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RESEARCH ARTICLE

UNILATERAL CHRONIC SUPPURATIVE OTITIS MEDIA: EFFECT OF NASAL SEPTAL DEVIATION

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Abstract

Background:Otitis media is an inflammation of part or all of the mucoperiosteal lining of the middle ear cleft. It can be acute, subacute and chronic otitis media infection. Septal deviation has got many unwanted changes such as: nasal obstruction, mucosal changes.

Methodology:A descriptive clinical study, carried out on adult patients consulting ENT department at medical city. Those patients have a unilateral chronic suppurative otitis media.

Results:The unilateral CSOM can affect any age group, with a slightly higher prevalence in the age group (21-30) year forming 29% of the total patients. Male to female ratio was 1.2:1. Eighty-nine patients presented with aural discharge. Patients with tubotympanic having only perforation and associated with septal deviation forming 68.1% of the patients. Patients with atticointral having only perforation and associated with septal deviation 63.2% of patients.

Conclusion: Unilateral chronic suppurative otitis media can affect all age group and both sexes. The tubotympanic type is more prevalent. Nasal septal deviation is commonly found in patients with unilateral chronic suppurative otitis media.

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Introduction:-

Otitis media is an inflammation of part or all of the mucoperiosteal lining of the middle ear cleft ⁽¹⁾. Chronic suppurative otitis media (CSOM) is, defined as a chronic inflammation of the middle ear and mastoid cavity, which presents with recurrent ear discharges or otorrhoea through a tympanic perforation ⁽²⁾⁽³⁾. There are three common types of otitis media, acute purulent otitis media, otitis media with effusion and chronic suppurative otitis media ⁽⁴⁾.

The term chronic suppurative otitis media is used to indicate several quite distinct different pathological processes which have in common, symptoms of long standing painless aural discharge and some degree of deafness ⁽¹⁾. Otitis media can cause a mild to moderate hearing loss ⁽⁵⁾. Another study by Blakley BW et al showed that the association between sensory neural hearing loss (SNHL) and chronic ear infection without cholesteatoma was high ⁽⁶⁾. At the same time there were other studies stated, there is no or minimal association between SNHL and COM ⁽⁷⁾.

Clinical types of CSOM are: Tubotympanic where the discharge flow through a central perforation in pars tensa; The second type is the Atticoantral where the discharge flow through a marginal perforation either in the attic or in the posterior region of the pars tensa ⁽¹⁾.

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Nasal deviation is either of C-shape or of S-shape deviation depending on the plane of occurrence whether vertical or horizontal⁽⁸⁾. Septal deviation has got many unwanted changes such as: mucosal changes⁽⁹⁾, nasal obstruction, and neurological changes which can cause pain⁽⁸⁾.

The aim of this study was to assess the association between unilateral CSOM and nasal septal deviation in adult patients.

Material and methods:-

This work is a descriptive clinical study, carried out on patients consulting Ear, Nose and Throat (ENT) department at "Medical City" which is a large multispecialty teaching hospital. Over a period of one year from 1st September 1998 to 1st September 1999. Patients having unilateral CSOM were enrolled in the study.

One hundred patients included in the study, 44 were male and 56 were female. All of them were treated previously at different time.

Exclusion criteria:

1. Patients with previous ear surgery.
2. Nasal surgery.
3. Nasal pathology unrelated to the septum

Data about sociodemographic characteristics of the patients in addition to subjective information about nasal and ear states and complaints were collected. These data were collected through a questionnaire designed for the purpose of the study.

The clinical findings after full otorhinolaryngological examination were recorded too. The tympanic membrane perforation was classified to central, marginal, and attic types. Operative microscope (using a lens with focal length of 20 mm) for further assessment of the ontological findings.

Nasal septal state was assessed by anterior rhinoscopy before and after using vasoconstrictor nasal drop (Oxymetazoline HCL, 0.05%) septal deviation was classified according to its side (ipsilateral, and contralateral to the diseased ear). Post nasal space was inspected for any obstructing pathology and discharge using post nasal mirror.

Auroscope was used to examine the nose of child below 3 years.

Forty-five patients were diagnosed as tubotympanic disease with only central perforation. They were classified into two groups:

1. Group 1: Patients with septal deviation 30 patients;
2. Group 2: Patients without septal deviation 15 patients.

All of them were treated conservatively by the followings: Aural toilet (mopping and/or aspiration); Proper systemic and local antibiotic according to culture and sensitivity; Treatment of any focus of infection in the upper respiratory tract if present. In addition to instructions to patients about cleaning of their ears at home, prevention of water entering to the ear).

Re-examination of the patients after two weeks to find the response to treatment and report them as well response and poor response, depending on the change in the middle ear state and the change in the amount and the characteristics of the discharge. The patients were followed up over three months period in two weeks interval. Times of discharging from the diseased ear were noted and recorded.

