

a guide to understanding
microtia

a publication of children's craniofacial association

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this parent's guide to microtia is designed to answer questions that are frequently asked by parents of a child with microtia. It is intended to provide a clearer understanding of the condition for patients, parents and others.

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This booklet is intended for information purposes only. It is not a recommendation for treatment. Decisions for treatment should be based on mutual agreement with the craniofacial team. Possible complications should be discussed with the physician prior to and throughout treatment.

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what is microtia?

the term microtia means a “small ear.” This condition can range in severity from being a slightly smaller ear with a normal shape and a functioning ear canal, to one that is just a small bump of skin and cartilage without any ear canal. Microtia can happen on only one side, or on both sides. Usually, microtia occurs as an isolated problem without any associated abnormalities. However, it can also occur as part of a syndrome, such as Treacher Collins and Hemifacial Microsomia. These syndromes are further discussed in other booklets.

why was my child born with microtia?

the chances of having a baby with microtia are about 1 in 5000. No one knows the cause of microtia, and when it does occur, mothers most often report that their pregnancies were completely normal. It is rare to find microtia being passed down as a family trait. Some have suggested that microtia might be caused by a poor blood supply during ear development. Currently, there is no known way to prevent microtia.

can my child hear with microtia?

a child with a microtic ear often has a normal inner ear; therefore, children will have some hearing on this side. The amount of hearing in the affected ear depends upon how much of the ear canal and middle ear is formed. If both of these structures are present, hearing in the affected ear can approach normal. It is important to note that if the opposite ear is unaffected, the child should have normal hearing on this side. Since the inner ear is normal in most children with microtia, even if both sides are affected, the child will still have the ability to hear but the sounds will be muffled. Depending upon a number of factors, hearing aids may be recommended to help with normal speech and language development.

does microtia affect normal development?

having microtia on one side, or even both sides, should not affect development. This is especially true if steps are taken within the first few months of life to measure the child's hearing and provide treatment when needed. Children with microtia need to be seen by an ear specialist (ENT); ideally, one who is associated with a craniofacial team, to find out if a hearing aid is necessary. It is very important for babies to be able to hear normally in order to learn how to speak.

what are my child's treatment options for hearing and appearance?

One advantage of seeking treatment at a craniofacial center is that any necessary treatments can be coordinated among all the different specialists. This can reduce the need for multiple operations and can insure that the right things are done at the right time.

Hearing – Children with one-sided microtia and have normal hearing ear in the opposite ear, often do not require any additional treatment to improve hearing. Some surgeons might recommend surgery to create an external ear canal and to build an eardrum on the microtia side, but only if a scan shows that normal middle ear structures are present. This surgery has the potential to make sounds louder. However, one disadvantage of this type of surgery is that it has a variable success rate. Often, completely normal hearing cannot be achieved. In addition, the new ear canal may later close down on its own, leaving a scar. Parents are encouraged to get a second opinion before proceeding to make sure they understand not only the potential benefits, but also the potential problems. For children who have microtia on both sides, hearing aids are almost always recommended. There are two basic types of hearing aids: those that are worn on a headband and those that are anchored to the skull bone. Most often, babies and toddlers will first be given the

headband type and as children get older, doctors may discuss switching to a bony anchored type, which is less noticeable and further improves hearing. **However, before a bony anchored hearing is placed, it is very important that the surgeon doing this operation communicate with the surgeon doing the ear reconstruction to ensure that the hearing aids will not interfere with appropriate positioning of the new ear.**

Appearance – Building an external ear can be an important step for a child. However, because a child will likely have to live with their new ear for the rest of his or her life, it cannot be emphasized how it is important for parents to consider letting their child to have a say in their treatment. Regardless of the type of reconstructed ear, this process usually takes place somewhere between 6 and 10 years of age. This timing varies from surgeon to surgeon. It also depends upon how the child is growing and coping both psychologically and socially. Options for creating an outer ear include: having an artificial (prosthetic) ear made, undergoing reconstruction that uses both artificial material and the patient's own tissue, and building an ear entirely using just the child's own tissues.

