignocaine anaesthesia and the extent of

the nasal mass was determined whenever possible. Investigations like complete blood chemistry including absolute eosinophil count; urine analysis; ECG,; Chest x-ray and 2-D Echocardiogram were done. Plain x-ray of Paranasal sinuses [Water’s view] was taken. CT-Scan [axial and coronal] of Paranasal sinuses, with contrast enhancement whenever necessary, was done in all cases to determine the extent of involvement of various

structures and nature of the disease.

The patients were admitted into our hospital and treated. Most of the patients underwent FESS under local or general anaesthesia. A few required Excision by Lateral rhinotomy or radical surgery. All the excised masses were subjected to histopathological examination.

Table - 1 List of Lesions presenting as nasal polypoidal mass

Non-Neoplastic	Congenital	Dermoid Glioma Meningocele Encephalocele		
	Acquired	Ethmoidal Polyp Antrochoanal Polyp		
		Chronic Granulomas	Specific	Rhinosporidiosis Aspergillosis Mucormycosis
			Fungal	Rhinoscleroma Tuberculosis
		Epithelial	Papilloma	Squamous Papilloma Inverted Papilloma
	Adenoma		Pleomorphic Adenoma	
Neoplastic	Benign	Mesenchymal	Vascular	Hemangioma Angiofibroma
			Pyogenic Granuloma Fibroma	
		Neurectodermal	Meningioma Schwannoma Paraganglioma	
	Malignant	Epithelial	Squamous Cell Carcinoma Adenocarcinoma Anaplastic Carcinoma Transitional Cell Carcinoma Esthesio Neuroblastoma	
		Mesenchymal	Rhabdomyosarcoma Angiosarcoma Fibrosarcoma Malignant Melanoma	

Results And Observation

The presenting symptoms of majority of these 75 patients were nasal obstruction, excessive sneezing, rhinorrhoea and nasal mass. Post-nasal discharge, headache [mainly in orbital or frontal region], and hyposmia were the next frequent symptoms. Epistaxis occurred in a few patients. 43 patients were males and 32 were females. 5 patients

were children aged below 10 years, 8 were aged between 11 to 20 years, and the rest between 21 to 70 years, with maximum numbers between 21 to 50 years of age [Table No.3]. Neoplastic lesions presented predominantly with nasal obstruction and nasal mass. Other symptoms were epistaxis, hyposmia, rhinorrhoea, headache and post-nasal discharge. Three angiofibroma cases which affected adolescent males presented with recurrent episodes of

epistaxis, nasal obstruction and snoring. All the patients were investigated thoroughly, admitted to hospital and treated, mainly by surgery. FESS was done in the majority of patients. Angiofibromata were excised by Lateral rhinotomy and medial maxillectomy aided by nasal endoscope. Inverted papilloma cases also required radical excision by lateral rhinotomy. Endoscopic biopsy was done for cases of maxillary carcinoma.

All the excised tissues from these cases were sent for histopathological examination. Squamous cell carcinoma accounted for 3 cases. One case was Adenoid cystic carcinoma. It was referred for combined radiotherapy and chemotherapy.

Discussion

All the patients presented with a polypoidal mass in the nose and/or paranasal sinuses and nasal obstruction. Other symptoms were excessive sneezing, postnasal discharge, headache, hyposmia and epistaxis. Of the 75 patients, 43 were males and 32 females, showing that males are more commonly affected than females. This was observed for both non-neoplastic and neoplastic lesions [Table No.4]. All ages were affected from childhood [6 years] to 70 years but there is a peak period in the 21 to 50 years aged patients. The 5 children who were affected by antro-choanal polyps were below 10 years of age. Ethmoidal polyposis was the most common disease affecting 34 patients, followed by antro-choanal polyps in 22. Both were present in 2 cases. 1 case was frontoethmoidal mucocoele. 3 cases were nasopharyngeal angiofibromata and 5 were of inverted papilloma. Carcinoma of Maxilla was found in 4 cases.

Table no - 2 Various lesions encountered in our study

Type of lesion	Number of patients
Ethmoidal polyps	34
Antro-choanal polyps	22
Both ethmoidal and antro-choanal polyps	2
Frontoethmoidal mucocoele	1
Angiofibroma	3
Haemangioma	5
Inverted papilloma	4
Carcinoma of Maxilla	4

Table no - 3 Age distribution in our series

Age group	Number of patients
0 to 10 years	5
11 to 20 years	10
21 to 30 years	14
31 to 40 years	11
41 to 50 years	14
51 to 60 years	13
61 to 70 years	8

Table no - 4 Gender distribution in our series

Types of lesion	Number of males	Number of females
Non-neoplastic	36 [61%]	23 [39%]
Neoplastic	12 [75%]	4 [25%]

Histopathological findings were found to vary from the clinical diagnosis in some of the cases. Eosinophils predominated followed by lymphocytes, plasma cells, macrophages and neutrophils in cases of ethmoidal polyps, whereas lymphocytes were predominant in antro-choanal polyps.

Among the neoplastic cases, 12 were benign and 4 were malignant. Of the benign cases, 3 cases were nasopharyngeal angiofibroma, 5 were haemangioma [bleeding polypus of septum] and 4 were inverted papilloma. Of the malignant cases, squamous cell carcinoma was seen in 3 cases and 1 was a case of adenoid cystic carcinoma.





Pre-operative and intra-operative photos of few patients



Conclusion

From our case series, it is evident that polypoidal masses in the nasal cavity and paranasal sinuses form a wide spectrum of lesions ranging from simple non-neoplastic lesions to benign or malignant neoplasms. These lesions affect different age groups and also have different histopathologic

findings. They may be due to a variety of etiologies like allergy, infections, antigenetically stimulating, traumatic and possibly many other yet to be identified causes. These may include formation of polyps resembling tumours or may be truly neoplastic. It is quite impossible to distinguish between such lesions clinically. Hence, it is essential that all polypoidal masses excised from the nose and paranasal sinuses during surgery must be thoroughly evaluated by histopathology to avoid a misdiagnosis. It is also preferable to describe any such lesion as a sign but not as the final diagnosis. The cost of the histopathological examination clearly outweighs the suffering of the patient in terms of treatment and prognosis in the event of any faulty diagnosis. Taking into account the medicolegal implications, trauma and financial aspects which might be incurred in case of deceptive diseases, all polypoidal masses excised from the nose and paranasal sinuses justify histopathological examination.

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