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IMPACTED CERUMEN AURIS-MANAGEMENT

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ABSTRACT

OBJECTIVE: *To evaluate the safety and efficacy of the syringing and suction technique for removal of impacted aural cerumen and the incidence of associated complications.*
DESIGN: *A descriptive study.*
SETTING: *Department of Otolaryngology-Head and Neck Surgery, DUHS, DMC & Civil Hospital Karachi.*
PATIENTS AND METHOD: *This study included 500 patients who were randomly assigned to have dewaxing by syringing or suction. Each patient was studied for age, sex, cerumen cleaning habits, complaints, and complications of the procedures.*
RESULTS: *Males were more than females (M: F = 1.3:1). 51% of the patients were in age group of 11-40 years. The Success rate was 92.4% & 86.8% for suctioning and syringing respectively. Bilateral cerumen auris constituting 44 % while right and left cerumen auris constituted 29 % and 27 % respectively. Complication rate was 13.2% for syringing & 7.6% for suction. Data was analysed on SPSS 13.0.*
CONCLUSION: *Removal of impacted cerumen under direct vision by suction was found to be well tolerated, safest & effective procedure while syringing has few limitations. The perfect ceruminolytic agent has yet to be developed. The incidence of complications could be reduced by a greater awareness of the potential hazards, experience,and more careful selection of patients.*

KEY WORDS: Cerumen auris, removal technique, complications.

INTRODUCTION:

Cerumen impaction and removal is a very common otologic problem. Each week in the United States, approximately 150,000 cerumen removals take place[1].
Cerumen (ear wax) is a dried up cocktail of sweat secretions and sebum mixed with hairs and dead horny skin. It serves a protective function in the external auditory canal and the unique anatomy and physiology of EAC allows an efficient self cleaning system.[2]
It is usually asymptomatic, but when it becomes impacted it can cause complications such as hearing loss, pain, itching or dizziness, can interfere with examination of the tympanic membrane.[3] These symptoms are particularly distressing to elderly patients who may already have compromised hearing or be experiencing changes in functional ability and in children can retard their educational and psychosocial development.[4] The prevention of cerumen impaction should be of significant public health concern in the management of hearing impairment in children, especially where there is no routine and systematic screening for hearing disorders.[5] The management of cerumen impaction include direct removal, irrigation, and the use of cerumenolytics.[2]
Accepted methods of removal should be used and all perforations and other forms of trauma, when they occur, must be evaluated for middle and inner ear pathology[1]. The overall quality of the evidence on treatment is limited.[3]
There is a paucity of comparative studies of the different techniques used for ear wax cleaning. Hence we conducted the present study to compare ear syringing versus suctioning which are the two most commonly used accepted technique for impacted cerumen auris.

PATIENTS AND METHODS:

It was a descriptive study of 500 cases who attended the out patient Department (OPD) of Otolaryngology- Head and neck surgery Civil Hospital Karachi from March 2005 to April 2007; for the removal of impacted cerumen auris. All patients irrespective of age and sex

were randomly selected, with history of impaired hearing, blocking sensation, tinnitus, occasionally otalgia associated with impacted cerumen on clinical examination. Exclusion criteria included inflammation of external auditory canal, middle ear pathology or pre existing ear infection. The methodologies of dewaxing were the standard technique described in the ENT text book. Syringing wass done by normal saline at body temperature whereas suction was done by the standard suction machine with appropriate suction nozzles. Before the procedure each patient was instructed to put cerumenolytic drops (soda glycerine 2%), 4-5 times per day for 4- 5 days. The procedure was considered incomplete if the wax was not removed in the first sitting.

Ear canals were inspected at the end of procedure. Patients were instructed to return to the OPD if they had any symptoms such as otalgia, discharge and deafness. Other complications during the procedure like incomplete removal of wax, trauma to ear canal, transient tinnitus and vertigo were also documented. Association between cleaning procedures and complications made by using chi square test on SPSS 13.0 and keeping significance at P<0.050.

RESULTS:

There were 285 males (57%) and 215 females (43%) (Table1.3). The overall study showed male predominance, with 255 (51%) patients in the age group between 11-40 years (Table 2). Bilateral cerumen auris seen in 220 patients (44%) while right and left cerumen auris found in 29% and 27% respectively (Table. 3).Most of the patients have the habit of cotton buds use to clean the ear , seems to be the cause of cerumen accumulation, especially on right side . Results are summarized in Table-4. The over all success rate was 217/250(86.8%) for ear syringing and 231/250(92.4%) for ear suction respectively. .Overall complication rate was marginally significant (P=0.04), however individual complication of each cleaning procedure was insignificant (P<O.O5).Out of the 33 (13.2%) complications of syringing technique, 11(4.4%) patients had wax removal failure and needed more than one wash. Three (1.2%) patients had trauma to external auditory canal (EAC) with mild abrasion and 7 patients (2.8%) had pain during the procedure for which a second sitting was necessary. Two patients (1.2%) visited the OPD within a period of one week with complaints of pain and ear discharge diagnosed as Otitis externa. Transient vertigo occurred in 4 (1.6%) cases due to caloric effect of the water. Out of the 19 (7.6%) complications of ear suction method, 5 patients (2%) had removal failure, two patients (0.8%) had EAC trauma. Two patients (0.8%) had otitis externa, 3 patients (1.2%) had transient vertigo due to caloric effect of the cool air of the suction and 4(1.6%) had tinnitus due the sound effect of suction.

