The Connection

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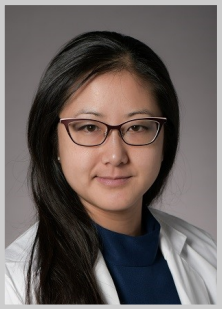
Considerations - Gamma Knife Stereotactic Radiosurgery for Vestibular Schwannoma

By: Dr. Karolyn Au



With the support of the University of Alberta Hospital Foundation, the Scott & Brown Families Advanced Imaging and Gamma Knife Centre will open at the University of Alberta Hospital in Edmonton in December 2017. A multidisciplinary team of neurosurgeons, radiation oncologists, medical biophysicists, radiation therapists and specialized nurses will take care of patients in this state-of-the-art facility, the only Gamma Knife stereotactic radiosurgery (GKSRS) treatment centre in Alberta. The opening of this unit is a good opportunity to review what we know about the use of GKSRS for treatment of vestibular schwannomas, and look at some ideas that are emerging.

As imaging technology advances and access to MRI scanning grows, vestibular schwannomas (VS) are increasingly being diagnosed when they are small and minimally symptomatic. While this means that more management options may be available, navigating the choices can be challenging. The main goal in taking care of patients with these tumours is to control tumour growth while maintaining neurologic function and quality of life, balancing the risks of neural deficits and troublesome symptoms resulting from the tumour against those caused by treatment. Since VS are histologically benign, both tumour control and functional preservation need to be sustained for a long period of time, often decades. In general, as seen on the Acoustic Neuroma Clinical Care Pathway, management options can include a "watch and wait" approach that delays the adverse effects of radiation or surgery, or active intervention in the form of radiosurgery or microsurgical removal.

When considering the many studies that have been done in this area, it is important to keep a few things in mind: different institutions may vary in the care pathways they establish, in the way they measure and report outcomes, and in the factors, that influence how treatment options are selected, and these differences mean that direct comparison of one study to another should be

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done with caution. Long-term follow-up is critical since some events, such as hearing deterioration, develop over many years. At the same time, treatment strategies evolve, so the results reported from a study with a long follow-up period may not reflect treatment as it would be given today. Above all, each patient has a unique set of symptoms, concerns and goals, and the available data must be interpreted and applied in the personal context of that individual.

Tumour growth control

Since radiation doesn't necessarily cause tumours to shrink, a tumour is considered controlled whether its size decreases or remains the same on follow-up imaging. If growth is not demonstrated before treatment, however - as in the case of a tumour that is treated on diagnosis after a single scan - then it is not known whether the treatment is truly responsible for controlling tumour growth or whether the tumour was not growing anyway. In addition, although a tumour may demonstrate some growth over time, it may remain small enough that no intervention is required. Both of these factors affect how the "control rate" reported in a study should be interpreted. Higher radiation doses provide better rates of tumour control, but also lead to more injury of the adjacent cranial nerves and brainstem. Treatment plans in the modern era strike a balance between these considerations. Overall, across many studies and tens of thousands of patients, GKSRS has shown high rates of tumour control. These results are largely durable, as studies involving 10-15 years of follow-up show that a small proportion of treated tumours demonstrate growth. However, in this group of tumours that continue to grow after GKSRS and require another treatment, intervention can be more difficult and is associated with higher risks than treatment of non-irradiated tumours.

Effects on cranial nerves VII (facial nerve) and V (trigeminal nerve)

The facial nerve is located next to the vestibulocochlear nerve, and tends to be draped or stretched over the surface of VS as they grow. Dysfunction of the nerve, whether due to the tumour or treatment, can cause weakness or paralysis to the same side of the face. The trigeminal nerve controls facial sensation, so neuropathy can result in numbness or pain to the face. Many patients can have improvement or resolution of these symptoms following GKSRS treatment, but new symptoms or worsening of existing ones can also occur as a result of treatment. In general, a large number of studies show that the radiation doses and plans used today result in low rates of facial or trigeminal nerve dysfunction.

