



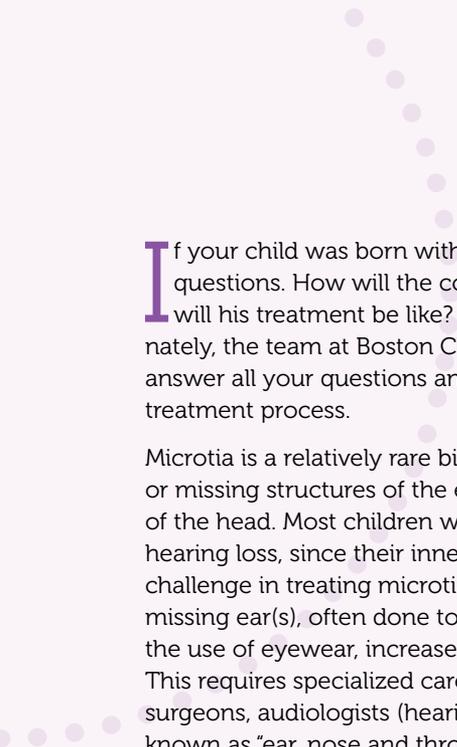
**Boston
Children's
Hospital**

Plastic and
Oral Surgery

Until every child is well™

Microtia

A GUIDE TO
DIAGNOSIS AND
TREATMENT



If your child was born with microtia, you're likely to have a few questions. How will the condition affect my child's hearing? What will his treatment be like? Will she ever have "normal" ears? Fortunately, the team at Boston Children's Microtia Program is available to answer all your questions and support your family throughout the treatment process.

Microtia is a relatively rare birth defect that causes small, misshapen or missing structures of the ear. It can occur on one or both sides of the head. Most children with microtia experience only partial hearing loss, since their inner ears are usually unaffected. The greatest challenge in treating microtia is reconstructing the malformed or missing ear(s), often done to improve physical appearance, facilitate the use of eyewear, increase self-esteem and enhance quality of life. This requires specialized care from a multidisciplinary team of plastic surgeons, audiologists (hearing specialists), otolaryngologists (also known as "ear, nose and throat doctors") and other experts.

The staff at Boston Children's Microtia Program consists of all these specialists, each with a unique role in providing care for our patients and their families. And because Boston Children's is the only hospital in Massachusetts focused solely on pediatrics, our entire team is specially trained to make treatment as easy as possible for young patients and their families.

We look forward to working with you and creating a treatment plan tailored specifically to the needs of your child and your family.



John Meara, MD, DMD
Plastic Surgeon-in-Chief

It's important to remember that microtia is mostly a cosmetic condition; a majority of children with the disorder—even those with completely absent outer ears—experience only a partial hearing loss because the inner ear (the part of the body responsible for hearing) usually remains unaffected.

Types and grades

Unilateral microtia occurs when only one ear is affected. Nearly 90 percent of children with microtia have the unilateral form. (When both ears are involved, it's called bilateral microtia.)

There are two major types of microtia, which can vary in severity from child to child.



Lobular This is the most common type of microtia. The affected ear is made up of just a small piece of skin and cartilage on the outside, but there is no ear canal.



Anotia This is the most severe type of microtia. If your child has anotia, it means that he/she is missing all of the external ear structures.

Diagnosis

Babies with microtia are born with undersized, misshapen or missing external ears. A doctor can diagnose the condition right away with a visual exam.

Auditory brain response evaluation (ABR)

To tell how well your baby can hear, a test called an auditory brain response evaluation (ABR) is often used to check the inner function of a baby with microtia.

During the test, small, painless sensors will be attached to your child's head as he/she sleeps. Earphones will transmit sounds at different pitches into each of the ears, and a special computer will monitor brain wave patterns measuring response to those sounds.

Will my child need to be sedated for his/her ABR test?

Your child needs to sleep throughout the test. Babies under the age of 6 months are not usually sedated, and the test is performed while they are sleeping naturally after a feeding. Children older than 6 months are typically sedated.

The test is not painful or uncomfortable, but it is necessary for your child to be asleep in order to obtain clear recordings.

How long will the ABR test take?

ABR evaluations, both sedated and unsedated, take two to three hours to complete. The results will be explained to you immediately afterward.

Does my baby need to follow certain feeding restrictions before his/her ABR test?

