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A COMPARATIVE HISTOPATHOLOGICAL STUDY OF LESIONS OF NASAL CAVITY, NASOPHARYNX AND PARANASAL SINUSES

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ABSTRACT:

Background: A variety of non-neoplastic and neoplastic conditions involves the nasal cavity (NC), paranasal sinuses (PNS) and these are very common lesions encountered in clinical practice.

Methods: The present study is an analysis of 50 tumors and tumor-like conditions of the nasal cavity, paranasal sinuses, and nasopharynx diagnosed.

Results: Out of total 50 noses and PNS biopsy cases, 34.00% case were Neoplastic lesion and 66.00%cases were Non-neoplastic lesions

Conclusion: Malignant lesions were comparatively less to that of benign lesions.

Keywords: Paranasal Sinuses, Benign, Maligan.

Introduction

Swellings of nasal cavity, paranasal sinuses and nasopharynx have inflicted man from time immemorial. Nose is the most prominent part of the face with substantial aesthetic and functional significance. A variety of non-neoplastic and neoplastic conditions involve the nasal cavity, paranasal sinuses and nasopharynx, and these are very common lesions encountered in clinical practice[1].

The nasal cavity, nasopharynx and paranasal sinuses form functional unit of nose[2] and is principally involved in filtering, humidifying and adjusting the temperature of inspired air[3] and exposed to a variety of infective and other influences, therefore early diagnosis and treatment of any scarring or ulcerative lesion is imperative[4].

The nose and throat are fertile fields for study of neoplastic disease[5]. 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 definitive diagnosis.

Among masses of nasal cavity, nasopharynx and paranasal sinuses, nasal polyps comprise large group of lesions from simple nasal polyp or polypoidal lesions to a variety of pathologic entity ranging from infective granulomatous diseases and malignant neoplasms[6]. Despite its long history and frequent occurrence, many questions still exist with regard to incidence, pathogenesis and treatment. Occurrence of malignant tumors to these sites are usually uncommon which account for 0.2% to 0.8% of total malignancies and only 3% of all malignant tumors of upper aerodigestive tract[7].

Also histological differentiation affects development of a particular type of lesion. Schneiderian papillomas in the nasal cavity, intestinal type of adenocarcinomas in paranasal sinuses and angiofibroma and lymphoepitheliomas in nasopharynx are some of the examples[8]. Clinically it is almost impossible to distinguish between these lesions therefore histopathologic examination of all nasal polyps is very important and imperative to arrive at a specific diagnosis and appropriate treatment.

MATERIALS & METHODS:

Study design: Hospital based study

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Study Unit: Tissue specimens obtained from study population

Sampling method: Purposive non-probability sampling,
Sample size: 50 patients reporting to the Pathology dept. within study duration and eligible as per inclusion criteria will be included in the study.

Source of data: All the biopsy or surgically excised specimens and reference material submitted to the Department of Pathology.

Sample Size: 50 Cases.

Inclusion Criteria:-

(1) All nasal, paranasal and nasopharyngeal biopsy.

Exclusion Criteria:-

(1) Autolyzed specimen.
(2) Inadequate biopsy.

Methods of collection of data:

Data for retrospective study was obtained from departmental records and medical records department. Tissue blocks and slides would be retrieved and reviewed. Data for prospective study will be obtained from clinical records and tissue specimens.

Clinical data will be obtained from hospital records and requisitions submitted along with tissue specimens received in the department. Gross examination was carried out on specimens. Tissue bits were routinely processed. Three to five micron thick sections will be made from paraffin blocks and will be stained with H&E stain. Special stains shall be done whenever necessary.

Tissue processing:

The tissue was processed by means of paraffin-wax processing which consists of following steps:-

a. Tissue processing
b. Section cutting
c. H & E staining

Specimen was fixed in 10% formalin saline for 24 hours, gross features was examined, representative sections was taken and these section was subsequently processed as per technique given below:-

(1) 70% alcohol - ½ hour dehydration

(2) 80% alcohol - 1 hour dehydration

(3) 90% alcohol - 1 hour dehydration

(4) 95% alcohol - 1 hour dehydration

Section cutting: After processing tissue was embedded in paraffin wax to make block with the help of moulds. Serial Section, 3-6 micron thick was cut on rotatory microtome and fixed on to slides coated with albumin fixative. These slides were kept in hot oven at 66 ^{O}C for one hour to fix the section on slides before staining with routine H and E stain. Special stains was performed wherever required.

