International Journal of Scientific Reports
Shrestha BL et al. Int J Sci Rep. 2017 Apr;3(4):90-94
http://www.sci-rep.com
pISSN 2454-2156 | eISSN 2454-2164
DOI: http://dx.doi.org/10.18203/issn.2454-2156.IntJSciRep20171471

Original Research Article

Comparison between pre and post- operative chronic otitis media outcome (COMOT-15) in patients who underwent cartilage myringoplasty in Kathmandu University Hospital: The Nepal scenario

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Received: 24 February 2017
Accepted: 14 March 2017

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ABSTRACT

Background: The study was conducted to compare the pre and post-operative outcome of quality of life in patients who underwent cartilage myringoplasty with COMOT-15 (Chronic otitis media outcome test-15).
Methods: 37 patients were included in the study that underwent endoscopic cartilage myringoplasty. COMOT-15 questionnaire was used pre and 6 months post-operatively to see the quality of life outcome. Along with that audiological testing was also performed.
Results: There were total 37 patients (males 19 and females 18) with the mean age of 24.32±/-11.1years, and age range of 18-61years participated in all questionings and examination. The comparison of COMOT-15 Pre and Post-operative questionnaires analysis showed statistically significant improvement in all scales except for mental health. The audiological result also showed clear association of audiometry results with hearing function.
Conclusions: The cartilage myringoplasty has beneficial effect in disease specific health related quality of life, as well there is clear association between hearing function scale and audiological evaluation. So, it is useful to perform cartilage myringoplasty wherever necessary.

Keywords: Audiometry, COMOT-15, Myringoplasty

INTRODUCTION

Chronic otitis media (COM) is defined as the chronic infection of middle ear and mastoid mucosa and/or bone with or without perforation with duration of 3 months and above is regarded as COM in clinical practice.[1-3] COM affects 2-3% of the global population.[1]

Treatment of patients having chronic otitis media mucosal type with tympanoplasty generally improves the disease, hearing status and prevents complications.

The assessment of treatment results with functional diagnostics test or similar parameters alone does not reflect the subjective experiences of the patients. Hence, the subjectively assessed Health related quality of life (QOL) is steadily increasing in clinical medicine.[3]

Though there are different QOL index to measure the heath related QOL but Baumann et al[3] developed a novel disease specific QOL questionnaire which assesses the severity of subjective symptoms; as Chronic Otitis Media Outcome Test 15 (COMOT 15).[1,3-5] This test was shown to be valid, reliable and sensitive tool for health related QOL in patients with COM.[3]

We conducted this study in patients who underwent endoscopic cartilage myringoplasty with COM mucosal type disease and we had evaluated the health related quality of life (HRQOL) pre and post-operatively using COMOT-15 questionnaire.

This kind of study is not done previously with cartilage myringoplasty, so we did this study to know the QOL outcome post-operatively.

METHODS

This was prospective, cohort study conducted in the department of Otorhinolaryngology and Head and Neck surgery in Kathmandu University Hospital from 1st June 2013 to 1st June 2015. The study was carried out in accordance with Helsinki Declaration as amended in 2004. Informed consent was taken from the patient before conducting the study.

The inclusion criteria were COM mucosal type, inactive, age </=18 years, of either sex. The exclusion criteria were graft failure, revision cases, mentally retarded, medical or surgical conditions or treatment having a chance to influence the outcome.

From the patients included in the study, data collection was done pre-operatively and then 6 months post-operatively. Clinical examinations (general ENT examination, microscopic examination of ear, tuning fork tests) and for the hearing assessment, pure tone audiogram performed by Midimate 602, diagnostic audiometer (Madsen electronics company) in sound treated double room set up was done within 7 days prior to operation and then 6months after the operation. The audiological results were reported according to American Academy of Otolaryngology- Head and Neck Surgery guidelines.[6] The hearing was assessed by comparing pre with post-operative ABG (Air bone gap) in speech frequencies (500Hz, 1KHz, 2KHz, 4KHz).

