ORIGINAL RESEARCH PAPER

Otolaryngology

MASSES OF NASAL CAVITY, PARANASAL SINUSES AND NASOPHARYNX: A CLINICO-PATHOLOGICAL STUDY

KEY WORDS: Nasal Masses

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ABSTRACT

This is a prospective study of 100 cases of patients presenting with a mass in the nasal cavity, paranasal sinuses and nasopharynx , within the age group 12-80 years of age, (2014-2016),such as...'over a period of 2 years(2014-2016),in MGM Hospital,Navi Mumbai.. From these 100 cases, there were 77 cases of non-neoplastic lesions,16 cases of benign lesions and 7 cases of malignant lesions. The male to female ratio was 2.2:1 for non-neoplastic lesions,1.6:1 for benign lesions and 1.3:1 for malignant lesions. Most of the cases involve the nasal cavity (79%), followed by PNS (14%) and least number of cases involve the nasopharynx (7%). The mean age of presentation for non- neoplastic lesions was 35.45 years ,benign lesions was 39.25 years and malignant lesions was 55.29 years. These various masses have overlapping clinical and radiological features. In order to make a definitive diagnosis, a histopathological examination is required.

INTRODUCTION

There are a variety of neoplastic and non-neoplastic masses of the nasal cavity, paranasal sinuses and nasopharynx and these are commonly encountered in clinical practice. A neoplasm is a new growth and these neoplastic cells are said to be transformed because they continue to replicate, apparently oblivious to the regulatory influences that control normal cell growth[1]. Neoplasms therefore enjoy a certain degree of autonomy and tend to increase in size regardless of their local environment. Their autonomy is by no means complete, however. All neoplasms depend on the host for their nutrition and blood supply. Neoplasms or tumours are divided into benign and malignant categories based on a judgment of a tumour's potential clinical behavior[1]. A tumour is said to be benign when its microscopic and gross characteristics are considered to be relatively innocent, implying that it will remain localized and is amenable to local surgical removal. Examples of benign neoplasms include nasopharyngeal angiofibroma and inverted papilloma. Malignant, as applied to a neoplasm, implies that the lesion can invade and destroy adjacent structures and spread to distant sites (metastasize) to cause death. Examples of malignant neoplasms include squamous cell carcinoma and adenocarcinoma. Non-neoplastic cell growth may appear tumour-like. There are 3 general types: Hyperplasia -increase in cell number without structural/functional alteration[2]. Metaplasia - increase in cell number but one type of mature/differentiated cell is substituted for another i.e. no devolvement and no immature cellularity[3].Dysplasia -cell growth in which cell uniformity is lost and polymorphism is exhibited[4]. Both neoplastic and non-neoplastic lesions present with similar symptomatology such as nasal obstruction, nasal discharge, headaches, sneezing, epistaxis to name a few.

In this study we will do a clinical assessment, a diagnostic nasal endoscopy and a CT which will provide a presumptive diagnosis. The patients in this study have been operated on and the mass in question has been excised and sent for histopathological examination, thereby confirming a diagnosis. This study allows us to analyse as well offers a better understanding of the various clinico-pathological features of cases presenting as a mass in the nasal cavity, paranasal sinus and nasopharynx.

AIMS AND OBJECTIVES

1. To study the incidence of neoplastic and non-neoplastic lesions of the nasal cavity, nasopharynx and the para-nasal sinuses.
2. To study the incidence of benign and malignant lesions.
3. To compare the findings to other/previous studies.

MATERIAL AND METHODS

This is a prospective study conducted in the department of ENT at MGM Hospital, Navi Mumbai, for a period of 2 years. Demographic data regarding age, sex, chief complaints, clinical examination and radiological investigations were obtained from histopathology and IPD records. After a clinical assessment of the patient, a diagnostic nasal endoscopy and CT, a provisional diagnosis was made. Surgery was planned for each patient and the excised mass was sent for histopathological examination, thus confirming a diagnosis.

The inclusion criteria for selection of cases were patients with masses in nasal cavity, paranasal sinuses and nasopharynx, aged 12-80 years. The exclusion criteria involves patients with adenoids, rhinoliths and intracranial lesions with nasal extension. All the received biopsies were fixed in 10% buffered formalin and sent for HPE.

