

# Wrigley

the Wonder Dog

*One patient learned the true meaning of the phrase “man’s best friend” when his golden retriever sniffed out his brain tumor.*

**W**rigley and Camden were Steve Werner’s two best friends.

Steve began to feel poorly after Camden died in June 2005. At first, Steve attributed his general feeling of malaise to the grieving process, but nagging symptoms that included ringing in his ears (tinnitus) sent him to the doctor’s office. Results from a battery of tests revealed nothing wrong, but Steve still suspected there was an underlying health problem. Then Wrigley began sniffing intently at his right ear.

Wrigley had never done anything like this before, and after four or five days of this behavior, Steve wondered if she was trying to tell him that something was

wrong with his ear. Then one day, Steve saw a television segment on “60 Minutes” about dogs that were trained in medical settings to warn patients of impending epileptic seizures, identify tuberculosis or detect cancer. He realized Wrigley might be onto something, and headed back to the doctor’s office.

An MRI revealed a large tumor growing around Steve’s auditory and vestibular nerves on the right side of his head – the area that Wrigley had been sniffing at so persistently. Referred to as an acoustic neuroma, the type of tumor Steve had was non-malignant, but if not removed, might cause permanent facial paralysis, hearing loss, balance problems or even a stroke. An Internet search of

physicians specializing in the treatment and removal of acoustic neuromas led Steve to the House Clinic and Derald E. Brackmann, M.D. During their first consultation, Dr. Brackmann warned Steve that the size of the tumor, and its necessary removal, would compromise his hearing on the right side and possibly his facial nerve.

As a treatment for Steve’s impending single-sided deafness, Dr. Brackmann recommended a Baha® system. The Baha, which is surgically inserted into the temporal bone behind the ear, is designed to pick up sound on the impaired side and vibrate the sound signal across the skull,





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STEVE WERNER

delivering it to the good ear. This technology allows the listener to hear from the deaf side and regain some directional hearing, which helps with speech recognition in conversational settings and accurate determination of directional sounds. Steve consulted with House Clinic audiologist Rebecca Cihocki, Au.D., to determine if the benefits provided by the Baha would be right for him. After wearing a test model of the device provided by Rebecca for a few days, Steve decided the Baha would be the right treatment option for him.



*Steve and Wrigley*

In February 2006, Dr. Brackman and neurosurgeon William Hitselberger, M.D. removed Steve's tumor and inserted the Baha behind his right ear. After the surgery, Steve's audiologist affixed a hearing device externally to the titanium implant

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## Acoustic Neuromas and SSD

*Interview with  
Derald Brackmann, M.D.*

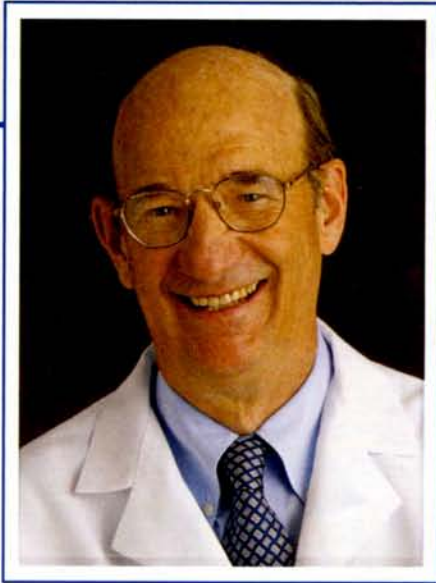
**Q:** What is an acoustic neuroma and how does it differ from other "brain tumors"?

**A:** An acoustic neuroma is a benign tumor that arises from the insulating sheath of the balance nerve. Since it is a benign tumor, it does not invade the brain but produces symptoms by putting pressure on the brain and surrounding nerves. In contrast, malignant brain tumors arise within the brain itself and are much more difficult to treat.

**Q:** What are the different treatments for acoustic neuromas, and what treatments are recommended at the House Clinic?

**A:** The treatment options for an acoustic neuroma are observation, radiosurgery (either single dose or fractionated), or surgery by one of three approaches: retrosigmoid, translabyrinthine or middle fossa. Observation is often recommended for older patients with poor hearing. Some tumors do not grow and treatment is not necessary over the patient's normal life expectancy.

Radiosurgery is recommended for older patients who have growing tumors. Surgery is recommended for most patients. The approach is



selected depending upon the size and location of the tumor as well as the residual hearing. The middle fossa or retrosigmoid approaches allow hearing conservation.

The middle fossa approach is recommended for small tumors within the inner ear canal. The retrosigmoid approach is recommended for larger tumors that are more toward the brain. The translabyrinthine approach is recommended for all large tumors or for any tumor where the hearing is poor.

