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the Trumpeteer

An Ear- Responsible Publication of Central Carolina ENT, PA

CCENT Now Offers Xoran MiniCAT™

INSTANT IN-OFFICE INSTANT CT

Available at the Sanford office

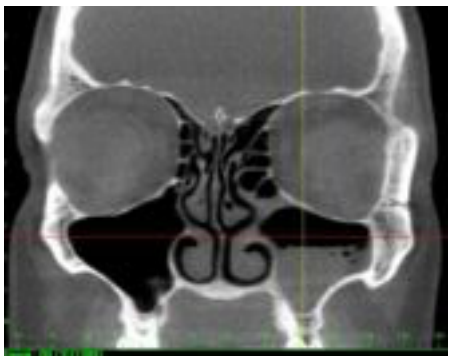
We are pleased to announce that same day computed tomography (CT) scans of the sinuses and temporal bones (ear) are now available in the Sanford office. In office CT scanning (miniCAT) from Xoran Technologies has lower radiation dosing and same day diagnosis minimizes your insurance copays and doctor's visits. Adult scans take 40 seconds and children's scans take only 20 seconds. The miniCAT adult scans have about one tenth the radiation dose of sinus scans on a full-body CT scanner. MiniCAT pediatric scans have half the radiation dose of the adult scans. The fine cut imaging can also be reconstructed in three dimensions to aid in image guided sinus surgery.

CT Scan for Sinus Evaluation

Computed tomography (CT) scans are the imaging modality of choice for inflammatory sinus disease. The CT scan is used in conjunction with a head and neck examination and sinus endoscopy in the office to evaluate sinus disease. A CT scan is obtained for several reasons. Patients with chronic or recurrent sinus disease may have a bony or structural abnormality blocking adequate drainage of the sinuses during an infection which is often associated with a feeling of facial pressure around the sinuses. Patients with severe allergic disease can also have structural blockages of the sinuses exacerbating their symptoms. The extent of nasal polyps can also be determined with a CT scan. Any bony defects from a nasal tumor or herniation of orbital (eye) contents can be mapped out. A defect at the skull base from tumor, brain herniation, or a fracture from trauma can also be detected. Imaging is often helpful to evaluate patients with unexplained loss of the sense of smell or unexplained headache or facial pressure to confirm or rule out the role of sinus disease in these processes.

Xoran MiniCAT™ Facts:

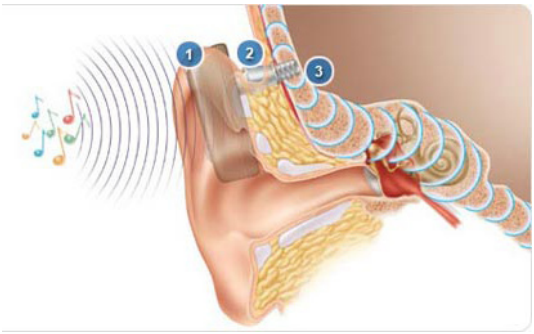
- One tenth less radiation than regular CT
- Scan takes 40 seconds for adults, 20 seconds for children
- Patient sits upright in open design unit
- Doctor has immediate results for your sinus or ear problems



Sample CT scan showing left Maxillary sinus disease.

Inside This Issue

Baha®: Bone Conduction Implants



What is Baha?

The Baha® system utilizes your body's natural ability to conduct sound. Bone, like air, can conduct sound vibrations. For people with hearing loss, this provides another pathway to perceive sound.

Typical hearing aids rely on air conduction and a functioning middle ear. In cases where the middle ear function may be blocked, damaged or occluded, the Baha system may be a better option as it bypasses the middle ear altogether. Instead, sound is sent around the damaged or problematic area, naturally stimulating the cochlea through bone conduction. Once the cochlea receives these sound vibrations, the organ 'hears' in the same manner as through air conduction; the sound is converted into neural signals and is transferred to the brain, allowing a Baha recipient to perceive sound.

How does it work?

We receive sound in two ways, by air conduction via the ear canal, eardrum, and ossicles, and by bone conduction. Bone conduction transmits sound directly though the bones in the jaw and skull, bypassing the outer and middle ear.

In most cases, those with a hearing loss will be fitted with traditional air conduction devices. Typically, these hearing aids are placed inside the ear canal or behind the ear. However, some people are unable to benefit from this type of device.

