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RESEARCH ARTICLE

INCIDENCE OF NON-MALIGNANT LESIONS OF NOSE AND PARA NASAL SINUSES IN A TERTIARY CARE HOSPITAL

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Abstract

Aim: To analyze the clinical presentation, incidence, sexual distribution and management update of non malignant lesions of nose and para nasal sinuses.

Materials and Methods: This is a prospective study between the time period 2017 to 2018 in a tertiary care hospital with total number of 280 patients .Age and sex distribution along with clinical presentation of benign lesions of nose and paranasal sinuses were studied. Clinical presentations with prior general examination along with ENT evaluation was done. Investigations , medical and surgical management with follow up carried out by the same surgeon. Results were analysed statistically.

Results: Age prevalence for the benign lesions were more predominant in the younger age group (11-30 years). Males were more predominant than females. Incidence of nasal polyp was 35.71%, benign tumours 22.4%. Nasal obstruction (62.5%), nasal discharge(42.5%), nasal mass (42.5%) were the commonest clinical presentations.

Introduction:-

Nasal cavities and para nasal sinuses are seen in contact with environmental air,the external nares are covered by squamous epithelium which later changes into mucous secreting pseudostratified ciliated columnar epithelium containing numerous goblet cells.

Submucosa of lateral nasal wall is relatively thick containing vessels of various sizes especially turbinates. Any irritant in the airway may produce mucosal hyperemia with tissue oedema and infiltration with acute inflammatory cells producing Rhinosinusitis.

Chronic inflammation produces cellular hyperplasia, fibrosis, with infiltration of lymphocytes and plasma cells. Granuloma represents as a consequence of chronic inflammation, they contain aggregated histiocytes and hypertrophied fibroblasts. All benign tumours require biopsy to exclude malignancy.

Surgical anatomy of the nose and paranasal sinuses:

External Nose –

Nasal skeleton is made up of (1) nasal bones 2) paried upper and lower lateral nasal cartilage, Dorsum of nose-supported by septum, Columella- As a strut at the caudal end of the septum between two nostrils.

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Nasal Cavity-

Vestibule: skin covered area st the entrance of each nostril. Septum: consists of cartilagenous component the quadrilateral cartilage. Bony component: perpendicular plate of ethmoid, vomer , maxillary and palatine crests. The lateral wall of the nose: it has 3 projecting shelves of the bones known as turbinates and the space under each turbinate is called as meatus

Middle meatus is surgically important area: Infundibulum - deepest part of the hiatus Semilunaris . Frontonasal duct opens in the anterior part , Maxillary sinus opens in the posterior part. When there is pathology in this region it will interfere with ventilation and mucocillary clearance of the sinuses.

Anatomy Of The Para Nasal Sinuses:-

THE MAXILLARY SINUS (ANTRUM OF HIGHMORE), Pyramidal shape, Volume:15-30ml,Development:Rudimentary at birth ;by the age of 10 yrs sinus floor is in level with nasal floor. Relations: Anterolateral wall-Related to facial soft tissue, Roof-Orbital floor, infra orbital nerve in the roof, Posterior wall-Anterior wall of the pterygo palatine fossa ,Floor-Roots of the premolar and 1st molar teeth project into the antrum .Surgical Importance: Anterolateral wall pathology in this wall may produce facial symptoms,Roof-Congenital/traumatic conditions may breach the infraorbital foramen ,Floor-Dental extraction : Oroantral fistula, Dental infection-Periapical granuloma, dental cyst.

Ethmoid sinuses:

Definition:Bony cavity within the ethmoid bone,3-20 air cells forming ethmoidal labyrinth; lie between orbit and nasal cavity.Relations:-Lateral wall :Lamina papyricea; when there is ethmoidal infection it may involve the orbit,Roof : Fovea Ethmoidalis; it is the floor of the anterior cranial fossa; infection or tumour in this area can spread to anterior cranial fossa , Medial wall :Middle turbinate, Posterior Wall : Closely related to optic nerve ; pathology in this area can produce loss of vision .

Frontal sinuses:

Defintion: Bony cavity within the frontal bone, Development: From a recess in the anterior part of the nose ; rudimentary before the age of 7 yrs .Relations:-Anterior wall : Diploeic bone; infection of this wall produces osteomyelitis (POTT'S PUFFY TUMOR). Posterior wall separtes the frontal sinus from the frontal lobe, breach in this wall may be route for intra cranial spread of infection. Floor: Orbital roof.

Sphenoid sinus:

Definition: Bony cavity within the sphenoid bone, Development: Rudimentary at birth; pneumatization from 10 years .Relations:-Lateral wall: Separte the sinus from cavernous sinus; ICA lies within 4.8mm from this wall. So one should stay in midline during surgery. Roof: Pitutary Fossa, Anterior wall : Sphenoid ostia is there .