**Q:** Does removal/treatment of acoustic neuroma always lead to hearing loss on the affected side?

**A:** No. Both the middle cranial fossa approach and the retrosigmoid approach allow hearing preservation. For the middle cranial fossa approach, approximately 65% of cases have preserved hearing. With the retrosigmoid approach, approximately 50% have hearing preservation.

**Q:** Can you provide a description and the unique problems of single-sided deafness (SSD)?

**A:** Being deaf in one ear produces three main problems. The first is localizing sound. Without stereo hearing, it is difficult to locate the origin of sound in the environment. The second problem is not being able to hear when someone speaks in the deaf ear. This is particularly a problem in cases where the good ear is exposed to noise. An example of this would be a patient with hearing loss in the right ear who is driving and the road noise interferes with the hearing on the normal side. It is impossible to communicate in a car in this situation. The third problem that people with single-sided deafness experience is understanding speech in noise. In order to pick out what you want to listen to in a noisy environment, it is necessary to have two good ears. This is the most serious problem that people with single-sided deafness experience.

**Q:** In cases where there is a hearing loss following removal of an acoustic neuroma, what forms of treatment are available for the associated SSD?

**A:** There are two treatments available for single-sided deafness. The first is called a cross (CROS) hearing aid or bi-cross device. This is similar to the usual hearing aid except that the microphone is on the deaf side and sound is transferred to the good

ear. The second option is the Baha® system.

**Q:** What is the Baha and how does it work?

**A:** The Baha system acts as a cross hearing aid except that the sound is routed through the skull to the good ear rather than electronically as with a cross hearing aid. A titanium pedestal is inserted into the bone above the deaf ear. After a suitable period of healing, when the pedestal is stimulated, that sound is transferred to the good ear through the skull. It is perceived as normal sound without distortion, and people have benefited considerably from it.

**Q:** Do you think patient Steve Werner is a good example of someone who benefits from the Baha?

**A:** Steve Werner does benefit significantly from his Baha. He gets some benefit with sound localization and understanding of speech in noise. The challenge posed by someone speaking to him on the deaf side is greatly improved. ❖

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behind Steve's ear. Then, still suffering temporary facial paralysis, Steve began the post-op recovery period at home, acclimating to his Baha, and spending quality time with Wrigley.

Forever grateful to his canine friend, Steve says, "I have to give credit to the doctor who first detected my tumor and to the House Clinic and Drs. Brackmann and Hitselberger for successfully removing it, but I'm convinced that Wrigley was looking out for me and I feel very blessed to

have her in my life."

Dr. Brackmann does not discount the olfactory abilities of his patient's special dog, and believes that whether it was luck or science we don't understand, it is possible that dogs have the ability to sense or smell things we can't. "I've seen a hunting dog running at a full clip suddenly freeze dead in his tracks because he smells a quail 20 yards away – a good indicator of canine olfactory abilities," says Dr. Brackmann.

"Although we may never understand what exactly Wrigley was sensing, we are certainly grateful that her actions brought Steve to successful treatment at the House Clinic."

Steve's facial nerve has now regained most of its function, and he is acclimating well to his Baha. He is also enjoying music again via his new MP3 player attachment that is an accessory to the device. "Life is good," says Steve. ❖

## SCIENTIST PROFILES

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and sailing around the northeast. The science bug bit when he went to graduate school at Columbia University. It was only after a stint in Vienna, and post-doctoral training at Rockefeller University, that Neil ultimately gravitated to the molecular world of hair cell regeneration when he was recruited to the House Ear Institute.

Neil devoted himself to more than just science while studying. He met Greta, his wife-to-be, while in Vienna. It was not only her shared passion for science that hooked Neil, but her Viennese pastries as well! In 1996 they joined HEI together as a team, and Dr. Segil's lab is now a hive of activity in sensory cell development and regeneration. Since then, there has been a steady progression of accomplishments

to justify the lab's efforts studying how hair cells might regenerate in humans. Neil was pleased when his work with colleague Andy Groves, Ph.D., recently culminated in a cover story for *Nature*.



But new discoveries in science pale in comparison to discovering the world anew through the eyes of Nathan, Neil and Greta's 4-year-old son. On Saturdays, Nathan's favorite destination is the park. En route, dad stops at the farmers' markets, and the Middle Eastern and Armenian specialty stores to stock up on goodies to indulge Neil's love of cooking. Neil cooks and Greta bakes (but "not often enough") for family and friends. The group effort, the collaboration, the recollections of home with old world tastes and smells, all appeal to the Segils. And Nathan gets an introduction to international taste treats.

A scientist with positive expectations for an unknown future, Dr. Neil Segil is a solid reflection of how past, present and future meld together in harmony. ❖