The Baha system, which is based on bone conduction, utilizes a **titanium implant**, which is placed in the skull bone behind the ear. An **abutment** connects the **sound processor** with the implant in the bone. This creates direct (percutaneous) bone conduction. In contrast, traditional bone conductors connect indirectly to the bone through unbroken skin (transcutaneous) and work by exerting pressure against the skull.

Direct bone conduction, provided by Baha, gives improved access to sound when compared to traditional bone conductors since sound is not weakened when passing through the skin. (Text obtained from www.cochlear.com)

Meet Our First BaHa® Patient

By: J.P. Miller, Clinical Audiologist

Julian Bastarrechea: Age 35, Purification Specialist
Biogen Idec, Research Triangle Park, NC

"I talk about my Baha® piece everyday of my life"

35 year old Julian Bastarrechea lives in Fuquay-Varina with his wife, Melissa and four children. He was born with deformed outer ears (Microtia) and closed ear canals (Atresia), but had normal functioning inner ears. As a result of this condition, Julian was forced to wear a head style bone conduction hearing aid to overcome his ear deformity and get some sound to the inner ear via bone conducted signals. By age 16, two surgeries were performed on his left ear in an attempt open up his ear canal. But despite the successful surgery, he still needed the bone conduction aid to hear well in school and minimize the effects of poor acoustics in the classroom.

In July 2002, Dr. William LeLiever, performed his first Baha surgery on Julian. The surgery involved implanting a small titanium abutment into Julian's skull behind the right ear. Then three months later (after the titanium abutment had fused with the skull bones) Julian was fitted with his Baha processor. The device picked up sounds and routed them to both cochleas via boneconduction. Julian's life changed forever on 10-24-2002 when he was first fitted with his Baha.

Q: What does Baha mean to you?

A: I talk about my Baha piece everyday of my life. I can't even express what it has done for me…myself, my career, my family, my friends. I can not believe what I was missing the first 29 - 30 years of my life.

It is just a tremendous turnaround as far as my career. I went from a steady worker, …trying to just struggle by in my meetings and trying to read lips and it was very difficult for myself…

By the age of 30, when I had this Baha piece, it just brought me to new heights, new levels at work. I became a supervisor within 3 weeks…that is how quickly it changed my life…

Now I'm currently a purification specialist for Biojen Idec and I pretty much travel wherever they tell me I need to travel

Q: How did you cope with your hearing loss in school in the early years?

A: I had a head bone conductor headband piece..it was A: embarrassing to wear, B: uncomfortable: C: to try and hide it, it was a task.

I had to sit in the front of the class.. if I got stuck in the back, I could count that class session as a waste for me because it was very difficult for me to read lips from so far away..and trying to take notes…it was very very difficult and I still to this day, I don't know how I did it.

I'm an ex-sports player…..my hearing problem definitely held me back…I had tons of scholarships coming out of high school…I was an all state high school quarterback and defensive safety…

I was scared pretty much to go on, to go to college, because I knew it would be a difficult task for me to go on, but I picked a small school, went from there and tried to use my headband conductor, and you know, it was a struggle..

I tell you what….if I had had this Baha piece at 10 or 5 years old, I would have been a straight A student. I probably could have gone to any school I wanted to.

Q: What would be your advice to other people with similar problems as you?

My advise would definitely be to-look into a Baha, it's a no brainer.. it totally changed my life. If I could go out and do seminars, I would do seminars for the Baha if I had the time, I would definitely do it, that's how much I rely on this piece.in my life.

I remember the first time I put the piece on, the old fashioned camera clicked and it rewound inside …and that's the first time I heard the camera go….You start hearing things you missed all your life

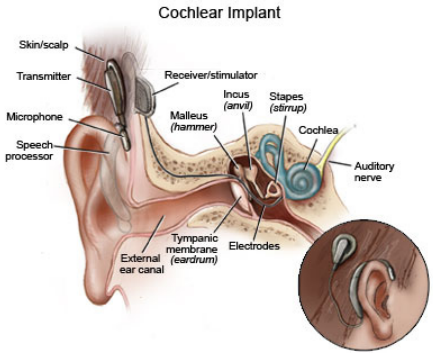
Q: How do you see yourself professionally in the next 5 years?

I'll probably move on to a management role..

(Interview excerpts obtained 12-27-07 at our Apex office)

Understanding Cochlear Implants

By: Doris Lin, M.D.