RESULTS

Histopathological examination of a total of 100 cases presenting as a mass in NC, PNS and NP revealed non –neoplastic lesions constituted 77 cases and neoplastic constituted 23 cases. Among the neoplastic cases,16 cases were benign and 7 cases were malignant. The incidence rate of benign lesions is 1.6 and malignant is 0.7. Most common presenting complaint was nasal obstruction (84%).

			SITE			Total
			Nasophraynx	Nasal cavity	PNS	
Type of lesion	benign	Count	3	12	1	16
		% within SITE	42.9%	15.2%	7.1%	16.0%
	Malignant	Count	2	1	4	7
		% within SITE	28.6%	1.3%	28.6%	7.0%
	Non neoplastic	Count	2	66	9	77
		% within SITE	28.6%	83.5%	64.3%	77.0%
Total		Count	7	79	14	100
		% within SITE	100.0%	100.0%	100.0%	100.0%

HPE Results:		Frequency
	Adenocarcinoma	1
	Allergic Polyp	41
	Angiofibroma	5
	Cutaneous Lymphoid Hyperplasia.	1
	Fungiform papilloma	1
	Hemangioma	3
	Inflammatory polyp	33
	Inverted papilloma	6
	Fungal hyphae seen	1
	Rhinoscleroma	1

	Rhinosporidiosis	1
	SSC Left Maxillary Sinus.	5
	Transitional cell carcinoma in situ	1
	Total	100

NON-NEOPLASTIC LESIONS-

Non-neoplastic lesions formed 77% of the total cases of NC, PNS and NP. Nasal polyps were the commonest type of lesion encountered in this group with 74 cases, followed by rhinoscleroma- 1 case. Other lesions include rhinosporidiosis. The lesions have a vast range of age of presentation. The mean age of presentation of tumour-like lesions was 35.45 years. It was seen that males were more prone to affiliations of NC, PNS and NP by non-neoplastic lesions, with male to female ratio (M:F) being 2.2:1 .Of all the non-neoplastic lesions, 66 cases presented as mass in nasal cavity,9 cases presented as mass in paranasal sinuses and 2 cases in the nasopharynx.

NEOPLASTIC LESIONS-

A total of 23 cases of which 16 were benign and 7 were malignant. Of 56 cases of benign tumours the commonest was of inverted papilloma, constituting 6 cases; followed by angiofibroma (5 cases). Capillary hemangioma and Cutaneous Lymphoid Hyperplasia were other benign cases. The age of presentation of individual tumours was variable and the mean age of presentation in our study was 39.35 years. The M:F ratio was found to be 1.6:1.
The study included 7 malignant cases and the most common lesion was squamous cell carcinoma- 5 cases, followed by nasopharyngeal carcinoma -10 cases (25%). The other malignant lesions that involved the region were adenocarcinoma and transitional cell carcinoma in situ. The mean age of presentation was 55.29 years which was 2 decades older than the mean age of the benign lesions. Males showed stronger predilection than females with male to female ratio being 1.3:1. Out of the total 7 cases,4 presented in the paranasal sinuses.

DISCUSSION

The relative incidence of the lesions of NC, PNS and NP was 34.3 cases per year. The term 'relative incidence' shows hospital incidence rather than the incidence in general population. The incidence reported by Khan et al[5] and Anjali et al[6] was 34.3 and 34.5 per year respectively. In our study 77% lesions were non-neoplastic, which is more or less similar to those of Dinesh et all[6] who did a similar study and according to their observations 73.6 % were non-neoplastic.

NON-NEOPLASTIC LESIONS:

Nasal polyp was the most common lesion observed in this present study, constituting 74 % of all non-neoplastic lesions. The majority (79%) of polyps were present in nasal cavity and only 14 % involved sinuses. The age of presentation ranged from the very young to adults but the peak was seen in second and third decade of life which is similar to the findings of Khan et al[5].The sex ratio in our study was 2.2:1; very close to study by Dinesh et al[7].The patients had a long history of allergic rhinitis and the presenting features were nasal obstruction and sinusitis. The study included 1 case of rhinoscleroma, which was 1.2% of all the non-neoplastic lesions of NC, PNS, and NP. The patients presented with profuse foul-smelling nasal discharge, in accordance with findings by William et al [8]. Microscopically the predominant cells were foamy histiocytes (mikulicz cells) and plasma cells . There was rare case of a skin lesion, Cutaneous Lymphoid Hyperplasia which presented as a midline forehead swelling which extended into the left frontal sinus[9].

