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Histopathological study of polypoidal lesions of the nasal cavity - A cross sectional study

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Abstract: *Background & Objectives:* Lesions of nasal cavity present difficulty in their diagnosis, prognosis and management because of unusual clinicopathological features. This study was done to evaluate the nasal polyps with regard to age, sex distribution and histologic types. *Methods:* The present study included 70 polypoidal lesions of the nasal cavity. The study period constituted from January 2003 to December 2006. All the tissues were fixed in 10% formalin, processed stained with H & E and studied for various histopathological features. *Results:* Simple polyps accounted for 88.57% of total cases and neoplastic polyps accounted for 11.42%. Of the simple polyps non allergic polyps accounted for 58.06% and allergic polyps for 41.93%.Seventy five percent of neoplastic polyps were benign and 25% were malignant. All the malignant polyps in the study were squamous cell carcinomas. *Interpretation & Conclusion:* The majority of the nasal polyps sent for histology are simple polyps. A variety of benign and malignant lesions of the nasal cavity may present as polyps, hence all polyps need histological examination.

Keywords: Polypoidal lesions nasal cavity, Histopathology (Rhinosporidiosis, Rhinoscleroma, Inverted Papilloma, Angiofibroma, Neurilemmoma, Squamous Cell Carcinoma).

Introduction

Nasal polyps are defined as prolapsed lining of the nasal sinuses. They are essentially rounded projections of edematous membrane [1]. They are often bilateral & multiple which lead to visible broadening of nose [2]. The commonest site of origin is in the ethmoidal labyrinths, particularly from the mucosa of middle turbinate [3]. Nasal polyps most frequently occur in middle aged males.M;F ratio is 3;1 [2]. Lesions of nasal cavity, nasopharynx and paranasal sinuses provide problem in their diagnosis, prognosis and management because of certain unusual clinicopathological features [4]. The nasal cavity is the site of the greatest variety of tumors in the upper respiratory tract. The symptoms of tumors of nose and paranasal sinuses often masquerade as chronic inflammatory condition. Even though these malignant neoplasms have extremely low incidence, they have a long clinical history with frequent local recurrence and they cause relatively great amount of morbidity [4]. In nasal cavity, tumors of various type have a tendency to become polypoid. Thus an epithelial papilloma of the nasal cavity often resembles a nasal polyp. Some lesions are specific to certain location, for e.g., epithelial papilloma of turbinate, juvenile angiofibroma of nasopharynx. Thus the study was undertaken to study the histopathology & classify the lesions of nasal cavity & to study the relative distribution of various lesions with regard to age & sex.

Material and Methods

Source of Data: All the cases which presented as polypoidal lesions in the nasal cavity from January 2003 to December 2006 were included in this study.

Method of Collection of Data: A total number of 70 cases of polypoidal lesions of the nasal cavity were studied. All the tissues were fixed in 10% formalin, processed and embedded in paraffin. Sections of 3-4 μm thick were cut, and stained with Haematoxylin and Eosin (H & E). Special stains like Periodic Acid Schiff and Giemsa were done wherever necessary. Histologically the polyps were classified into simple (non neoplstic) polyps and neoplastic polyps. Simple polyps were further subdivided as allergic and non allergic polyps. The non allergic polyps were further classified into non

specific and specific polyps (Rhinosporidiosis, Rhinoscleroma, Mucor mycosis). Neoplastic polyps were divided as benign (Inverted Papilloma, Neurilemmoma Angiofibroma) and malignant polypoidal lesions (Squamous Cell Carcinoma).

Results

The present study included 70 cases of polypoidal lesions of the nasal cavity. Of these 62 (88.57%) were non neoplastic (simple polyps) and 8 (11.42%) were of neoplastic origin. Out of 8 cases of neoplastic polyps, 6 (75%) were benign and 2 (25%) were malignant polypoidal lesions. The simple polyps included 26 cases (41.93%) of allergic polyps and 36 cases (58.06%) of non allergic polyps. The non-allergic polyps were further classified as nonspecific polyps 15 cases (41.66%) and specific polyps 21 cases (58.33%). These specific polyps included included 9 cases (14.5%) of rhinosporiodiosis, 10 cases (16.2%) of rhinoscleroma and 2 cases (3.22%) of mucor mycosis (figure1). Benign neoplastic polyps were classified into inverted papilloma, 3 cases (4.28%), neurilemmoma 1 case (figure2) (1.42%) and 2 cases (2.85%) of angiofibroma (figure3).

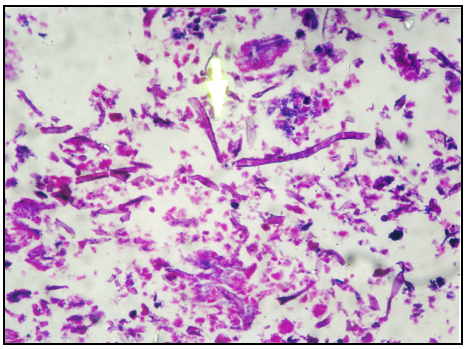

Fig-1: *Mucor Mycosis*-Arrow showing broad, thin, non-septate Hyphae (H & E x40).

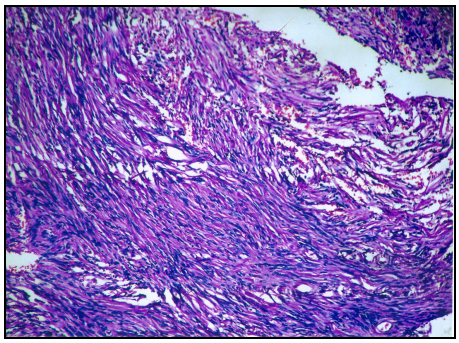

Fig-2: *Neurilemmoma:* Showing spindle shaped cells in wavy bundles. Thin walled vascular spaces are seen in between spindle cells (H & E x 10).