i) No Ear reconstruction – The first option that should be considered is doing nothing. If the microtia does not bother the child, and is not having any negative impact on their life, reconstruction does not necessarily need to be

done in childhood. Although having an external ear does make wearing glasses much easier, this operation can be done anytime into early adulthood.

ii) Prosthetic Reconstruction – A prosthesis is an artificial ear, which is usually made out of silicone, based on a mold from either the patient's opposite ear or a parent's ear. This prosthesis can be attached to the head with adhesive or using magnets or clips. The magnetic, or clip-on, prosthesis requires an operation to place bone screws into the skull, which can then help to keep the artificial ear strongly attached to the head. Advantages of this type of reconstruction include a very natural appearing ear, with minimal surgery. The disadvantages include the need for prosthetic replacement every few years, as these do tend to wear out. The replacement costs may not be covered by insurance. Also, the color of the prosthesis cannot change, so the ear can look a little unnatural if a child blushes, or gets tan. There is always the embarrassing possibility that the prosthesis might accidentally come loose, or fall off at an inopportune time. This is more likely to occur with a prosthesis that is held on with skin glue than with those attached by a bone anchor. Finally, cleaning and skin care around the site of metal attachment going through the skin into the bone, is required daily to maintain the life span of the prosthesis.

iii) Combined Prosthetic and Natural Tissue Reconstruction

– This form of treatment uses a pre-made ear framework that is then covered by the child's own skin. The framework is made of a type of plastic material that has tiny holes that allow some tissue to grow into it, helping to stabilize the prosthesis over time. This method can take more than one operation. Advantages include eliminating the need to harvest any rib cartilage (needed to construct an all-natural ear). So, the surgery can be a little shorter, and there may be less soreness right after surgery. Another advantage of this technique is that the shape of the ear is less dependent upon the technical skill of the surgeon, because the ear gets its shape from the artificial material. However, the disadvantages include the risk that the artificial material might need to be completely removed if an infection occurs, or if the ear gets injured in any way that exposes some of the artificial material. It is also currently not known if this material will last a lifetime.

iv) All-Natural Reconstruction – This type of reconstruction uses a child's own rib cartilage (usually, a part of 3 different ribs) to create an ear framework that is carved and assembled together to recreate the shape of an ear. This carved framework is then placed under the skin where the new ear needs to be. A second operation, a minimum of 3 months after the first operation, is performed to create a space behind the new ear for wearing glasses. Sometimes, additional small operations might be necessary to fine-tune the appearance of the new ear. Advantages of this method include using just the child's own body tissues, which likely carries a lower lifetime risk for an infection. In addition, if the reconstructed ear were ever to be injured, it can heal in by itself. Disadvantages include the need to harvest rib cartilage. Sometimes, the removed cartilage can leave a small chest wall deformity. Finally, and probably most importantly, the shape of the ear is completely dependent upon the ability of the surgeon who is carving and assembling the ear.

There is no single best treatment option. Therefore, deciding which treatment method is best for your child should involve open discussions between the members of the craniofacial team, family members and appropriate caregivers, and most importantly, with your child.

what other problems or treatments might we expect?

Reconstructed ears may require some maintenance over time, which depends upon the type of ear reconstruction. If your child has microtia as part of a syndrome, additional treatments might be needed to address syndrome related problems. Hearing aids will also require life-long maintenance.

how will microtia affect my child psychologically?

There is no one correct answer to this complicated question. How a child reacts to having microtia depends upon many factors such as: personality, parental guidance, whether or not a child grows up with the same group of children or is changing schools frequently, even how a child chooses a hairstyle. Parents and caregivers can provide children with tools to help them cope with their differences. Social workers and child psychologists on craniofacial teams can be a good resource for families in this regard, and can even sometimes coordinate meetings between families who have already gone through the treatment process. Other families are able to offer real-life experiences, which can be very helpful for families just beginning down the road to treatment.

how can children's craniofacial association (cca) benefit my family?

CCA understands that when one family member has a craniofacial condition, each person in the family is affected. We provide programs and services designed to address these needs. A detailed list of CCA's programs and services may be found on our website at www.ccakids.org or call us at 800.535.3643.



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