

Original Research Article

Histopathological study of nasal lesions: 2 years study

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ABSTRACT

Background: Majority of the nasal lesions are polypoid. It is difficult to comment upon the nature of the nasal lesion whether neoplastic or non-neoplastic. Hence histopathological examination is essential for both ENT surgeons as well as pathologists. Aim to study the incidence of different nasal lesion. Also, to find out frequency of inflammatory, benign and malignant conditions of nasal lesions and to compare various histopathological lesions of nasal mass in relation to age, sex and site distribution.

Methods: The present study was undertaken in histopathology laboratory of Department of Pathology, P.D.U. medical college and hospital, Rajkot for period of 2 years from October 2013 to September 2015. A histopathological study of total 100 cases of nasal lesions was done. Tissue were processed and studied.

Results: Out of 100 cases, 59 were males and 41 were females. Male to Female ratio was 1.44:1. Maximum numbers of nasal lesions were detected in age group of 11-20 years with 24 (24.00%) cases. Out of these 100 cases, 80 (80.00%) were non neoplastic and 20 (20.00%) were of neoplastic origin. In neoplastic lesions, 12(12.00%) were benign, 1 (1.00%) was borderline and 7 (7.00%) were malignant nasal lesions. Non neoplastic lesions were composed of the majority of cases followed by benign neoplastic lesions.

Conclusions: Most of malignant neoplastic lesions were occurs after 40 years of age. Incidence of malignant neoplastic lesions was increase with advanced age.

Keywords: Histopathology, Nasal mass, Nasal polyps, Nasal cavity

INTRODUCTION

The nasal cavity, nasopharynx and paranasal sinuses form functional unit of nose.¹ It is principally involved in filtering, humidifying and adjusting the temperature of inspired air.² As the nose occupies a prominent anatomical position on the face, early diagnosis and treatment of any scarring or ulcerative lesion is imperative.³

Polypoidal mass in the nose is a very common lesion encountered in clinical practice. It may be due to the most frequently occurring simple nasal polyp or polypoidal lesions due to a variety of other pathologic entity ranging

from infective diseases to polypoid neoplasm including malignant ones.⁴

Tumors of nose are usually uncommon. Malignant tumors account for 0.2% to 0.8% of total malignancies and only 3% of all malignant tumors of upper aerodigestive tract.⁵

The nose is fertile fields for study of neoplastic disease.⁶ Every type of tumor can occur in this area so it is essential to know the pathology of tumors in general. The presenting features, symptomatology and advanced imaging technique help to reach a presumptive diagnosis but histopathological examination remains the mainstay of final definitive diagnosis.

METHODS

The present study was undertaken in histopathology laboratory of Department of Pathology, P. D. U. medical college and hospital, Rajkot.

All the patients had nasal lesions, attending P. D. U. hospital will be studied in the duration of October 2013 to September 2015. Most of the patients' specimens for Histopathological study in our institute came from ENT department mainly. A histopathological study of total 100 cases of nasal lesions was done. Tissue were processed and studied.

For Histopathological examination, the specimens were received in 10% formalin. The received specimens have been fixed in 10% formalin and kept overnight. After passing the tissue dehydration in graded alcohol for 6 hours each in three changes, clearing is done with two changes of xylene for hour each. Followed by this, impregnation and embedding in paraffin were done, blocks were prepared and 5µ sections were cut.

Then, the sections were stained with haematoxylin and eosin, dried and mounted in DPX and then microscopy was done. Special stain like Periodic Acid Schiff was used whenever required. The relevant clinical details and laboratory investigations were collected from the hospital case sheet.

RESULTS

The present study was conducted from October 2013 to September 2015 in Department of Pathology, P. D. U. Medical College and Hospital-Rajkot, with following observation in 100 cases of nasal lesions on histopathology.

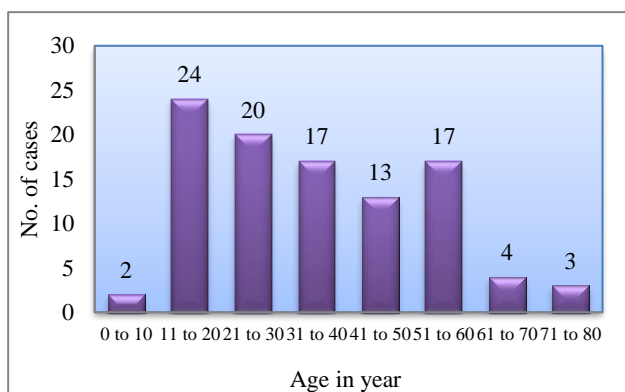


Figure 1: Distribution of nasal lesions according to age.

