

SHORT REPORT

Stapedectomy versus Stapedotomy

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Objective; To stimulate the discussion on the effects of stapedectomy and stapedotomy in terms of dizziness and hearing results in short and long term.

Materials & Methods; Sixty one ears of 56 patients undergoing stapedectomy or stapedotomy between 2000 - 2006 were included. Revision surgeries were excluded.

Results; Follow-up period has been 47 months in average. Under local anesthesia, 30 ears had stapedectomy and 31 ears received stapedotomy. Five patients (8.9%) complained from dizziness which resolved completely in a few days and one patient who had stapedotomy suffered from vertigo for a week following the surgery. Tinnitus symptom was present in 30 (53%) patients preoperatively and persisted in 19 (62%) patients after the surgery. No statistical difference was determined between two techniques in tinnitus. No significant difference was found between the two techniques in terms of hearing.

Conclusion; Even, there was not any significant difference between the two techniques in terms of hearing, stapedotomy operation should be preferred owing to more stable and comfortable early postoperative period.

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The evolution on the surgical technique has showed that stapedectomy can be manifested as having less postoperative symptoms such as vertigo and disequilibrium. However in regard to the postoperative hearing levels it has been reported that there does not appear any significant difference between the two techniques.

Material & Method

In this report we present 56 patients, who underwent stapes surgery during 2000-2006, having long term follow-up after the surgery. The mean thresholds were calculated by averaging the frequencies between 500 to 4,000 Hz.

For brief description of the techniques; a 1 mm-fenestra was opened by using a hand perforator during stapedotomy. For stapedectomy, temporalis fascia was used to seal the oval window.

The criteria for a successful outcome in terms of hearing were defined as the air-bone gap should be 10 dB or less within the postoperative period. The data was analyzed by using SPSS software and the Wilcoxon test was used.

Results

Sixty-one ears of 56 patients were operated on. The mean age was 38.7 years (ranging between 13 to 60). Based on audiometric data, 67% had bilateral otosclerosis. In 30 patients (53%), tinnitus was present in preoperative period.

30 ears (49.2%) underwent stapedectomy and 31 ears (50.8%) stapedotomy. Follow up period varied between 12-68 months (mean 47 months).

Overall preoperative air-bone gap was 35dB, and it was reduced to 18 dB postoperatively ($p<0.05$). It was

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less than 10dB in 47 ears (77%). Among them 25 patients (53.1%) had stapedotomy and 22 (46.8%) received stapedectomy.

Hearing levels were decreased in one patient with stapedotomy, and did not change in another having stapedectomy operation. There was no sensorineural hearing loss in any of the cases. Five patients (8.9%) complained about dizziness which resolved completely in a few days, and one patient, who had stapedotomy, suffered from vertigo for a week following the surgery. Tinnitus symptom was present in 30 (53%) patients preoperatively. 16 of them had stapedectomy and 14 patients had stapedotomy operations. Postoperatively tinnitus symptom was persisted at the same intensity as being preoperatively for 10 (62.5%) out of 16 patients from stapedectomy group and 9 (64.2%) out of 14 patients from stapedotomy group. The difference between these two groups in regard to tinnitus was not significant.

The mean follow up period was 47 months, and the number of ears with up to 10 dB- air-bone gap was 42 (77%).

Comment

Even it sounds that the stapedotomy operations could serve for a better hearing gain, the long term surveys cannot find any significant difference between the two techniques. In regard to the postoperative complications, still the two techniques seem to have similar impact.^[1-3] The patients comfort and symptoms are also another factor that should be dealt with while comparing the two techniques.

Success in stapes surgery is defined as reaching to less than 10db air-bone gap or less postoperatively^[4]. The late postoperative hearing results were found to be similar between the two techniques in many studies. Likewise, it was the case for our study ($p>0.05$).

Tinnitus is a common complaint in otosclerosis, and may persist in postoperative period. The presence of tinnitus during the postoperative period was attributed to presbycusis, cochlear otosclerosis and other diseases influencing cochlea^[5].

In the present study, the rate of tinnitus was 53% preoperatively and this tinnitus persisted in 62% of patient. The difference was not significant between the two groups.

The development of sensorineural hearing loss in postoperative period is a rare but serious complication. Stapedotomy may seem to be more reliable in terms of creating less trauma to the footplate; however both techniques still have the same impact on development of postoperative sensorineural hearing loss^[6]. There was no sensorineural hearing loss in our series.

In conclusion there appears no difference between stapedectomy and stapedotomy techniques during the early and late postoperative period in regard to hearing results as well as complications and patient comfort.

References

1. Aarnisalo AA, Vasama JP, Hopsu E., Ramsay H. Long-term hearing results after stapes surgery: a 20 years follow-up. *Otol Neurotol*. 2003; 24:567-571.
2. House HP, Hansen MR, Al Dakhail AA, House JW. Stapedectomy versus stapedotomy: comparison of results with long-term follow-up. *Laryngoscope* 2002; 112:2046-2050.
3. Bozan S, Öztürk Ö, Sancak Y, Karaman E, Yılmaz S, Enver Ö. Stapes cerrahisinde uzun dönem işitme sonuçları. *Cerrahpaşa Tıp Dergisi* 2004;35:170-173.
4. Chandarana S, Parnes L, Agrawal S, Fung K. Quality of life following small fenestra stapedotomy. *Ann Otol Rhinol Laryngol* 2005; 114:472-477.
5. Langman AW, Jackler RK, Sooy FA. Stapedectomy: long-term hearing results. *Laryngoscope* 1991; 101:810-814.
6. Hough JV, Dyer RK Jr. Stapedectomy. Causes of failure and revision surgery in otosclerosis. *Otolaryngol Clin North Am* 1993; 26: 453-470.