Histology :-

Linning epithelium: Pseudostratified ciliated columnar epithelium.Submucosa contains goblets cells and Minor salivary glands. SURGICAL IMPORTANCE: Since the entire respiratory tract is lined by the same type of epithelium diseases from the anterior nares may affect para nasal sinuses and bronchial segment .VENOUS DRAINAGE : Provided by- opthalmic, facial vein and pterygoid and pharyngeal plexuses. Surgical importance: intra cranial connection is important because facial infection can drain via these vein to the cavernous sinus .NERVE SUPPLY -Senosry: 5th CN –opthalmic and maxillary division, Special sensory: olfactory nerve ANS It provides secretomotor and vasomotor control.Sympathetic fibres: From the first 5 thoracic spinal segments Post ganglionic fibres run with sphenopalatine vessles. Surgical importance Increased tone vasoconstriction, decreased nasal secretion.

Methodology:-

Aim of this study is to analyse the clinical presentation, incidence and sexual distribution along with management update of non malignant lesions of nose and para nasal sinuses. It is a prospective cohort study conducted in a tertiary care hospital. Total number of patients in the study was 280 between the time period of 2017 to 2018.

Initial history elicitation was done using a pre charted proforma. It included name, age, sex, occupation, duration of hospital stay. Previous history regarding nasal obstruction, nasal discharge, epistaxis, anosmia, headache, facial pain, frequent cold, epiphora, nasal mass, occular symptoms was elicited. Anyother comorbidities like Diabetes, Hypertension, Asthma, Tuberculosis were looked for. Treatment history and relevant personal history was checked.

General examination of CVS, RS, CNS, abdomen was done. Patients were examined for anaemia, clubbing, jaundice and pallor of soft palate.

ENT examination regarding face, nose, throat and ear were done.

Face:-
Facial asymmetry,cheek swelling, nasolabial fold obliteration.

Nose:-
External contour like widening of nasal bridge, saddling of nasal dorsum,columella.
Anterior rhinoscopy was done to describe the lesion and also septum, floor, lateral wall of the nose was examined.
Posterior rhinoscopy was done to look for the mass, post nasal drip, choanal orifice and eustachian tube orifice.

Throat:-
Throat was examined for post nasal drip, granular pharyngitis, gingivolabial sulcus, alveolus, palate and dental formula

Ear:-
Ear examination was done to rule out tympanic membrane retraction, perforation, cholesteatoma and masses.

Investigations:-
Urine routine, complete haemogram, Randam blood sugar, Renal function test, liver function tests and coagulation profiles were done.

Blood grouping and typing, VDRL, HbsAg, HIV were done

Imaging:-
X-Ray of paranasal sinuses, Skull, Chest PA view, Orthomopantogram was done.
Computed Tomogragphy of nose and para nasal sinuses were done. Axial, coronal and sagittal sections were analysed.

Magnetic Resonance Imaging of nose and para nasal sinuses were done.

Angiogram and digital subtraction angiography was done.

Culture sensitivity was done to detect bacterial infections, KOH smear was taken and sent for fungal study.
Sputum AFB and blood culture was done to rule out tuberculosis.

Pathology of the masses was determined with help of Fine needle aspiration cytology and histopathological examination.

Medical treatment using antibiotics, antihistamines, analgesics, steroid nasal sprays, nasal decongesgtion using xylometazoline were done.

Surgical treatment included functional endoscopic sinus surgery and excision biopsy of the mass.