For the surgery

The rigid Hopkins II endoscope (Karl Storz) 0 degree and 30 degree with 4 millimeter diameter and 18 centimeter in length was passed through transcanal route to observe and assess the perforation, ossicular chain status, middle ear mucosa and also the eustachian tube orifice. Then,

the margin of the perforation was refreshened with the straight needle and also the epithelial layer of the tympanic membrane was elevated off the fibrous layer with round knife around the perforation . Whenever the handle of malleus was visible, it was well skeletonized. The gelatin sponge was kept in the middle ear cavity with crocodile forceps. Graft was harvested from the tragal cartilage. The perichondrium on the lateral side of the graft was elevated with part of perchodrium was left intact on the central part of cartilage, whereas the medial perichondrial was left as such to avoid curling of cartilage. The cartilage graft was then placed around the perforated tympanic membrane by first inserting on the anterior end of perforation by mounting on the crocodile forceps. Then rest of the cartilage was placed in the middle ear with straight needle. The elevated perichondrium covers the later end of tympanic membrane around the perforation. The canal was then packed with wet gelatin sponge soaked in ciprofloxacin ear drops and followed by the ribbon pack medicated with soframycin was kept in the canal and mastoid bandage was applied.

For the COMOT-15 questionnaire, it was translated into national Nepali language for the convenience of patients. Quality of life questionnaire was filled pre and 6 months post-operatively.[3]

The subjective symptoms of these patients were filled with COMOT 15 and symptom severity scores were determined accordingly. COMOT-15 consists of three sub-scales categorized as ear symptoms (questions 1-6), hearing function (questions 7-9), and mental health (10-13). Additionally, two more questions about general evaluation of impacts of COM and frequency of doctor visits related to COM were also filled.

The disease specific QOL measured with COMOT- 15 was analyzed as per instructions in published formula.[3]

All the COMOT-15 scores were compared individually pre and post-operatively.

Statistical analyses

For the statistical data analysis, SPSS v.20.0 for Windows (SPSS inc., Chicago, USA) was used.

The significance of difference between 2 groups was evaluated by the student's t test. The Pearson's correlation coefficient was calculated to analyze the correlation of COMOT-15 scales with pure tone average. The significance level for all tests was set at p<.05.

RESULTS

There were total 37 patients (males 19 and females 18) with the mean age of 24.32±/-11.1years, and age range of 18-61years participated in all questionings and examination.

Regarding the Gender distribution, there were 19 male and 18 female as shown in Table 1.

Table 1: Gender distribution (n=37).

Gender	Frequency	Percent
Male	19	51.4
Female	18	48.6
Total	37	100.0

Likewise in the distribution of occupation, most were students as shown in Table 2.

Table 2: Occupation distribution (n=37).

Occupation	Frequency	Percent
Student	22	59.5
Housewife	7	18.9
Business	5	13.5
Farmer	3	8.1
Total	37	100.0

Regarding the educational status, most were in secondary school level as shown in Table 3.

Table 3: Educational status distribution (n=37).

Educational status	Frequency	Percent
primary level	6	16.2
secondary level	18	48.6
Intermediate	10	27.0
bachelor level	3	8.1
Total	37	100.0

The comparison of COMOT-15 Pre and Post-operative questionnaires analysis are shown in Table 4.

Table 4: COMOT-15 analysis.

Questionnaires		Mean	Std. Deviation	Std. ErrorMean	P value
Pair 1	Pre ope and post ope Qns:Discharge from the ear	1.43243	1.64216	0.26997	0.000
Pair 2	Pre ope and post ope Qns:Earache	0.59459	1.14162	0.18768	0.003
Pair 3	Pre ope and post ope Qns:Ear pressure/fullness-	0.54054	1.36615	0.22459	0.021
Pair 4	Pre ope and post ope Qns:Tinnitus	0.70270	1.05053	0.17271	0.000
Pair 5	Pre ope and post ope Qns:Headache	0.51351	1.34622	0.22132	0.026
Pair 6	Pre ope and post ope Qns:Hearing loss	1.08108	1.42163	0.23371	0.000
Pair 7	Pre ope and post ope Qns:I have difficulties to understand someone speaking from a longer distance	0.91892	1.58777	0.26103	0.001
Pair 8	Pre ope and post ope Qns:I have difficulties to understand something in noisy surrounding area.	0.81081	1.59579	0.26235	0.004
Pair 9	Pre ope and post ope Qns:I have difficulties to understand when people are speaking simultaneously.	0.72973	1.38742	0.22809	0.003
Pair 10	Pre ope and post ope Qns:My hearing loss makes me feel depressive/sad.	0.56757	1.60798	0.26435	0.039
Pair 11	Pre ope and post ope Qns:Because of my hearing loss I fear that others may misunderstand me.	0.13514	1.31576	0.21631	0.536
Pair 12	Pre ope and post ope Qns:My hearing loss causes embarrassing situations.	0.00000	1.59861	0.26281	1.000
Pair 13	Pre ope and post ope Qns:I am scared that my ear problems will increase in future.	1.21622	1.90227	0.31273	0.000
Pair 14	Pre Ope and post ope Qns:Overall assessment of the impact of the ear disease on quality of life	0.94595	1.92853	0.31705	0.005
Pair 15	Pre ope and post ope Qns: Frequency of visits to doctors for same ear problems.	0.59459	2.08779	0.34323	0.092