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Hearing preservation

The issue of hearing preservation is perhaps the most discussed when assessing the role of various management modalities. While most VS are diagnosed because they have caused hearing impairment, some patients have useful or even normal hearing at the time of diagnosis. Hearing classes are defined by audiogram testing, and on the Robertson-Gardner Scale grades I ("good") and II ("serviceable") are together considered serviceable. Historically, patients were advised that they would eventually lose hearing on the side of the VS - over time with conservative management, accelerated following radiosurgery, and immediately after surgery. But loss of hearing after treatment has not been as inevitable as previously thought, so there is increasingly a search for factors that may allow "hearing preservation" to be a realistic long-term management goal.

Some studies have found that certain variables are associated with a greater likelihood of retaining serviceable hearing after GKSRS: younger patient age, smaller tumour, and having better hearing to start, as measured on audiogram and reflected in normal auditory brainstem response. These factors can't be altered, but others can be, such as the total dose of radiation given and in particular the amount of radiation received by the cochlea, the sensory organ of hearing. Because of these findings, treatment plans now place a limit on cochlear radiation exposure.

More recently, some investigators have asked whether early treatment - i.e. before hearing has declined - can prevent long-term hearing loss. For instance, one study compared patients who underwent "proactive" GKSRS with those who had a "wait and see" approach, and found that the GKSRS-treated group had higher rates of hearing preservation. However, the follow-up was short, and hearing decline in the "wait and see" group was higher than in many other studies. Another group found that among patients with class I hearing who underwent GKSRS, those who were treated earlier following diagnosis had a greater likelihood of retaining class I and class I/II hearing compared to those who were treated after a longer period of observation. This finding also seemed to suggest that upfront GKSRS treatment may offer a better chance of preserving near -normal hearing, compared to a "watch and wait" approach. However, the pre-treatment pure tone average (PTA) component of the audiogram was significantly worse in the late-treatment group, which may have biased the results. Overall, the data do not clearly support undertaking early GKSRS for the purpose of preventing hearing loss, but further studies are ongoing to help determine how GKSRS may fit into a hearing preservation strategy.

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Effects on imbalance and tinnitus

While facial nerve function and hearing receive a great deal of attention in discussions about VS management, many patients experience other symptoms that can have a greater adverse effect on their quality of life. These symptoms include imbalance, dizziness and tinnitus (ringing in the ears), and may improve or worsen over time. The impact of GKSRS on them is not entirely known. Some studies suggest that patients who have undergone GKSRS overall have a quality of life that is similar to that of patients without VS. Since these effects are entirely subjective, there is clearly a need to better understand the symptoms that are specific to VS patients, and how their day-to-day function and quality of life are affected by different management strategies.

This article is a very brief overview of some factors that are considered when GKSRS is a management option for VS. Comparison with other modalities of treatment is purposely not made here, as the relative risks and benefits need to be assessed in the context of each patient individually. It is therefore essential that patients communicate closely with their multidisciplinary care team about their management priorities, and together determine the most appropriate treatment strategy for them.

Dr. Karolyn Au, MD, MSc, FRCSC completed fellowships in skull base tumour surgery and neuro-oncology in Toronto and Miami, then returned to her hometown of Edmonton to join the neurosurgical faculty at the University of Alberta. Outside of the OR, Dr Au is focused on developing clinical care pathways that streamline investigations and treatment and facilitate communication for patients with acoustic neuromas and other intracranial tumours. Together with her colleagues in neurosurgery, otolaryngology and radiation oncology, she looks forward to the opportunities for treatment and research offered by the new Gamma Knife facility in Edmonton.

Theodor Seuss Geisel or Dr. Seuss as he was known, best known for his children's books:

"Be who you are and say what you feel, because those who mind don't matter and those who matter don't mind."

This is one of my favorites. Many of us are too self-conscious, spending precious time worrying about what others think and feel rather than what WE think and feel. (Guilty as charged!) And in the process we often abandon our dreams and goals. But we can start fresh today, following Dr. Seuss' sage advice to be who we are and say what we feel.

What is a Vestibular Migraine?