Results:-

The unilateral CSOM can affect any age group, with a slightly higher prevalence in the age group (21-30) year forming 29% of the total patients. At the same time the disease is less common among older age group those above 50 years. The distribution of the diseases between male and female nearly similar with a ratio of 1.2:1 (Table-1).

Table 1:- Distribution of patients according to age and sex.

Age group	Male		Female		Total	
	n	%	n	%	n	%
<10	10	10	8	8	18	18
11-20	6	6	13	13	19	19
21-30	13	13	16	16	29	29
31-40	7	7	12	12	19	19
41-50	6	6	5	5	11	11
>50	2	2	2	2	4	4
Total	44	44	56	56	100	100

Table-2 showed that 89 patients presented with aural discharge, which is the main symptom of the CSOM. While only one case presented with headache and vomiting.

Table 2:- Distribution of patients according to chief complaint.

Chief complaint	No. of patients	Percent
Aural discharge	89	89
Deafness	4	4
Ear ache	4	4
Post-auricular swelling	2	2
Severe headache and vomiting	1	1
Total	100	100

Table 3 revealed that 65% of the patients had septal deviation while 35% of them had no nasal septum deviation. The difference was statistically significant ($p=0.006$). 75.4% of the patients with tubotympanic types of the CSOM had septal deviation while less than half of patients with attic disease had septal deviation.

Table 3:- Distribution of the patients according to the type of the disease and nasal septal state.

Septal state	Tubotympanic		Atticoantral		Total	
	n(%)		n(%)		n(%)	
Deviated septum						
ipsilateral	31(31)		13(13)		44(44)	
contralateral	15(15)		6(6)		21(21)	
total	46	75.4%	19	48.7%		65(65)
No nasal septum deviation	15(15)	24.6%	20	51.3%		35(35)
Total	61		39			100
p = 0.006						

Table-4 represent the ontological findings associated with nasal septum deviation. Patients with tubotympanic having only perforation and associated with septal deviation forming 68.1% of the patients. Which is near that of patients with attic disease having only perforation and associated with septal deviation 63.2% of patients. The difference is not significant ($p = 0.70$).

Table 4:- Distribution of patients according to nasal septal state and otological findings.

Otological finding		Septal deviation		
		Yes	No	Total
Tubotympanic	Only perforation	32(68.1)	15(31.9)	47
	Perforation with other findings*	14(100)	0(0)	14
	total			61
Atticoantral	Only perforation	12(63.2)	7(36.9)	19
	Perforation with other findings*	7(40.0)	13(60.0)	20
	total			39
Total		65	35	100

* granulation tissue, polyp, retraction, pockets, cholesteatoma

During the period of follow up, 87% of patients in group 2 (with no septal deviation) showed good response to ear management and only 13% showed poor response, while 60% of patients from group 1 (with septal deviation) showed good response and 40% showed poor response to ear management (Table-5).

Table 5:- Degree of response of patients with tubotympanic type of otitis media.

Groups	Response to management				
	Good response		Poor response		Total
	n	%	n	%	n
Group 1 (with septal deviation)	18	60	12	40	30
Group 2 (with no septal deviation)	13	87	2	13	15
Total	31		14		45

Discussion:-

Unilateral chronic suppurative otitis media can affect any age group. Al-Agelly 1993 found nearly same distribution of the diseases according to sex and age, but he included both unilateral and bilateral CSOM⁽¹⁰⁾.

Presentation: Majority of patients presented with aural discharge which is the main symptom of CSOM. Although deafness is important presenting symptom in CSOM, but they were few in our study because of the unilaterality of the disease and presence of other intact ear making the patients unaware about the hearing impairment.

Evaluation of nasal septum: To our knowledge, this is the first study in our country about the relation between nasal septum and CSOM. This put a difficulty in comparing our results with similar studies. Some studies touch our subject indirectly, such as Mastchke RG in 1985 who stated that there is a relation between nasal obstruction due to septal deformity and disease of paranasal sinuses⁽¹¹⁾. Stammberger H. forwarded in his study in 1986 a hypothesis for ear infection in patients with sinusitis through direct transformation of the infected mucus over the tubal orifice cause its obstruction and promote ascending infection in to the middle ear⁽¹²⁾.

Sookmundum in his study in 1986 reported that septal deviation if left without treatment may associated with ear ache and ear discharge⁽¹³⁾. Nasal obstruction is significantly determinant in unilateral CSOM the major components of their obstruction appear due to an associated mucosal change with septal deviation⁽¹⁴⁾. That is why Wayne W 1982, and C Gary Jackson 1985 both included correction of deviated septum in the course of treatment of chronic discharging ear⁽¹⁵⁾⁽¹⁶⁾.

Conclusion:-

Unilateral CSOM can affect all age group and both sexes. The tubotympanic type of CSOM is more prevalent. Nasal septal deviation is commonly found in patients with unilateral CSOM. Response of patients with tubotympanic type of CSOM to conservative treatment impaired by presence of septal deviation and have high rate of re-discharge in comparison to those who had normal nasal septum.

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