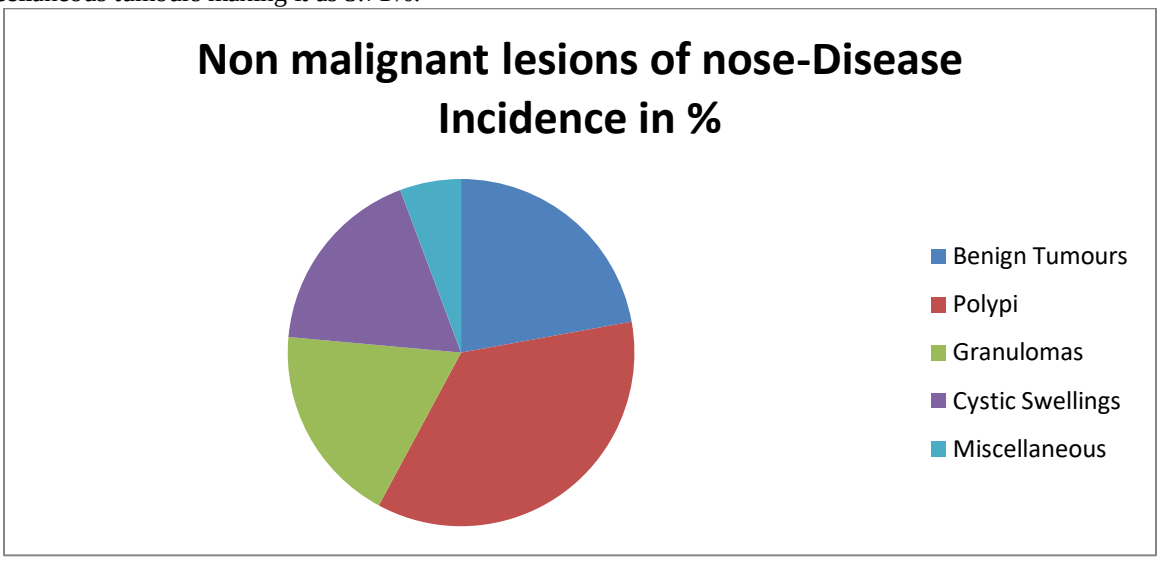
Patients were followed up for 6 months in regular intervals and telephonic follow up was also done.

Results:-

In this study 280 patients of non malignant lesions of nose and para nasal sinuses were analysed in the following order:

Non Malignant Lesions Studied-Disease Incidence
In the total number of 280 patients included in the study, 100 presented with nasal polypi constituting 35.71%. Granulomas were reported in 52 patients constituting 18.57%. Benign tumours accounting for 22.14% seen in 62

patients. Cystic swellings were seen in 50 patients with incidence of 17.9 %. Remaining 16 patients had miscellaneous tumours making it as 5.71%.



Age Incidence:-

Age incidence of our series tallies with that of the literature. Representation of age incidence among the study group has been shown in Table 1

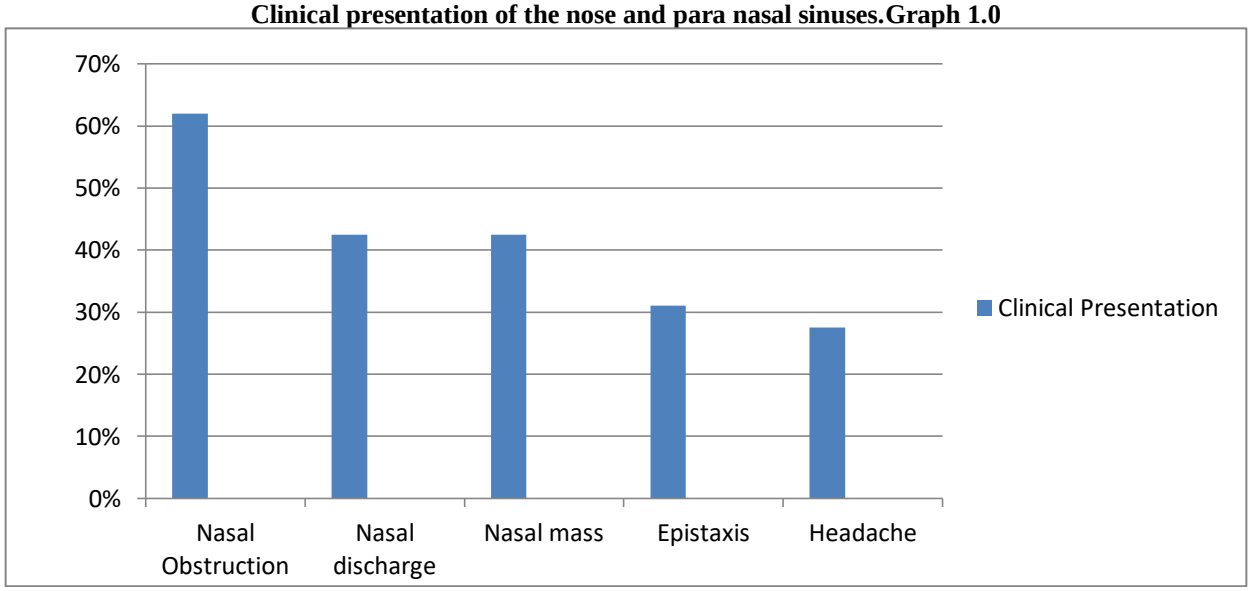
Sex Incidence

Sex incidence in the series is shown in the Table 2. Dominant age group was 11 to 30 years constituting the 66.09% of the study population. Males were more predominant than females for benign lesions of the nose and para nasal sinuses.

Clinical Presentation

The predominant clinical presentations encountered in this study were nasal obstruction 62%, nasal discharge 42.5%, nasal mass 42.5%, epistaxis 31.07% and headache 27.5%.