In the present study age of the patient ranged from 0-80 years. Maximum number of cases 24 (24.00%) were seen in the age group 11-20 years followed by 20 (20.00%) in 21-30 years age group (Figure 1).

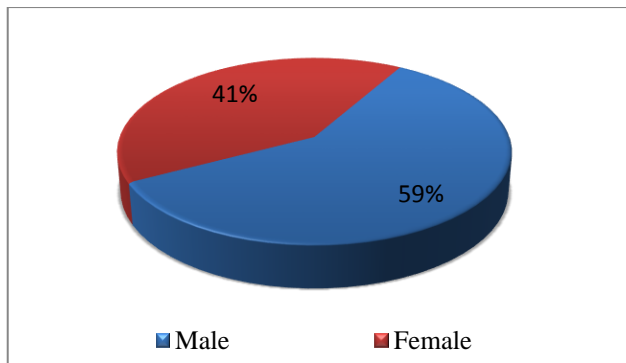


Figure 2: Distribution of nasal lesions according to gender.

A male predominance was seen in the present study consisting of 100 cases, with 59 (59.00%) being males and 41 (41.00%) being females. Male to female ratio was 1.44:1 (Figure 2).

In the present study out of 100 cases, 84 (84.00%) were arising from the nasal cavities, 08 (08.00%) from the paranasal sinuses, 06 (06.00%) from external nose and 02 (2.00%) from nasal septum (Table 1).

Table 1: Sites involved by nasal lesions.

| Sites | No. of cases | Percentage (%) |
|-------------------|--------------|----------------|
| External nose | 06 | 06 |
| Nasal cavity | 84 | 84 |
| Nasal septum | 02 | 02 |
| Paranasal sinuses | 08 | 08 |
| Total | 100 | 100 |

The present study was included total 100 cases of nasal lesions. Out of these, 80 (80.00%) were non neoplastic and 20 (20.00%) were of neoplastic origin. Out of 20 (20.00%) cases of neoplastic lesions, 12(12.00%) were benign, 01(1.00%) borderline and 7 (07.00%) were malignant nasal lesions. Non neoplastic lesions were composed of the majority of cases followed by benign neoplastic lesions (Figure 3).

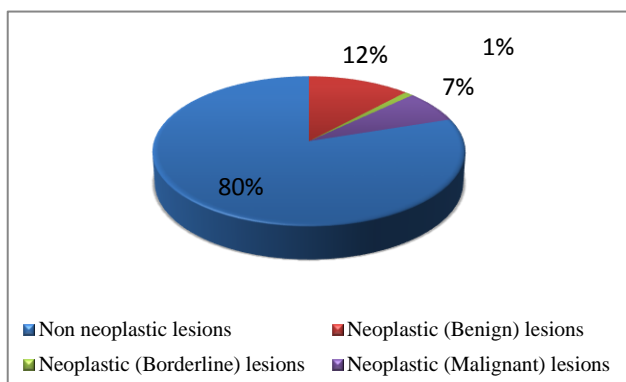


Figure 3: Type of nasal lesions.

Present study showed predominance of non neoplastic nasal lesions over other benign and malignant nasal

lesions. A male predominance was seen both neoplastic and non neoplastic nasal lesions (Table 2).

Table 2: Distribution of various nasal lesions in males and females.

| Histopathological diagnosis | No. of cases | Gender | | Percentage (%) |
|----------------------------------------------|--------------|--------|--------|----------------|
| | | Male | Female | |
| Non neoplastic nasal lesions | 80 | 47 | 33 | 80 |
| Polyps | 74 | 43 | 31 | 74 |
| Mucormycosis | 03 | 02 | 01 | 03 |
| Rhinophyma | 02 | 02 | 00 | 02 |
| Jessner lymphocytic infiltration | 01 | 00 | 01 | 01 |
| Neoplastic (Benign) nasal lesions | 12 | 07 | 05 | 12 |
| Inverted papilloma | 03 | 02 | 01 | 03 |
| Hemangioma | 03 | 01 | 02 | 03 |
| Angiofibroma | 03 | 03 | 00 | 03 |
| Ossifying fibroma | 02 | 01 | 01 | 02 |
| Benign adnexal tumor | 01 | 00 | 01 | 01 |
| Neoplastic (Borderline) nasal lesions | 01 | 00 | 01 | 01 |
| Hemangiopericytoma | 01 | 00 | 01 | 01 |
| Neoplastic (Malignant) nasal lesions | 07 | 05 | 02 | 07 |
| SCC | 02 | 01 | 01 | 02 |
| BCC | 03 | 02 | 01 | 03 |
| Basosquamous carcinoma | 01 | 01 | 00 | 01 |
| NHL | 01 | 01 | 00 | 01 |