Staining techniques:-

Haematoxylin and Eosin Stain.-

Stain Preparation:
1. Harris Haematoxylin is Prepared as follows:
Haematoxylin - 2.5g
Absolute alcohol - 25ml
Potassium alum - 50gm
Distilled water - 500ml
Mercuric oxide - 1.25gm

The Haematoxylin was dissolved in the absolute alcohol and then added to alum which was previously been dissolved in the warm distilled water in a two liter flask. The mixture was rapidly brought to boil and the mercuric oxide was then added. The stain was rapidly cooled by plunging the flask into cold water and then stain was ready for immediate use.
2. Eosin stain is prepared as follows:
Stock 1% aqueous Eosin solution:
Eosin Y, water soluble - 10gm
Staining procedure:-
(1) Deparaffinize slides and hydrate to distilled water.
(2) Stain in Harris Haematoxylin for 6-15 minute.
(3) Wash in running tap water for 2-5 minute.

(4) Differentiate in 1% acid alcohol 1-2 dips.
(5) Wash briefly in tap water.
(6) Place in weak ammonia water until sections are bright blue.
(7) Wash thoroughly in running tap water for 10 minute.
(8) Counter stain in Eosin solution for 2 minute.
(9) Dehydrate and clear through two changes each of 95% ethyl alcohol, absolute alcohol and xylene two minute each.
(10) Mount with D.P.X.

Results:-

Nuclei - blue black

Cytoplasm - pink to red

Most other structure - pink to red.

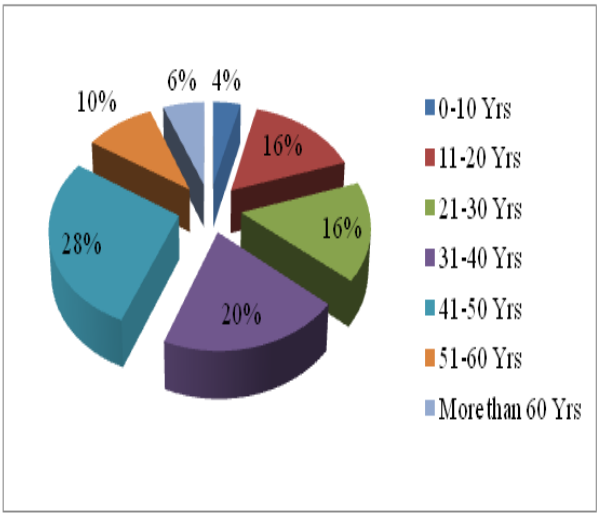
Parameters for assessment

All tumors was described and diagnosed histopathologically in individual patients. Clinical details was collected.

Data analysis:

After entering data into Excel worksheet, it was analyzed with the help of frequency, proportion, mean, standard deviation and tests of significance wherever applicable.

RESULTS



Graph 1: Maximum 28 % patients belong to 41-50 yrs age group and minimum 2.0% patients belong to 0-10 year's age group. Male patients were 56.64% and female patients were 43.36%.

Table 1: Distribution of total nose and PNS biopsy cases (n=50).

Lesion	No. of cases	Percentage (%)
Neoplastic lesion	17	34.00%
Non-neoplastic lesions	33	66.00%
Total	**50**	**100%**

Out of total 50 noses and PNS biopsy cases, 34.00% case were Neoplastic lesion and 66.00%cases were Non-neoplastic lesions.

Table 6: Distribution of neoplastic lesion of nose and PNS (n=17).

Lesion	No. of cases	Percentage (%)
Benign	12	70.59%
Malignant	5	29.41%
Total	**17**	**100%**

Out of 17 neoplastic lesion, 12(70.59%) were benign and 5(29.41%) malignant.

DISCUSSION

In our study maximum 28 % patients belong to 41-50 yrs age group and minimum 2.0% patients belong to 0-10 years age group. Male patients were 56.64% and female patients were 43.36%.
A study conducted by Shikha Ngairangbam et al[9] in JN Institute of Medical Sciences, Porompat, Imphal, Manipur found that maximum patients was 51-60 Yrs age group & most of patients were male than female and maximum patients were from urban area.

Satarkar R et al[10] was found that he tumor-like lesions were predominant in the second and third decades in the present study; 61.2% of 116 lesions diagnosed occurred in this age group.
Out of total 50 nose and PNS biopsy cases, 34.00% case were Neoplastic lesion and 66.00%cases were Non-neoplastic lesions in our study.

A study conducted by Shikha Ngairangbam et al[10] found that out of 102 cases, 57.84% were non-neoplastic and 42.16% neoplastic, same result found study by Lathi et al. [11]and Shulba et al.[12] The former found 72% non–neoplastic and 28%

neoplastic cases, while the latter found 91 non-neoplastic and 9 neoplastic lesions in a study conducted on 100 patients.

In our study out of 17 neoplastic lesion, 12(70.59%) were benign and 5(29.41%) malignant.

A study conducted by Shikha Ngairangbam et al[9] found that out of 100 cases studied, 43 cases of neoplastic lesions were found out of which 65.12% were malignant and 34.88% benign.

CONCLUSION

Malignant lesions were comparatively less to that of benign lesions.

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