INSIGHTS INTO THE TREATMENT OF MICROTIA BASED ON 40 YEARS AS A MEDICAL ARTIST/CLINICAL ANAPLASTOLOGIST

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INTRODUCTION

In the United States roughly 1 in 6000 children is born with microtia. The decision to try to correct or normalize the look of the affected side(s) with surgery or a prosthesis can be a difficult one. Parents of young children are encouraged to seek advice from other parents and support groups, especially before they make any decisions involving surgery.

The 3 treatment options for microtia are: surgical reconstruction, prosthetic restoration and the choice of no treatment. All 3 options have advantages and disadvantages, and none should be dismissed without consultations with specialists from each area of expertise. Finally, it is helpful to hear the opinions of other parents or patients who have already had experience with surgical or prosthetics options or who have opted for no treatment.

SURGICAL RECONSTRUCTION

Surgical reconstruction of the ear is considered by the plastic surgery community as one of the most technically difficult procedures to execute with a lasting successful result. This means a surgically reconstructed ear that heals and remains healthy, develops good definition and elevation from the head and which remains natural looking throughout the individual's life. Success seems to rely on both the surgeon's skill and aesthetic awareness.

Surgeon selection is therefore critical. Parents are encouraged to be very assertive in their consultations with surgeons; requesting examples of what the surgeon considers long term success stories. The surgeon will usually offer evidence of their results in the form of a portfolio of before and after photos. How else can a parent feel resolved in their decision to select this surgeon and this treatment option for their child? Children's own awareness of their ear difference and motivation to undergo surgery might seem helpful, but the selection of the surgeon and final decision for surgery must rest with the parents.

Surgical reconstruction is not always accomplished in one operation. It depends on the technique used. Some surgeons use the child's own rib cartilage to sculpt the underlying structure. Other surgeons use implantable porous polyethylene, a plastic material shaped and inserted under the skin. Whether living cartilage or polyethylene is used, it should be remembered that the very first attempt at surgical reconstruction is the most critical. This is because the trauma of surgery causes scar tissue to form; a natural process where the skin becomes thicker and tighter. The presence of

scar tissue then makes subsequent attempts to correct failed reconstructions much more challenging for the surgeon. Therefore, if reconstruction is the desired treatment then finding the most skilled and experienced EAR reconstructive surgeon the FIRST time is very important. Prestigious institutions and highly credentialed surgeons can be awe-inspiring, but parents must maintain a laser like focus on the actual results. Be prepared to travel across the country or even out of the country to find the right surgeon. Families, children, and adult patients may decide to decline surgical reconstruction based on medical risks, time involved, costs, or for other personal reasons. For them there is always the choice to wear an ear prosthesis.

PROSTHETIC RESTORATION

Terms like “prosthetic restoration", “prosthetic ear”, “auricular prosthesis” or “ear prosthesis” all refer to the same thing: an artificial ear that has been created with special biomaterials like medical silicone to look just like living tissue – tissue that looks just like the patient’s own skin. It should also be understood that ear prostheses are designed to lie on top of the skin, not implanted under the skin. Prosthetic restoration of the ear is possible for all grades of microtia.

There is great variability in the design of ear prostheses. Some ear prostheses are designed to slip over microtia tissue or the ear tissue that remains from previous surgical reconstructions. Some ear prostheses are attached to the skin with prosthetic adhesive. Some are designed to magnetically attach to abutments (posts) that are attached to fixture screws in the temporal bone. Some ear prostheses are stabilized by attaching them to eyeglasses. All silicone ear prostheses or “auricular” prostheses are removable – they do not become part of the body. No matter the method of attachment, the prosthesis is put on and taken off by the patient on a regular basis, usually daily, to maintain hygiene of the skin and cleanliness of the prosthesis.