Table 3: Distribution of nasal lesions in the various age groups.

| Histopathological diagnosis | Age in years | | | | | | | | Total |
|----------------------------------------------|--------------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 0-10 | 11-20 | 21-30 | 31-40 | 41-50 | 51-60 | 61-70 | 71-80 | |
| Non neoplastic nasal lesions | | | | | | | | | |
| Polyps | 02 | 18 | 16 | 15 | 10 | 12 | 01 | 00 | 74 |
| Mucormycosis | 00 | 01 | 00 | 00 | 00 | 02 | 00 | 00 | 03 |
| Rhinophyma | - | - | - | - | 01 | - | 01 | - | 02 |
| Jessner lymphocytic infiltration | - | - | - | - | - | - | 01 | - | 01 |
| Neoplastic (Benign) nasal lesions | | | | | | | | | |
| Inverted papilloma | - | - | 01 | - | 01 | 01 | - | - | 03 |
| Hemangioma | - | - | 01 | 01 | - | - | - | 01 | 03 |
| Angiofibroma | - | 03 | - | - | - | - | - | - | 03 |
| Ossifying fibroma | - | 01 | 01 | - | - | - | - | - | 02 |
| Benign adnexal tumor | - | - | - | 01 | - | - | - | - | 01 |
| Neoplastic (Borderline) nasal lesions | | | | | | | | | |
| Hemangiopericytoma | - | 01 | - | - | - | - | - | - | 01 |
| Neoplastic (Malignant) nasal lesions | | | | | | | | | |
| SCC | - | - | - | - | 01 | - | - | 01 | 02 |
| BCC | - | - | - | - | - | 01 | 01 | 01 | 03 |
| Basosquamous carcinoma | - | - | - | - | - | 01 | - | - | 01 |
| NHL | - | - | 01 | - | - | - | - | - | 01 |

Among 80 cases of non neoplastic nasal lesions, polyp was the most common comprising 74 (92.50%) cases, followed by 3(3.75%) cases of mucormycosis. Maximum numbers of polyps, 18 cases were seen in age group of 11-20 years, followed by 16 cases in 21-30 years age group.

Out of total 12 cases of benign neoplastic lesions, 3 (25.00%) cases were inverted papilloma, 3 (25.00%) cases were hemangioma, 3 (25.00%) cases were angiofibroma, 2 (16.67%) cases were ossifying fibroma, and 1 (8.33%) case was benign adnexal tumor. 1(7.69%) case of hemangiopericytoma was noted. All 3 cases of angiofibroma were seen in age group was 11-20 year.

In total 7 cases of malignant neoplastic lesions, 3 cases were basal cell carcinoma, 2 cases were squamous cell carcinoma, 1 case was basosquamous cell carcinoma and 1 case was non Hodgkin's lymphoma. Most of cases of

malignant lesions were occur after 40-years of age except non Hodgkin's lymphoma, which was seen in 21-30year of age (Table 3).

DISCUSSION

Masses in nasal cavity form a heterogeneous group of lesions with a broad spectrum of histopathological features. A variety of these non-neoplastic and neoplastic lesions are quite impossible to differentiate clinically and they are clinically diagnosed as nasal polyp.⁷ The lack of differentiation between neoplastic and non-neoplastic, benign or malignant makes it neglected by the clinicians, as a result causing a delay in diagnosis and treatment.⁸

It is important to recognize the range of non-neoplastic lesions in a region and to differentiate them from neoplastic lesions because of different treatment modality and emotional burden on the patient.

Table 4: Comparison of age wise distribution of nasal lesions in the present study with other studies.

| Age in years | Study | | | |
|--------------|---------------------------------------|-------------------------------------|-------------------------------------------|---------------|
| | Vijaya v Mysorekar et al ⁹ | T. Dinesh singh et al ¹⁰ | Parajuli & Tuladhar's study ¹¹ | Present Study |
| 0-10 | 06 (4.13%) | 02 (5.71%) | 21 (14.18%) | 02 (2.00%) |
| 11-20 | 41 (28.27%) | 12 (34.28%) | 37 (25.00%) | 24 (24.00%) |
| 21-30 | 27 (18.62%) | 10 (28.57%) | 35 (23.64%) | 20 (20.00%) |
| 31-40 | 25 (17.24%) | 05 (14.28%) | 22 (14.86%) | 17 (17.00%) |
| 41-50 | 21 (14.48%) | 04 (11.42%) | 18 (12.16%) | 13 (13.00%) |
| 51-60 | 17 (11.72%) | 02 (5.71%) | 09 (6.08%) | 17 (17.00%) |
| 61-70 | 07 (4.82%) | 00 (00.00%) | 06 (4.05%) | 04 (4.00%) |
| 71-80 | 01 (0.68%) | 00 (00.00%) | | 03 (3.00%) |
| Total | 145 | 35 | 148 | 100 |

