ABSTRACT

Both mastoidectomy and tympanoplasty are common techniques used in otologic surgery for pathology. The canal wall down mastoidectomy with cartilage tympanoplasty is often used in advanced pathologies such as large cholesteatomas or recurrent otitis media.

Although these techniques are well proven in their ability to eliminate patients with disease, their hearing results postoperatively have been called into question. The purpose of this study was to assess the overall hearing results after canal wall down mastoidectomy with cartilage tympanoplasty.

A canal wall down mastoidectomy involves removing the posterior wall of the ear canal along with drilling out the mastoid cavity. This forms a single mastoid bowl and exteriorizes the ear. A tympanoplasty involves reconstruction of the tympanic membrane. Various grafting materials are used for reconstruction including muscle fascia, cartilage, and others. Temporalis fascia is the most common material used for tympanoplasty. It is believed that canal wall down mastoidectomy patients have historically been thought to have worse post-operative hearing results.

METHODS AND MATERIALS

A retrospective study was completed on all patients who underwent a canal wall down mastoidectomy with cartilage tympanoplasty between 2000 and 2010. Each patient’s operative report, pre- and post-operative clinic visits, and pre- and post-operative audiometry was reviewed. Post- and preoperative pure tone averages (PTA) and air-bone gaps (ABG) were used for assessment of the patient’s hearing results. 500 Hz, 1,000 Hz, 2,000 Hz and 4,000 Hz were all used as data points in our assessment.

RESULTS

The study included a total of 39 patients who underwent canal wall down mastoidectomy with cartilage tympanoplasty. Thirty patients had full audiograms for study. The average age was 36.8 years old (5-82). The genders of the patients were mostly equal (n=16 males, 14 females).

Five patients were revision surgeries while 25 patients were primary surgeries. Six patients had either a total ossicular reconstruction prosthesis (TORP) or a partial ossicular reconstruction prosthesis (PORP). The preoperative ABG was 28.45 dB with a SD of 13.25 dB. The average postoperative ABG was 23.92 dB with a SD of 12.35 dB. The pre to postoperative ABG improvement was 4.53 dB ($p = 0.028$).

CONCLUSIONS

The results of this study demonstrate that hearing results following a canal wall down mastoidectomy with cartilage tympanoplasty not only have acceptable hearing results but show an improvement over preoperative audiologic function. This is the first quality study to show that canal wall down mastoidectomy patients have historically been thought to have worse post-operative hearing results.

REFERENCES