BENIGN NEOPLASTIC LESIONS:

The commonest benign tumour in our study was inverted papilloma and it accounted for 26.0 % (6 cases) of all the benign lesions in this region. The peak age of presentation was fifth decade of life , similar to findings of Anjali et al[6]. Microscopy revealed proliferating columnar or squamous epithelium with an admixture of mucin secreting cells. Nasopharyngeal angiofibroma was the second most common benign lesion studied. It constituted 21.7 % (5 cases) of all the benign lesions of NC, PNS and NP. All the cases were located in NP with profuse and recurrent epistaxis from the polypoidal mass as the chief complaints. Similar features were reported by other authors. Microscopic features showed an intricate mixture of blood and stroma. The stroma varied from loose edematous to dense. The vessels ranged from capillary sized to venous size .

MALIGNANT LESIONS:

Squamous cell carcinoma was the most common malignancy observed in the study and it constituted 15.5% (5 cases) of all the malignant and 5% of all the lesions of NC, PNS and NP. Majority of the patients were in sixth or seventh decade of life and M:F ratio was 1.3:1, almost similar to the finding of Barnes et Al[10]. The presenting complaints were similar to those described by Lewis[11], with nasal obstruction, rhinorrhoea, epistaxis and pain as chief complaints in malignancy of nasal cavity while additional symptoms of chronic sinusitis were seen in antral malignancy.

CONCLUSION

The clinical and radiological features of masses of NC, PNS and NP are overlapping and often, only a provisional diagnosis is possible. Definitive diagnosis requires histopathological examination. It is evident that the various masses in the nasal cavity and sinuses form a complex of lesions ranging from non –neoplastic inflammatory lesions to benign and malignant neoplasms with a spectrum of histological findings and these affect all ages.

REFERENCES

1. Robins and Cotran Basic Pathology,9th Edition,Characteristics of Benign and Malignant Neoplasms.Elsevier,14 July 2014.162 p.
2. Robins and Cotran Basic Pathology,9th Edition,Cell injury,cell death and adaptation. Elsevier,14 July 2014.4 p
3. Robins and Cotran Basic Pathology,9th Edition,Cell injury,cell death and adaptation, Elsevier,14 July 2014.5 p
4. Robins and Cotran Basic Pathology,9th Edition,Characteristics of Benign and Malignant Neoplasms, Elsevier,14 July 2014.165 p
5. N.Khan, S.S.Ahmed, S.A.Hasan;Masses in the NC,PNS and nasopharynx. A clinicpathological study;IJO and Head &Neck Surgery Vol 58,No 3,July-September 2006.
6. Anjali Das Gupta, Ghosh RN and Mukherjee Chhanda(1997): Nasal Polyps-Histopathologic spectrum. Indian Journal Otolaryngology and head and neck surgery 49;32-36 p.
7. Dinesh Garg; Clinico-pathological study of space occupying lesions of nasal cavity,PNS and nasopharynx, Journal of Clinical and Diagnostic Research. 2014 Nov, Vol-8(11): FC04-FC07
8. William HL. (1973): Head and neck Otolaryngology. Edited by Paprella MM, Shumrick DA, Saunders WB, 27-28 p.
9. Cassandra Carvalho; Frontal sinus involvement of Cutaneous Lymphoid Hyperplasia- A rare case report; IOSR Journal of Dental and Medical Sciences (IOSR-JDMS) Volume 15, Issue 10 Ver. VIII (October. 2016), 28-30 p.
10. Barnes L and Bedetti C. (1984): Oncocytic schneiderian papilloma. A reappraisal of cylindrical cell papilloma of sinonasal tract. Human Pathology 15; 344-351 p.
11. Lewis JS and Castro EB. (1972): Cancer of the nasal cavity and paranasal sinuses. J Laryngol otol 86; 255-262 p.