The beauty of the artistically created ear prosthesis is that it is not detectable as a prosthetic replacement. The prosthetic ear looks just like a natural ear, because it has the same shape as the unaffected ear with the same soft fleshy look, identical anatomical structures, and coloration as the unaffected ear. However, creating highly life-like ear prostheses is a technique-sensitive specialty honed by experience, Therefore, choosing an ear prosthetics specialist is like selecting an ear reconstructive surgeon. In the United States there are diverse prosthetics practitioners, but there are very few individuals who are naturally talented as artists but who also trained in silicone facial prosthetics and dedicated to comprehensive prosthetic ear restoration. Like choosing a surgeon, the prosthetics candidate must be prepared to travel outside of their state to find the very best results. It cannot be over emphasized how important it is to see samples of the practitioner’s ear prosthesis results.

EAR PROSTHESIS OPTIONS

The conventional adhesive-retained ear prosthesis

This simple prosthesis is available without any surgery. This is especially helpful to see how the prosthesis looks when shaped to fit over existing microtia tissue. The adhesive-retained ear prosthesis is also appropriate as an interim measure if additional time is needed in deciding whether to undergo surgical reconstruction or to have an implant-retained ear prosthesis. The prosthesis in this situation might just help bolster a child's self-confidence through pivotal school years or trying periods, especially if the family has not yet found a surgeon who has inspired their confidence or assured them that a successful surgical outcome was highly probable. Ultimately, many of our patients grow to become very comfortable with using their adhesive-retained ear prostheses.

Sometimes it is possible to create a "slip-over" type prosthesis that is molded over and around microtia ear or over a previously surgically reconstructed ear that is not acceptable in appearance to the patient or parent. Because of the intimate fit of this type of prosthesis adhesive might be needed only as an extra measure of security or to help seal the edges of the prosthesis. The slip-over prosthesis provides an opportunity to give a more normal look to the affected ear. For example, improved definition of the helix (rim) of the ear is often incorporated into the prosthesis to match the unaffected side. The added helix and adjacent anatomical definition blended into the existing shape creates a more natural look when viewed from the side and a more symmetrical balanced silhouette when viewed from the front or back. Admittedly, the reliance on adhesive can be challenging and burdensome for a child and family. However, this type of prosthesis can be very helpful in revealing the nature and benefits of the prosthesis option prior to committing to reconstructive surgery or osseointegration, both of which result in permanent scarring and irreversible sacrifice of the child's own natural soft tissue. If neither adhesive nor anatomical retention is desired or feasible, then implant-retention might be the ideal long term prosthetic solution.

The implant-retained ear prosthesis option is now widely accepted and recommended by physicians and facial prosthetists for patients who elect to wear a prosthesis as their preferred lifetime choice. "Osseointegration (OI)" is the process of the implant retention method, whereby the anchoring fixtures integrate directly into the bone of the skull. Adequate bone thickness and quality are necessary, and the surgeon will discuss the suitability of this method. Suitable candidates only require one surgery followed by a 1–3-month osseointegration period and then the ear prosthesis is made and attached. This option should be explored by individuals who are not likely to receive a successful long-term surgical reconstruction of their ear or those tired of living with the look of their failed or suboptimal ear reconstruction. It should be explored by those whose priority is having the most natural and symmetrical prosthetic ear restoration over any concerns of sacrificing microtia tissue. It should be considered by those wanting a prosthesis but who are also

very active individuals or who live in hot humid climates where reliance on adhesives for retention might be problematic.

The implant-retained prosthesis does not require any adhesive. It has magnets or clips that attach securely to fixtures that are surgically installed in the temporal bone. The implant-retained ear prosthesis is ideal for children and adults whose medical condition is not suitable for surgical reconstruction of the ear. It is also a good option for those who have already endured failed reconstructive surgeries. And it is good for others who simply favor the expediency and certainty of having a perfectly symmetrical natural-looking prosthetic ear over a lengthy surgical reconstruction process that comes with an uncertain outcome in terms of symmetry and aesthetics.

The information in this booklet is provided as an introduction to the options available. Clearly, everyone's case is unique with many factors to consider. Consultation and decision making might involve several different professionals from surgery, dentistry, audiology, and anaplastology, so patients should expect some bias to be at play.

Medical Art Prosthetics, LLC has been involved in the field of ear (auricular) prosthetics since 1985 and collaborates openly with all health care specialists. We welcome the opportunity to answer questions and provide whatever support we can to result in informed decisions and the most successful outcomes for each individual.

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