Yes. Please follow these feeding instructions before your child's ABR test:

Under 6 months of age

no solid food, milk or formula for four hours before the test

6 months or older

no solid food, milk or formula for six hours before the test

All children

Only clear liquids, such as water, breast milk or apple juice, are allowed until two hours before the test, after which time no liquids are permitted.

Causes

Why was my child born with microtia?

Unfortunately, there is no way to be sure. We know that microtia results from a problem with the ear's development while a fetus is growing in the womb. Sometimes, microtia runs in families, or as part of a syndrome called hemifacial microsomia—but most of the time, it happens for no identifiable reason.

Care and treatment

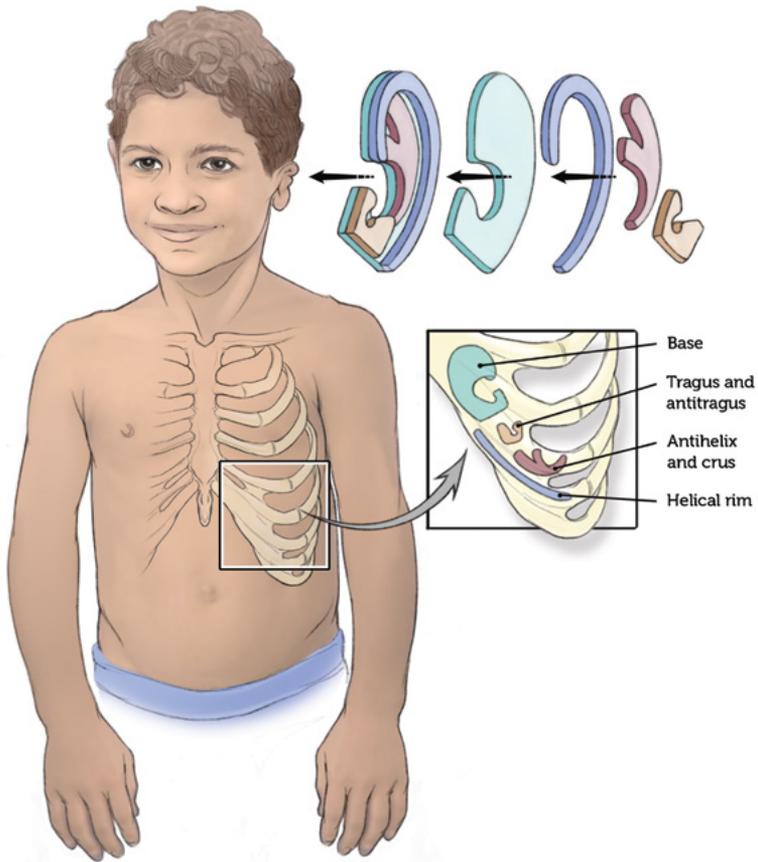
The care and treatment of a child with microtia depends on the severity of the case. Some children will need a series of operations, while others might not need any treatment at all.

Though the prospect of your child needing a surgical procedure is worrisome, it's important to remember that these procedures have excellent success rates.

What surgical treatment is usually used for microtia?

The most common type of operation for microtia we perform at Boston Children’s is called autologous auricular construction. During this operation, specially trained pediatric plastic surgeons will take cartilage from your child’s ribcage and use it to “plant” a new ear on the affected side of the head. The process uses your child’s own tissue, so if the new ear is ever injured it can heal itself just as a natural ear would.

Autologous construction is performed when a child is 6 years of age or older. He/she needs to be old enough to have sufficient rib cartilage to “spare”, and 6 years is about the age when the ear on the other side (if applicable) will reach its approximate adult size—so the surgeons can be sure to line up the new ear to match it.



Will my child need further operations as he/she ages?

Yes. Autologous construction usually requires three procedures in total, depending on the type and severity of your child's microtia. Procedures are typically scheduled six months apart to allow your child time to heal.

First procedure Surgeons remove some cartilage from the ribcage to build a new ear.

Second procedure Surgeons refine and reposition the new earlobe.

Third procedure Surgeons lift the new ear for better alignment and perform "touch-ups" as needed.

It is possible that your child also may need an operation on the middle or inner ear. In that case, surgeons will perform the procedure after the last operation is done.

How will my child look after the reconstruction?