TABLE .1
SEX DISTRIBUTION

SEX	No. of Patients	%
MALE	285	57%
FEMALE	215	43%

TABLE .2
AGE GOROUP

Age	No. of Patients	%
5-10 years	60	12%
11-40 years	185	51%
41-80 years	183	37%

TABLE.3
SIDE PRIDISPOSITION

SIDE	No. of Patients	%
BILATERAL	220	44%
RIGHT	145	29%
LEFT	135	27%

TABLE.4
STUDY RESULT.

Parameters	Ear Syringing		Ear Suctioning		P Value
	250	%	250	%	
Successful Cleaning	217	86.8	231	92.4	
Complications	33	13.2	19	7.6	0.04
Removal Failure	11	4.4	5	2	0.127
Otitis Externa	3	1.2	2	0.8	0.653
Perforation of drum	-	-	-	-	-
Trauma EAC	3	1.2	2	0.8	0.653
Pain	7	2.8	3	1.2	0.201
Vertigo	4	1.6	3	1.2	0.703
Tinnitis	3	1.2	4	1.6	0.703
Otitis media	2	0.8	-	-	0.156

DISCUSSION:

Cerumen is a naturally occurring, normally extruded product of the external auditory canal[3].Excessive cerumen accumulation usually results from misguided attempts to remove wax with cotton tipped applicators, ear buds, bobby pins, keys and breakdown in the epithelial migration of the external audtory canal is also thought to cause ear wax impaction.[4,6,7,8]Removal of impacted cerumen has been practised since ancient Egyptian times; Celsus calls the ear of syringe "clyster oriclarius" used in the treatment of purulent ear discharge and removal of foreign body. Ear syringe was reinvented by Itard, a French otologist in 1821 who was the first to describe irrigation of the ear for removal of hard wax [9]. Since then several procedures have been used for cerumen removal. Depending on available equipment, physicians skill, and patient circumstances, treatment options for cerumen impaction include watchful waiting, manual removal, curettage, syringing, suction, irrigation[3].

The objective of this study was to evaluate the efficacy and safety of two common techniques (syringing and suction) for impacted cerumen removal. Syringing of the ear is commonest procedures performed for cleaning cerumen from the external auditory canal[10].It is simple, blind procedure, and sometimes taken for granted but may be fraught with dangers; The low success rate

is due to poorly balanced syringe, tip end can wobble and pressure is poorly controlled. Sometimes external auditory canal can be blocked with tip of the syringe;on the other hand, suction under direct vision is more effective, well tolerated and atraumatic. It can be done even in the presence of infection, perforated drum, mastoid cavity and in diabetics and immuncompromised patients.[1,4,11,12]. However it may be unsuccessful if suction pressure is too low, suction nozzles are partially blocked and if there is insufficient illumination.

In our study successful dewaxing was seen in 92.4% patients after suction as compared to 86.8% dewaxing after syringing. Incomplete dewaxing seen in 2% patients after suction and ineffective syringing in 4.4% patients, probably due to improper ceruminolytic ear drops, very hard wax plug and associated pain. Wax softening agents (ceruminolytic) are prescribed in order to disperse the cerumen and reduce the need for syringing, or to facilitate syringing should it prove necessary, but there is no consensus on the effectiveness of the wide variety of cerumenolytics in use, like refined olive oil, triethanolamine polypeptide ,docusate sodium and 6.5% carbamide peroxide.[13-15]

Most of our patients used soda glycerine ear drops as it is cheap, easily available and devoid of any significant side effects. The complications encountered with above mentioned dewaxing procedures are well documented such as pain, bleeding, removal failure , external auditory canal trauma, dizziness, vertigo, otitis externa, perforation of tympanic membrane and/or otitis media.[1,3,4,5,10,11,12,,16,17-20] It is found that Children with a history of impacted cerumen are at greater risk of subsequent hearing problems and of a more permanent nature than those without, notwithstanding the removal of impacted cerumen.[5] Chronic and debilitating conditions ,such as hearing loss and tinnitus, can occur as results of attempts to remove cerumen.[21]

In our study complications seen in 13.2% of patients after syrining and 7.6% of patients after aural suction. We have noticed vertigo in 1.6% of patients and tinnitus in 1.2% of patients after syringing while vertigo in 1.2% and tinnitus in 1.8% of patients after suction for a transient period. Folmer FL had found in his study, 0.46% of patients reported that their tinnitus began as a result of cerumen removal.[21] On the other hand, Oqunleye have recorded vertigo 0.2% and tympanic (TM) perforation in 0.2% of patients respectively after aural syringing.[20] We did not encounter any TM perforation in our study . Nussinovitch MP et al observed that wax removal, use of cotton tip applicator and presence of moisture in the canal are the leading cause of otitis externa in children.[22] In our study otitis externa was seen in 1.2 % and 0.8% of patients after syringing and suction respectively .

Major complications like deafness and perilymph fistula were not recorded in our study .By following the recommendations of experts in cerumen management techniques, clinicians can reduce the likelihood of catastrophic complications and subsequent litigation. Ear suction under vision will have better result but will consume more time.

Nowadays, wax is removed under direct vision using a rigid endoscope in conjunction with a Jobson-Horne probe and St Bartholomew's wax hook. It is easier and cheaper to perform than microscopic dewaxing and has the benefits for patients and otologists.[23,24]

CONCLUSION:

The two procedures syringing and suction used for removal of impacted cerumen auris are safe and effective. Some otologic injuries do result from these techniques. Use of wax solvent prior to the cleaning, selection of correct procedure for ear wax removal, proper visualization during the procedure and re-examining the ear after cleaning will help us in decreasing the complications.

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