Table 5: Comparison of gender wise distribution and male to female ratio of present study with other studies.

| Study | Male | Female | No. of cases | Male to female ratio |
|---------------------------------------|------|--------|--------------|----------------------|
| Vijaya v mysorekar et al ⁹ | 85 | 60 | 145 | 1.42:1 |
| T. Dinesh singh et al ¹⁰ | 20 | 15 | 35 | 1.33:1 |
| S. R. Dafale et al ¹² | 45 | 25 | 70 | 1.8:1 |
| Harshad's study ¹³ | 35 | 17 | 52 | 2.06:1 |
| Present study | 59 | 41 | 100 | 1.44:1 |

In the present study, the age range of the patient varied from 2 to 80 years. Majority of the patients were in the age group of 11-20 years (24.00%), closely followed by 21-30 years (20.00%), which was consistent with study done by Vijaya v mysorekar et al, T. Dinesh singh et al and Parajuli and Tuladhar's study (Table 4).

A male predominance was observed in present study with a male to female ratio of 1.44:1 which was consistent with study done by Vijaya v mysorekar et al. Similar

findings were reported by T. Dinesh singh et al, in which male to female ratio was 1.33:1. S. R. Dafale et al, reported male to female ratio as 1.8:1 and Harshad's study reported male to female ratio was 2.06:1 which were also in accordance with the present study (Table 5).

In present study polyp was the most common comprising 74 (92.50%) cases, which was consistent with the observations made in other studies (Table 6).

Table 6: Comparison of type of non neoplastic lesions in present study with other studies.

| Study | Total no. of cases | Polyps | Mucormycosis | Rhinophyma | Jessner lymphocytic infiltration |
|----------------------------------------------|--------------------|--------------|--------------|-------------|----------------------------------|
| Vijaya v mysorekar et al ⁹ | 102 | 86 (84.31%) | 02 (1.96%) | 00 (00.00%) | 00 (00.00%) |
| Dafale SR et al ¹² | 62 | 41 (66.13%) | 02 (3.23%) | 00 (00.00%) | 00 (00.00%) |
| Chopra H et al ¹⁴ | 84 | 70 (83.33%) | 04 (4.76%) | 00 (00.00%) | 00 (00.00%) |
| Singh TD et al ¹⁰ | 28 | 25 (89.29%) | 00 (00.00%) | 00 (00.00%) | 00 (00.00%) |
| Parajuli & Tuladhar's study ¹¹ | 119 | 106 (89.08%) | 00 (00.00%) | 00 (00.00%) | 00 (00.00%) |
| Harshad's study ¹³ | 27 | 24 (88.89%) | 00 (00.00%) | 00 (00.00%) | 00 (00.00%) |
| Seema et al ¹⁵ | 97 | 82 (84.54%) | 00 (00.00%) | 00 (00.00%) | 00 (00.00%) |
| Janice & Deepa Tekwani's study ¹⁶ | 77 | 50 (64.94%) | 00 (00.00%) | 02 (2.59%) | 00 (00.00%) |
| Present study | 80 | 74 (92.5%) | 03 (3.75%) | 02 (2.5%) | 01 (1.25%) |

Table 7: Following table shows comparison of type of neoplastic (benign) lesions and (borderline) lesions in present study with other studies.

| Study (total no. of case) | Inverted papilloma | Hemangioma | Angio-fibroma | Ossifying fibroma | Benign adnexal tumor | Hemangiopericytoma |
|---------------------------------------------|--------------------|-------------|---------------|-------------------|----------------------|--------------------|
| K. Narayan & B. Chandre study ¹⁷ | 04 (13.33%) | 03 (10.00%) | 08 (26.66%) | 02 (6.66%) | 00 (00.00%) | 00 (00.00%) |
| Hemant chopra et al ¹⁴ | 04 (36.36%) | 03 (27.27%) | 03 (27.27%) | 00 (00.00%) | 00 (00.00%) | 00 (00.00%) |
| Parajuli & Tuladar's study ¹¹ | 06 (31.58%) | 05 (26.32%) | 03 (15.79%) | 03 (15.79%) | 00 (00.00%) | 00 (00.00%) |
| Nepal A. et al ¹⁸ | 09 (23.68%) | 11 (28.95%) | 01 (2.63%) | 01 (2.63%) | 00 (00.00%) | 00 (00.00%) |
| Karansinh et al ¹⁹ | 12 (19.35%) | 10 (16.13%) | 33 (53.23%) | 00 (00.00%) | 00 (00.00%) | 00 (00.00%) |
| Seema et al ¹⁵ | 05 (17.86%) | 14 (50.00%) | 05 (17.86%) | 00 (00.00%) | 00 (00.00%) | 01 (3.57%) |
| Present study | 03 (25.00%) | 03 (25.00%) | 03 (25.00%) | 02 (16.67%) | 01 (8.33%) | 01 (8.33%) |