The result showed statistically significant improvement in all scales except for mental health as shown in Table 4. The audiological result is shown in Figure 1.

There is also clear association of audiometry results with hearing function as shown in Table 5.

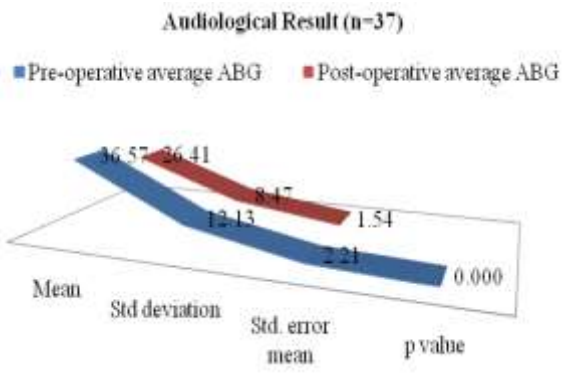

Table 5: Showing correlation of hearing function with audiometric results.

	Pre operative PTA		Post operative PTA after 6 months	
Comot - 15 scale	R	P-value	R	P-value
Hearing function	0.35	<0.001	0.39	<0.001

DISCUSSION

The health related quality of life measurement bears an important part in assessing the quality of life in general practice. In COM, the patients mainly complain of ear discharge, decreased hearing, ear pain, tinnitus and vertigo. The decrease hearing causes restriction on communication ability which may in some cases lead to depression, anxiety and social withdrawal. So, it is responsible for loss of HRQOL [Health related quality of life] in different dimensions like physical, functional, social and psychological.[7-9]

Because of above factors, the health related quality of life parameter is now taken as an important aspect in expressing the outcome of treatment either in improvement or cure.[10]

The chronic ear survey (CES) was the only validated tool for assessing the quality of life after ear surgery till 2009[1] but the main drawback of this questionnaire is lack of functional deficits and psychological impairment. So, the COMOT -15 developed by Baumann et al is suitable in this respect as proved by other study.[3,11] Hence we also follow the same.

Health related quality of life as assessed with COMOT-15 showed relief from the ear symptoms and improvement in hearing functions following endoscopic cartilage myringoplasty which is similar to other studies.[3,11]

Likewise there is also improvement in audiological assessment of hearing post-operatively as shown in figure 1, as well there was a good correlation seen between audiometry thresholds with subjectively evaluated hearing function levels like in other studies.[3,11]

The major impact of ear discharge in patients' daily social lives was not usually addressed properly though this condition usually hampers the social and professional activities of patients.[1]

Our study also showed the improvement in air bone gap following surgery by 10.1dB with correlation between the scales of COMOT-15 and post-operative audiometry results similar to study performed by Kumar et al.[11]

Mental health showed no significant improvement in two scales (question number 11 and 12) in our study, the reason could be because of small sample size.

The main limitations of the study are small sample size, short follow up period and short duration of the study. Another limitation is comparison group, may be simple graft myringoplasty helps to give study more weight on validity.

CONCLUSION

The cartilage myringoplasty has beneficial effect in disease specific health related quality of life; as well there is correlation between hearing function scale and audiological evaluation. So, it is useful to perform cartilage myringoplasty wherever necessary.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the institutional ethics committee

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Cite this article as: Shrestha BL, Amatya RCM, Dhaka A, Pradhan A, Rajbhandari P. Comparison between pre and post- operative chronic otitis media outcome (COMOT-15) in patients who underwent cartilage myringoplasty in Kathmandu University Hospital: The Nepal scenario. Int J Sci Rep 2017;3(4):90-4.