A cochlear implant is a surgically placed hearing device that directly stimulates the hearing nerve, bypassing the ear drum, hearing bones, and hearing receptors inside the ear. A typical hearing aid depends on good function of the hearing receptors inside the ear (called hair cells). In people who are profoundly deaf (at birth or later in life), these hair cells have been damaged or are not active. A cochlear implant is surgically placed in the inner ear to stimulate the hearing nerve directly and activated by a device worn outside the ear. This device amplifies sound and transmits them to the implant inside the inner ear.

How does normal hearing work?

The sounds you hear are processed by three parts of your ear before reaching the hearing nerve. The external ear (ear lobe and ear canal) directs sound towards the middle ear. The meeting point of these two parts is the ear drum. Once the sound causes the ear drum to vibrate, the ear bones attached to the ear drum inside the middle ear start to move and transmit the sound to the last part of the ear, the inner ear. The sound moves the fluid in the inner ear. Inside the inner ear sits many hair cells which are stimulated as the fluid moves. The hair cells are hearing receptors which then transmit the sound along the hearing nerve to the brain. Anything blocking the ear canal (wax, infection) or filling up the middle ear (fluid, otitis media) causes a conductive hearing loss which is often treatable and can be reversible. Anything causing permanent damage to the inner ear, hair cells, or hearing nerve causes a sensorineural hearing loss which can sometimes be treated medically but is not usually recoverable.

How are hair cells damaged?

Hair cell damage results in a nerve type hearing loss called sensorineural hearing loss. Severe sensorineural hearing loss cannot be corrected with medications. Hair cells may be inactive at birth (congenital hearing loss). They can also stop working due to environmental or genetic causes. Environmental causes of sensorineural hearing loss include loud noises (guns, explosions), certain medications (certain antibiotics or chemotherapy agents), or infections (meningitis, bacterial and viral congenital infections). Other medical reasons for sensorineural hearing loss include aging, tumors, severe head trauma, autoimmune disease, bleeding, or loss of blood supply (like a small stroke). Despite hair cell damage or absent function, often the hearing nerve itself is still capable of transmitting electrical signal to the brain but is not receiving any stimulus because of the hair cell damage.

How does the cochlear implant work?

The cochlear implant bypasses the hair cells and directly stimulates the hearing nerve. The device is surgically implanted under the skin behind the ear. An external device just outside the ear contains a microphone to capture sound. This is connected to an external speech processor which translates the sound into electrical signals transmitted via radio waves to the implant under the skin which then carry the signals directly to the hearing nerve. The nerve is now stimulated and transmits the signal to the brain and the person can interpret the signal as meaningful sound. The sound is not quite like normal hearing but does allow patients to carry a conversation, use a telephone and even enjoy music. (Continued page 5)

Who is eligible for a cochlear implant?

Cochlear implant candidates must be profoundly deaf and unable to obtain any meaningful benefit from a conventional hearing aid. Many centers require a minimum age of 12 months (unless the cause of hearing loss is childhood meningitis). For people who have lost all hearing after learning how to speak, there is usually a certain window of time in which a cochlear implant will be of most benefit. Beyond that window of time, the nerve function may have deteriorated and the implant will have minimal benefit. The surgery requires general anesthesia. Patients have to be willing and committed to the postoperative training and programming of the device.

What kind of examination is needed?

A thorough head and neck examination is needed to evaluate for any treatable causes of hearing loss. Hearing tests are essential and any maximal benefit from conventional hearing aids should be obtained. Once a profound hearing loss is confirmed and no active infection or other treatable causes of hearing loss are found, you will be referred to a cochlear implant center which is designed not only to perform the surgery but provide the specialized extensive postoperative implant training and adjustment of the speech processor to maximize the benefit from the implant.

Facts on Cochlear Implants from www.hearingloss.org

- Approximately 70,000 people worldwide have cochlear implants.
- Approximately 25,000 people in the United States have cochlear implants.
- Nearly half of all cochlear implant recipients are children.
- Cochlear implants can help an estimated 200,000 children in the United States who do not benefit from hearing aids.
- The demand for cochlear implants is increasing annually by 20%.
- Approximately 250 hospitals across the country perform cochlear implant procedures.
- A recent study on cochlear implants demonstrated that special education in elementary school is less necessary when children have had "greater than two years of implant experience" before starting school. These children are mainstreamed at twice the rate or more of age-matched children with profound hearing loss who do not have implants.
- The benefits of a cochlear implant to society amount to a lifetime savings of $53,198 per child.
- By the time a child with hearing loss graduates from high school, as much as $420,000 can be saved in special education costs if the child is identified and given appropriate early intervention.

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