History
Patient with prosthesis placement several years ago and current decrease in conductive hearing

Diagnosis
Goldenberg prosthesis with subluxation and non communication with the oval window

Discussion
Reconstruction of the ossicular chain is typically performed with synthetic prostheses. The PORP is the most commonly used prosthesis. It attaches to the medial surface of the tympanic membrane or occasionally to the long process of the incus and extends to the capitulum of the stapes. The stapes is left intact during placement of the PORP. If the diseased stapes is resected, a TORP is used to connect the medial surface of the tympanic membrane to an intact stapes footplate or oval window. In this case, the stapes was resected and the prosthesis was attached to the stapes footplate, making it a TORP.

Most PORPs and TORPs are composites, consisting of a head and a shaft. The head is made of hydroxyapatite, a biocompatible calcium phosphate polymer that has the capacity to form bonds with bone and conduct vibratory energy. The biocompatibility of the head permits it to be in direct contact with the tympanic membrane without requiring a cartilage or tissue graft to prevent extrusion. If the long process of the malleus is present, a prosthesis with a notched head is used. This was the case in this patient.

The shaft of the prosthesis is made of high-density polyethylene sponge. These materials are easy to cut and permit the shaft to be trimmed based on intraoperative measurement.

Findings
Patient has a TORP; a goldenberg prosthesis with a hydroxyapatite cap attached to the stapes footplate and a head at the tympanic membrane with a notch over the malleus manubrium.

Reference
CT Evaluation of Prosthetic Ossicular Reconstruction Procedures: What the Otologist Needs to Know1
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