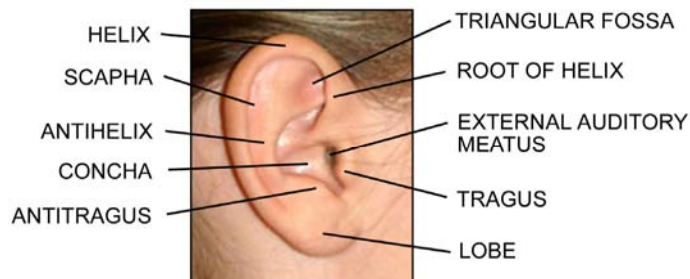


# Microtia

### What is microtia?

Microtia (*mī KRŌ sha*) is the incomplete development and growth of the outer ear. This can lead to a small, abnormally-shaped, or absent ear. It usually involves one side, though both ears may be affected in some children.

### Normal ear anatomy



### Microtia can be divided into 4 types:

#### Grade 1



The ear is small but it has most of the features of a normal ear. The ear canal is usually open.

#### Grade 3



The ear lobe is present but in a different position. There is often a small bud of cartilage. These children usually have aural atresia.

#### Grade 2



The ear is small and missing some features. The ear canal may or may not be open. When there is no ear canal it is called aural atresia.

#### Grade 4



When the ear is missing it is called anotia.

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**Will my child have other problems related to the microtia?**

Some children with microtia also have a small jaw on the same side. This is called hemifacial microsomia (HFM).

About 10% of children with microtia have related abnormalities. These may include facial clefts, eye abnormalities, heart defects, abnormal kidneys, and vertebral abnormalities.

**Why does my child have microtia?**

Exposure to high doses of vitamin A and maternal diabetes during pregnancy are two of the known causes of microtia. There are also some syndromes associated with small ears, including Treacher-Collins syndrome, Oculoauricolovertebral syndrome, and Goldenhar’s syndrome.

Microtia may run in your family. A specific gene has not been identified yet. Currently there are no tests available to identify a cause of microtia.

**What should we do for our child?**

Start by having your child’s hearing tested. We expect that your child will have some hearing loss in the small ear. The hearing test will also measure the hearing in the normally shaped ear. Children with normal hearing in one ear usually develop normal speech and language.

There are two main types of hearing tests, BAER (brainstem auditory evoked responses) and behavioral testing (audiogram). BAER testing is performed before your child is old enough to cooperate with behavioral testing. Behavioral testing is done when the child is mature enough to cooperate. Other tests will be recommended, depending on your child’s age.

The following table provides an outline of our recommendations for your child.

Age	Recommendations
<b>Infancy (0 -12 months)</b>	<ul style="list-style-type: none"> <li>• Routine well-child care</li> <li>• Hearing evaluation</li> <li>• Hearing loss intervention if necessary</li> <li>• Renal (kidney) ultrasound</li> </ul>
<b>Toddlers (1-3 years old)</b>	<ul style="list-style-type: none"> <li>• Routine well-child care</li> <li>• Hearing evaluation</li> <li>• Speech and language evaluation</li> </ul>
<b>Preschool (3-5 years old)</b>	<ul style="list-style-type: none"> <li>• Routine well-child care</li> <li>• Hearing evaluation</li> <li>• Speech and language evaluation</li> <li>• Dental assessment</li> </ul>
<b>Early school (5-7 years old)</b>	<ul style="list-style-type: none"> <li>• Routine well-child care</li> <li>• Hearing evaluation</li> <li>• Speech and language evaluation</li> <li>• Dental assessment</li> <li>• CT scan of the temporal bones (for children with hearing loss)</li> <li>• Neck x-rays</li> <li>• Academic accommodations, as needed</li> </ul>

**What are the treatment options for microtia?**

There are three options for treating microtia. A decision regarding which option may be best for your child depends on many things. Some issues to consider when deciding which option is best for your child are: the degree of microtia, the possibility of aural atresia repair, and patient and family

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preferences. Open discussions between your providers, family members, and most importantly, your child, will guide you in making the best choice.

**No treatment** – You may decide to leave the ear as it is. If you choose this option, the ear canal can not be opened to improve the hearing in that ear.

**Prosthesis** – An artificial ear can be made from silicone, using a mold of the opposite ear as a template. This can be done when the child is at least 6 years old. There are two ways to secure the ear prosthesis to the head.