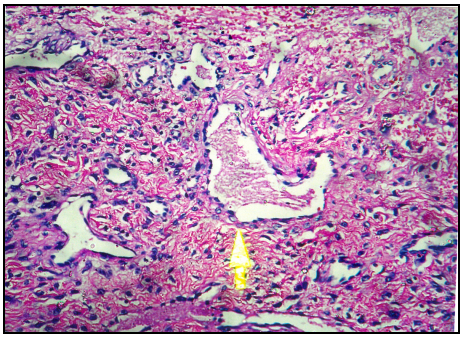

Fig-3: *Angiofibroma:* Showing vascular channel lined by prominent endothelial cells and surrounded by fibrous stroma (H & E x20).

Two cases (14.28%) of squamous cell carcinoma presented as polypoidal masses. The patients presented with history of nasal blockage, rhinorrhoea and sneezing. Partial loss of sense of smell and alterations in taste were associated complaints in 20% of the cases. Grossly polyps were smooth, soft, shiny with a myxoid or mucoid appearance, usually bluish grey in colour and occasionally traversed superificially by fine, ramifying blood vessels. The age & sex distribution of nasal polyps is as shown in table 1&2.

Table-1: Distribution of different histological type of lesions in different age groups

Age	*Simple (Non Neoplastic) Polyps*					Neoplastic Polyps			
	Allergic	Non-Allergic				Benign			Malignant
		Non Specific	Rhino-sporidiosis	Rhino-scleroma	Mucor Mycosis	Inverted Papilloma	Neuri - lemmoma	Angiofib-roma	Squamous Cell Carcinoma
0-10	-	-	1	-	-	-	-	-	-
11-20	5	5	4	-	-	-	1	-	-
21-30	-	3	3	1	-	-	-	2	-
31-40	5	-	-	4	-	1	-	-	-
41-50	10	3	1	2	1	0	-	-	-
51-60	3	2	-	2	-	2	-	-	1
61-70	3	2	-	1	1	-	-	-	1

Table-2: Type of Lesions				
Simple Polyps (Non Neoplastic)				
Sl No	**Type lesion**	**Total No of cases (%)**	**Male**	**Female**
01	Allergic polyps	26 (41.93)	20 (76.92)	06 (23.07)
02	Non allergic polyps	36 (58.06)	20 (55.5)	16 (44.4)
Neoplastic Polyps				
01	Inverted papilloma	03 (4.28)	3 (100)	-
02	Neurilemmoma	01 (1.4)	-	01 (100)
03	Angiofibroma	02 (2.85)	01 (50)	01 (50)
04	Squamous cell carcinoma	02 (2.85)	01 (50)	01 (50)
Non Allergic Polyps (Specific)				
01	Rhinosporidiosis	09 (12.85)	07 (77.7)	02 (22.2)
02	Rhinoscleroma	10 (14.28)	05 (50)	05 (50)
03	Mucormycosis	02 (2.85)	01 (50)	01 (50)

Discussion

The present histopathological study included 70 polypoidal lesions of the nasal cavity, encountered during the period of 4 years. In our study simple polyps (non-neoplastic) (88.75%) formed the largest group of polypoidal lesions, followed by neoplastic polyps (11.12%). These findings were consistent with the observations made in other studies [5]. The non-neoplastic polyps were more common in males than in females. In another study similar findings were observed [6]. In the present study, the age of the patients having allergic polyps, ranged from 11-70 years, with more number of cases occurring in 5th decade of life. Similar observations were made in other study, where the age range was 16 to 75 years with mean age of 46.7 years [6]. The histopathological findings of these lesions correlated with the findings in other studies [7-8]. The age of the patients having non allergic polyps, ranged from 11-70 years with peak incidence between 2nd-4th decade of life [9-11]. The histopathologic findings of non allergic polyps were similar to that observed in other studies. However a different study reported neutrophils in 30% of their cases [8]. In our study giant cell reaction was observed in 22.2% cases of rhinosporidioses, where as in another study giant cells were seen in 47% of the cases [10].

The histopathological findings of Rhinoscleroma, were consistent with the findings in other studies [11]. We had 2(3.22%) cases of mucor mycosis and findings were similar to that observed in another study [12]. The neoplastic polyps were common in males than in females. Similar findings were observed in one more study, where males accounted for 61.11% and females 38.88% [4]. We had 3 cases of inverted papilloma and all the lesions showed endophytic pattern of growth. Another study noted similar findings in their study [5]. Neurilemmoma arising in the nasal cavity are rare. We encountered one case (1.42%) of neurilemmoma, in a female aged 20 years. A different study found neurilemmoma in less than 4% of cases [13-14]. Histology revealed uniform spindle cells arranged in loose stroma (Antoni B.) Nuclei were arranged in a palisaded pattern (Verocay body). Similar observations were made by another study [15].

There were 2 cases (2.85%) of angiofibroma in a male aged 24 years and a female of 26 years. One more study found angiofibroma in 3.31% cases [5]. A different study found that males in the age group of 10 to 23 years were predominantly affected [16]. We had 2 cases (2.85%) of squamous cell carcinoma seen in male aged 55 years and a female of 60 years. Another study also found squamous cell carcinoma occurring in 2% of cases [1]. One more study found that females in the age group of 42 to 76 years were predominantly affected [17]. The histopathological findings correlated with findings of other study [17].

Conclusion

Although the majority of nasal polyps sent for histopathology are inflammatory, secondary to infection or allergy, a variety of of benign and malignant lesions of nose may present as polypoidal masses, hence all polyps need histopathological examination.

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