Auricular prosthesis
- Rare congenital deformity of the external ear, affecting 1 in 10,000 – 20,000 births.
- Can be unilateral or bilateral. It causes a curious prosthesis for the right ear.
- About half are estimated to be associated with congenital syndromes such as Treacher Collins, brachio-oto-renal and Goldenhar syndromes.
- It is more common among males and in certain populations such as the Japanese and populations at higher altitude.
- Evaluation should include a complete head and neck exam to rule out other congenital anomalies. Hearing should be evaluated with audiogram or auditory brain stem response.
- Consider CT examination of the temporal bone, skull base, and facial structures. A multidisciplinary craniofacial team approach may be warranted.

Microtia
- The American Academy of Facial Plastic and Reconstructive Surgery e-mailed the survey to its members.
- Pioneered by Tanzer 2 and modified by Brent 3, 4. It can be done in 3-4 stages, each 4-6 months apart. Usually the process begins when the child is age 5 or older to allow for adequate rib growth as well as to avoid psychological trauma associated with multiple surgical procedures.
- Nagata popularized a 2-stage repair: cartilage framework implantation and auricle elevation. 5
- Autologous rib cartilage grafting staged reconstruction
- This is best indicated when there is total anotia, failed autogenous reconstruction, severe soft-tissue/aural hypoplasia, or a low unfavorable hairline.
- It is important to consider that the reconstruction surgeon consider that the placement of an osteointegrated prosthesis can violate the vasculature of the surrounding tissue, complicating future reconstructive options.

Auricular prosthesis for microtia repair
- Temporal bone is protected, human tissue grows into the porous implant.
- Porous high-density polyethylene (HDPE) or Medpor is stable, inert, nonresorbable, and durable.
- Porous surface allows for microvascular ingrowth. Once implanted, human tissue grows into the pores and forms a durable complex which allows this prosthesis to function like body motion.
- It is reported to be biologically inert to infection and extrusion.

Methods Of Microtia Repair

Auricular prosthesis
- The American Academy of Facial Plastic and Reconstructive Surgery e-mailed the survey to its members. On the first question, 120 (11.3%) indicated that they do not see patients with microtia or auricular malformation in their practice, thus the survey was ended after the first question. Sixty-four (62.1%) went on to answer additional questions. One hundred-three responses were recorded (8.7%). Thirty-nine responders (37.9%) indicated that they do not see patients with microtia or auricular malformation in their practice.

Variations Of Technique
- Miniature skin expanders to lengthen the amount of skin present to cover the framework.
- There are varying methods for achieving satisfactory projection during the final stage of the repair. Brent used fascia and skin grafting. Nagata suggested the use of a semilunar cartilage wedge. Ozen describes the use of a delayed chest and abdominal skin grafts. 10
- Temporal bone is protected, human tissue grows into the porous implant.
- Porous high-density polyethylene (HDPE) or Medpor is stable, inert, nonresorbable, and durable.
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Complications
- Complication rates after autologous grafting are low, and the framework is seldom lost.
- Brent reported a 1.6% complication rate which consisted mainly of skin loss, hematoma, and infection.
- In a series of 201 patients (212 ears), Ozen reported a 1% complication rate using Brent’s technique.
- Results noted a 4% complication rate in a series of 250 patients over 11 years with Medpor framework. Most commonly, this consists of skin and fascial flap necrosis.

Methods
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- Porous high-density polyethylene (HDPE) or Medpor is stable, inert, nonresorbable, and durable.
- Porous surface allows for microvascular ingrowth. Once implanted, human tissue grows into the pores and forms a durable complex which allows this prosthesis to function like body motion. It is reported to be biologically inert to infection and extrusion.

Results
- Miniature skin expanders to lengthen the amount of skin present to cover the framework.
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Conclusion
- Over 80% of responders require three or more procedures for reconstruction, as described by Tanzer and Brent, whereas less than 20% use Nagata’s two-stage reconstruction.
- Surgeons who prefer alloplastic frameworks generally complete reconstruction in one stage. However, the age and maturity of the child need to be considered in choosing the proper framework.
- Pressure dressings and drains are used most frequently to secure the skin to the underlying framework, and it does not appear that this practice contributes to skin necrosis or loss unless there is a drain malfunction and herniation occurs.
- Only 5 responders chose alloplastic materials such as Medpor as their preferred framework material. There do not have large enough numbers to draw significant conclusions about these practices. This survey is limited by its inability to distinguish surgeons who have perhaps used Medpor on occasion or reverted back to cartilage. An additional survey specifically investigating the use of alloplastics in microtia repair would be more informative in this regard.

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