Adhesive retained – special glue is used to attach the prosthetic ear over the microtia.

Implant retained – surgically-placed titanium posts are used to support the prosthetic ear using a system of magnets and clips. The microtia is removed. This option requires two surgeries.

**Surgical reconstruction** – There are 2 types of surgical ear reconstruction, depending upon the material used to create a new ear. Your child must be at least 6 years old for this option.

**Rib reconstruction** – Your child's own cartilage (autogenous) and skin are used to create a larger ear. 3 surgeries are required. Your child will need anesthesia for each surgery.

*1st stage* – cartilage is borrowed from your child's rib cage and carved to create the new ear. This surgery takes about 4 hours. Your child will need to stay in the hospital for 2 nights after surgery.

They will need to come back to the clinic the following week to have some of the bandages removed. Your child will not be able to participate in strenuous activity for 2 weeks after this surgery.




*2nd stage* – the ear lobe will be moved to the lower part of the framework that was created during the first surgery. This procedure takes about 1 ½ hours. Your child will be able to go home on the day of surgery. All the stitches are dissolvable. Your child will not be able to participate in strenuous activity for 2 weeks after this surgery.

*3rd stage* – a skin graft is used to create the space behind the ear. This procedure takes about 2 hours. Your child will be able to go home on the day of surgery. They will need to come back to clinic about 1 week after surgery to have the bandage removed. Your child will not be able to participate in strenuous activity for 4 weeks after this surgery.

**Medpore** - A premade synthetic ear framework is used to define the new ear. The Medpore framework is covered by tissue, fascia and skin from the surrounding area. This usually requires 2 surgeries.

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**What are the advantages and disadvantages of the treatment options?**

	Details	Advantages	Disadvantages
<b>Observe</b>	No treatment	<ul style="list-style-type: none"> <li>No risk</li> </ul>	<ul style="list-style-type: none"> <li>Appearance of ear</li> <li>Psychosocial issues</li> </ul>
<b>Prosthesis</b>	Adhesive-retained	<ul style="list-style-type: none"> <li>Appearance of ear</li> <li>No surgery</li> </ul>	<ul style="list-style-type: none"> <li>Daily maintenance</li> <li>Ear may fall off</li> <li>Ear can not to be worn in chlorinated water</li> <li>Expensive and often not covered by insurance</li> <li>Ear does not change color with sun exposure; need to have ears for different seasons</li> </ul>
	Implant-retained 	<ul style="list-style-type: none"> <li>Appearance of ear</li> <li>Secure retention</li> </ul>	<ul style="list-style-type: none"> <li>Appearance of implant site</li> <li>Daily maintenance of implant sites</li> <li>Expensive and often not covered by insurance</li> <li>Ear can not to be worn in chlorinated water</li> <li>Ear does not change color with sun exposure; need to have ears for different seasons.</li> <li>Requires 2 surgeries, including removal of the microtic ear</li> <li>Need to ensure lifelong access to prosthetic ears</li> <li>Unable to pursue other forms of reconstruction in the future</li> <li>More difficult to incorporate atresia repair</li> </ul>
<b>Reconstruction</b>	Autogenous rib 	<ul style="list-style-type: none"> <li>Autogenous tissue</li> <li>Minimum maintenance</li> <li>Atresia repair is possible</li> </ul>	<ul style="list-style-type: none"> <li>Appearance of ear</li> <li>Requires 3 to 4 surgeries</li> <li>Possibility of complications</li> <li>Donor sites – incisions at chest and groin</li> </ul>
	Medpore 	<ul style="list-style-type: none"> <li>Less donor site morbidity</li> <li>Less variability in carving</li> </ul>	<ul style="list-style-type: none"> <li>Requires 1 to 2 surgeries</li> <li>Foreign body</li> <li>Possibility of complications</li> <li>More difficult to perform atresia repair</li> </ul>

**TO LEARN MORE**

- Otolaryngology (206) 987-2105
- Your Child's Health-Care Provider

*Children's will make this information available in alternate formats upon request. Please call the Family Resource Center at (206) 987-2201.*

*This handout has been reviewed by clinical staff at Children's Hospital. However, your child's needs are unique. Before you act or rely upon this information, please talk with your child's health-care provider.*