Table 8: Following table shows comparison of type of neoplastic (malignant) lesions in present study with other studies.

| Study | Total no. of cases | SCC | BCC | Basosquamous carcinoma | NHL |
|------------------------------------------|--------------------|-------------|-------------|------------------------|-------------|
| Vijaya v mysorekar et al ⁹ | 22 | 09 (40.90%) | 00 (00.00%) | 00 (00.00%) | 00 (00.00%) |
| Dafale SR et al ¹² | 02 | 02 (100%) | 00 (00.00%) | 00 (00.00%) | 00 (00.00%) |
| Chopra H et al ¹⁴ | 05 | 00 (00.00%) | 00 (00.00%) | 00 (00.00%) | 02 (40.00%) |
| Shaila & Yatish's study ²⁰ | 15 | 08 (53.33%) | 00 (00.00%) | 00 (00.00%) | 00 (00.00%) |
| Parajuli & Tuladar's study ¹¹ | 10 | 02 (20.00%) | 00 (00.00%) | 00 (00.00%) | 03 (30.00%) |
| Harshad's study ¹³ | 07 | 03 (42.86%) | 00 (00.00%) | 00 (00.00%) | 00 (00.00%) |
| Seema et al ¹⁶ | 09 | 04 (44.44%) | 00 (00.00%) | 00 (00.00%) | 00 (00.00%) |
| Archana et al ²¹ | 07 | 04 (57.14%) | 00 (00.00%) | 00 (00.00%) | 00 (00.00%) |
| Present study | 07 | 02 (28.57%) | 03 (42.86%) | 01 (14.29%) | 01 (14.29%) |

In present study 03 (3.75%) cases of mucormycosis were present which was consistent with S. R. Dafale et al, Hemant chopra et al and Vijaya V mysorekar et al study. Total 02 (2.5%) cases of rhinophyma were found in

present study which was consistent with Janice and Deepa Tekwani's study. In present study 03 (25.00%) cases of inverted papilloma were found which was

consistent with other similar study groups, Nepal A. et al (23.68%) and Karansinh et al (19.35%).

There were 03(25.00%) cases of hemangioma found in present study. The result co-related well with other study groups, Parajuli and Tuladar's study (26.32%), Hemant chopra et al (27.27%) and Nepal A. et al (28.95%). Out of total 12 benign neoplastic cases, 03 (25.00%) cases of angiofibroma were noted. The result was in accordance with other studies- K. Narayan and B. Chandre study (26.66%) and Hemant chopra et al (27.27%).

In present study 02(16.67%) cases of ossifying firoma were found. Similar results were found in study done by Parajuli and Tuladar's study (15.79%). There was 01 (8.33%) case of borderline lesion found in present study which was hemangiopericytoma and it was comparable with study by Seema et al (Table 7).

In present study out of total 07 cases of malignant neoplastic lesions, 02 (28.57%) cases of SCC were found. In other similar studies Parajuli and Tuladar's study 02 (20.00%), Vijaya v Mysorekar et al, 09 (40.90%), Harshad's study 03 (42.86%), Seema et al, 04(44.44%), Shaila and Yatish's study 08(53.33%), Archana et al, 04 (57.14%) and SR Dafale et al, 02 (100%) cases of SCC were found.

In present study there was 01 (14.29%) case of NHL found. In other studies Hemant chopra et al, 02 (40.00%) and Parajuli and Tuladar's study 03 (30.00%) cases of NHL were found (Table 8).

CONCLUSION

During the present study, it was evident that polyps and polypoidal masses in nasal cavity form a complex of lesions ranging from non-neoplastic inflammatory lesions to benign and malignant neoplasms. A clinician's diagnosis based on the history and clinical examination of the patient was inadequate, hence for histopathological examination of all the nasal polyps is justified.

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