While your child's reconstructed ear will not look exactly like his other ear, it will greatly improve his/her appearance (and will allow practical things like wearing eyeglasses or sunglasses).



Unaffected Ear



Lobular Microtia



Pre Operative
Front View



Post Stage 1
Procedure



Post Stage 2
Procedure



Post Stage 3
Side View



Post Stage 3
Front View

Other treatment options

Are there alternatives to surgical treatment for microtia?

In general, we recommend autologous construction as the most effective treatment for microtia. It offers children a comfortable new ear that feels natural, facilitates the use of eyewear, boosts self-esteem and improves their quality of life. At the same time, we understand that every child and family is different. Your doctors will work with you to decide on the right option.

Alternatives to autologous construction include:

No treatment You may opt not to have any treatment at all. Talk to your child's care team for guidance and advice.

Ear implant An artificial ear made from synthetic materials can be used instead of cartilage.

Advantages include no chest scar and ear construction as early as age three. Disadvantages include a higher complication rate and potential long-term problems compared to autologous construction.

Ear prosthesis This type of artificial ear, made from a synthetic material, can be attached to the side of your child's head with a minimally invasive procedure. Disadvantages include the need for daily care.

What happens if my child has hearing loss related to his/her microtia?

If your child has a hearing problem related to microtia, she/he will be followed by an audiologist (hearing specialist) and an otolaryngologist (ear, nose and throat expert). Together, the team will:

- monitor the hearing loss with regularly scheduled hearing tests (audiograms)
- recommend hearing aids and other ways to maximize the use of the remaining hearing
- suggest a hearing aid (either worn as a headband or implanted into the bone) in the event of serious hearing loss
- offer surgery to recreate a missing ear canal (called atresia repair) and improve hearing. Alternatively, a bone anchored hearing aid (BAHA) may be offered.
- recommend additional language or developmental assessments for your child, as needed
- direct you to community resources for educational or financial assistance

TIMELINE OF CARE

Age	Treatment
Infancy	Possible headband hearing aid
6 years of age or older	First stage autologous reconstruction
6 months later	Second stage autologous reconstruction
6 months later	Third stage autologous reconstruction
6 months later	Possible bone anchored hearing aid (BAHA) Possible atresia repair

Resources at Boston Children's

If you have an immediate question in relation to your child's condition or treatment, please contact a nurse within the Boston Children's Microtia Program by calling **617-355-4513**.

Center for Families

617-355-6279

Helps families locate the information and resources they need to better understand their child's particular condition and take part in their care. All Boston Children's patients, families and health professionals are welcome to use the Center's services at no extra cost.

Behavioral Medicine Clinic

617-355-6688

Helps children who are being treated on an outpatient basis at Boston Children's—as well as their families—understand and cope with their feelings about:

- having a chronic condition
- facing uncomfortable procedures
- handling pain
- taking medication
- preparing for surgery
- changes in friendships and family relationships
- managing school while dealing with a medical condition

Other Sources of support

AmeriFace

ameriface.org

Provides information and emotional support to individuals with facial differences and their families, while increasing public understanding through awareness programs and education.

EarCommunity

earcommunity.com

Offers a supportive community for those with microtia and other conditions affecting the ears. Provides helpful information about parent advocacy, self-advocacy and patient advocacy.

FACES: The National Craniofacial Association

faces-cranio.org

Provides financial support for non-medical expenses to patients traveling to a craniofacial center for treatment. Eligibility is based on financial and medical need. Resources include newsletters, information about craniofacial conditions and networking opportunities.

Foundation for Faces of Children

facesofchildren.org

Provides clear, accurate information and resources to children with craniofacial conditions, and their families. This New England-based foundation was started by Boston Children's Hospital plastic surgeon John B. Mulliken, MD, and a handful of parents whose children were receiving treatment at Boston Children's.

Contact information

Boston Children's Hospital Craniofacial Center

617-355-6309

Boston Children's Hospital Otolaryngology

617-355-6460

Boston Children's Hospital Department of Plastic and Oral Surgery

617-355-7252

childrenshospital.org/plastics

Insurance information

Understanding your insurance coverage can sometimes be a difficult process. Be sure to ask your individual insurance provider which procedures to treat microtia are and are not covered by your plan. It also will be beneficial for you to ask what referrals you might need.

If you have further questions, contact your insurance provider for assistance. Most providers list a customer service phone number on the back of the insurance card.

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