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Meniere's Update #4

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Endolymphatic Sac Surgery

This week, I had intended to provide the fourth post in the Meniere's update series with some clarity on the role of surgical procedures intended to reduce endolymphatic pressure in patients with Meniere's disease. My initial 2012 post on this topic discussed the lack of definitive information surrounding the benefit of these procedures. My hope was to review articles published since 2012 and gain some clarity or offer some conclusions. That did not happen. I think my reading made me even more confused.

Unlike some of the treatments discussed earlier in this series, there are quite a few new contributions to the literature regarding endolymph sac decompression and shunting procedures. I will discuss a few and conclude with at least one unifying theme.

In 2014, researchers at the University of Michigan did a comparative study of what they describe as "second echelon treatments for Meniere's disease." I think this is an accurate descriptor, as the procedures compared are usually attempted after diet and diuretic, and before ablative procedures such as labyrinthectomy are considered. The "second echelon treatments" studied were: 1. the Meniett device (reviewed here last time), 2. endolymphatic sac decompression, and 3: intra-tympanic gentamicin.

There was no significant difference in symptom relief, residual auditory perception, or number of patients going on for labyrinthectomy when comparing the three treatment options.

Researchers from the University of South Carolina performed an extensive "Systematic Review and Meta-Analysis" of various Endolymphatic Sac Surgeries. The article is extremely detailed and worth reading. The link above will bring you to the abstract, but you may need to purchase the article to get the full text. Here is their conclusion:

"In conclusion, ESS (sac decompression or sac shunting) controls vertigo in the short term (>1 yr of follow-up) in at least 3 of 4 patients with MD who have failed medical therapy, without prior trial of intratympanic steroids or gentamicin. In the long term, vertigo control with the pooled patient data demonstrates a similar 75% Category A/B result. It should be noted, however, that the long-term results are less favorable when the same cohort of patients is followed up over time (73% control at 16 mo follow-up versus 63% at approximately 6.5 yr of follow-up).

There is no statistical difference between sac decompression and mastoid shunting procedures in controlling vertiginous symptoms or preserving hearing in the short-term or long-term follow-up periods. There is also no difference in vertigo control between shunt procedures with and without silastic. There is, however, a statistical difference in hearing preservation, both in the short and long term, between shunting with and without silastic, in favor of no silastic.

This analysis raises the issue of using silastic in ESS. Although vertigo control is similar in the short and long term, silastic sheeting seems to have a small but statistically significant adverse

effect on hearing. In our opinion, a fair assessment would be that once the sac is opened, placing silastic does not add benefit and may be deleterious."

The third study compared the benefits of endolymphatic sac surgery compared to tenotomy of the middle ear muscles. SAY WHAT? Tenotomy is defined as "a surgical act which involves division of a tendon." These authors out of Italy report that severing the stapedius and tensor tympani tendons had similar vertigo control to endolymphatic sac surgery, but tenotomy resulted in better outcomes for functional level measured by DHI, need for additional surgery and residual hearing preservation. WHAT?

I admit that I was unfamiliar with tenotomy of the middle ear muscles as a treatment for Meniere's disease. Let me do a little homework and get back to you on that.

If you have been able to wade through this, you will note one unifying theme. All of the procedures discussed have similar impact on control of vertigo symptoms, and that effect is not terribly different than the natural course of Meniere's disease in patients that do not undergo any of the mentioned procedures.