Clinical presentation of the nose and para nasal sinuses.Graph 1.0



Sno	CLINICAL DIAGNOSIS	AGE (IN YEARS)							SEX		TOTAL
		0-10	11-20	21-30	31-40	41-50	51-60	>60	M	F	
I: Nasal polyps (100cases)											
1	Ethmoidal polyp	-	22	12	23	4	4	-	27	28	65
2	Antrochonal polyp	-	20	10	3	1	1	-	23	12	35
II. Granuloma A.Specific granuloma (51cases)											
1	tuberculosis	-	1	-	-	1	1	2	5	0	5
2	syphilis	-	-	1	-	-	-	-	1	0	1
3	Fungal a) Rhinosporidosis b) Phycomyosis c) aspergillosis	- - -	7 - -	21 - 1	7 - 1	4 2 1	1 - -	- - -	30 2 2	10 - 1	40 2 3
B. Nonspecific granuloma(1 case)											
1	Steawart granuloma	-	-	-	1	-	-	-	1	-	1
III. Benign tumors EPITHELIAL ORIGIN(16 CASES											
1	PAPILOMA		1							1	1
2	INVERTED PAPILLOMA			1	3	1	1	1	6	1	7

Distribuion Of Patients According To Clinical And Pathological Diagnosis In Relation To Age And Sex

3.	Adenoma	-	1	1	1	1	-	1	1	4	5
4.	Neurogenic-schwanoma	-	1	1	-	-	-	1	3	-	3
B. Mesenchymal origin i. Vascular tumor (31cases)											
1	hemiangioma	1	4	4	1	1	2	1	5	9	14
2	angiofibroma	1	11	2	-	-	-	-	14	-	14
3	hemiangioendothelioma	-	2	-	-	1	-	-	1	2	3
ii.Bone tumors(13 cases)											
1.	osteoma	-	2	-	-	-	-	-	1	1	2
2.	Ossifying fibroma	1	-	-	-	-	-	-	1	-	1
3	Myxoma	-	-	1	-	-	-	-	1	-	1
4	Fibrous dysplasia	-	3	3	1	-	-	-	5	2	7
5	Aneurysmal bone cyst	-	-	-	-	1	-	-	1	-	1
6	Eosinophilic granuloma	-	-	-	-	1	-	-	1	-	1
iii.Connective tissue tumor(1case)											
1.	Fibroma septum	-	-	1	-	-	-	-	-	1	1
iv. Cystic swelling(50 cases)											
1	Dental cyst	-	9	16	2	2	-	-	15	13	29
2	Dentigerous cyst	1	2	1	-	-	-	-	3	1	4

3	Nasolabial cyst	-	-	1	-	-	1	1	-	3	3
4	Globulomaxillary cyst	-	1	-	-	-	-	-	-	1	1
5	Incisivecanal cysr	-	-	1	-	-	-	-	1	-	1
6	Maxillary antral cyst	-	-	2	2	-	1	-	2	3	5
7	Mucocoeles a.Frontal b.Ethmoidal c.Maxillary	 - - -	 1 1 -	 - 1 1	 - - -	 - - 1	 1 - -	 - - -	 1 - 1	 1 2 1	 2 2 2
8.	dermoid	1	-	1	-	-	-	-	1	1	2
v. Cholesteatoma of maxillary sinus(2cases)		-	-	-	-	1	1	-	1	1	2
vi. Oroantral fistula(10cases		-	1	2	2	3	2	-	8	2	10
vii.Frontal sinus osteomyelitis(3cases)		-	1	-	1	-	-	-	2	1	3
viii.Maxillary sinus –sinus tract(3 cases)		-	1	-	1	-	-	-	2	1	3
TOTAL NUMBER OF CASES -280 CASES											

Conclusion:-

Nasal polypi and benign tumours were found to be predominant lesions in the Non malignant lesions of the nose and para nasal sinuses in this study. Nasal polypi 35.71%, Benign tumours 22.4%.
Non malignant lesions of nose and para nasal sinuses were prevalent in Younger age group (11 to 30 years) 66.09%.

The lesions were predominant in males compared to females. Predominant clinical presentations were nasal obstruction, nasal discharge, nasal mass, epistaxis.

Clinical features, Investigations like X-ray of para nasal sinuses, CT of paranasal sinuses, Pathological investigations such as fine needle aspiration cytology and histopathological examination were used more in our study for the management of non malignant lesions of nose and para nasal sinuses.

Histopathological evaluation played a major role in diagnostic and therapeutic evaluation.

In the management of non malignant lesions and para nasal sinuses Functional Endoscopic Sinus Surgery played an important role.

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