By: Claire Sissons

Reviewed by Elaine K. Luo, MD December 2017 for Medical News Today, a web-based outlet for medical news, targeted to both physicians and the public.

Many people who experience migraines also have feelings of dizziness or vertigo. When this happens repeatedly, it is known as vestibular migraine. The causes of vestibular migraine are not always clear but relate to the inner ear, nerves, and blood vessels. The vestibular system of the inner ear and brain controls balance and how people understand the space they are in. When this is affected, someone may experience feelings of vertigo, unsteadiness, or dizziness, which can be triggered by movement.

Vestibular migraine is diagnosed when the vestibular system is repeatedly affected, in episodes lasting for minutes or hours, in someone who has a history of migraine. The sensation may be experienced alongside other migraine symptoms, such as an intense headache or nausea, or on its own. Around 40 percent of the people who suffer from migraine also have vestibular symptoms.

Symptoms

Key symptoms of vestibular migraine are dizziness, vertigo, and difficulties with balance, but symptoms can also include: neck pain, discomfort turning, bending down, or looking up, feeling of pressure in the head or the ear, tinnitus, partial or complete loss of vision and visual disturbances, such as flashing lights, spots, or blurring.

These symptoms may appear alongside a headache but can also appear on their own.

Causes, Triggers and Diagnosis

The causes of migraine are not completely understood. They are likely to relate to an unusual electrical charge in the neurons that sets off the brain's pain receptors. Triggers may vary from person to person. Keeping a record of factors leading up to a vestibular migraine can aid a diagnosis and help avoid an episode.

Common triggers include: stress and anxiety, food or drink, such as caffeine, alcohol, or dairy products, lack of sleep or too much sleep, bright artificial lights, and hormonal changes.

Treatment and Living with a Vestibular Migraine

Eating a healthful diet; getting the same amount of sleep each night; trying to reduce stress; exercising regularly; and avoiding any food or drink that can be a trigger help manage the condition. During a migraine episode, many people will find that lying down in a dark room or sleeping can help. Taking over-the-counter pain or nausea-relief medication at the first sign of migraine may reduce the severity of the episode.

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Vestibular rehabilitation may help with regular or particularly bad episodes. This treatment can include exercises to stabilize the gaze and improve the ability of the eyes to track movement. It can also incorporate tasks to improve balance and hand-eye coordination.

Lifestyle changes, consulting a specialist, preventative medication and avoiding triggers can contribute to reducing the number of vestibular migraine episodes for many people. Medication is also available to help if vestibular migraine is severe and happens regularly enough to interfere with a person's life.

Elaine K. Luo, MD is ***a board-certified internal medicine physician who graduated from Tufts University School of Medicine in Boston, Massachusetts. She has experience in utilization management and has worked as a hospitalist and an outpatient primary care provider.***

Acupuncture for Migraines

When one experiences a migraine headache, one will do most anything to make it go away. Not only is it very difficult to determine the exact cause of a headache, but also the cure can also be elusive. While there has not been rigorous clinical testing of the efficacy of acupuncture for migraines, and unsurprisingly none specifically for those with an acoustic neuroma, acupuncture has been used to remedy many medical conditions.

However, according to American Migraine Foundation, a recent systematic review of 22 clinical trials involving 4,985 participants, there is evidence that acupuncture reduces the frequency of headache in individuals with migraine, and that the effect may be similar to that observed with preventive medications. The frequency of headache is dropped by 50% or more in up to 59% of individuals receiving acupuncture and this effect can persist for more than 6 months.

Note: ANAC does not endorse any commercial product, physician, surgeon, medical procedure, medical institution or its staff.

Olympic athlete Martin Rooney offered this simple piece of wisdom:

"Of all the people on the planet, you talk to yourself more than anyone. Make sure you are saying the right things."

This quote made me stop and think about just what I say to myself. Am I for or against myself and how do the words I speak influence what I do to move forward in my life? Let us pay attention today and every day to make sure we're not "abusing" ourselves with negative self-talk!

The Sunnybrook Auditory Brainstem Implant Program for NF2 Patients

By: Alireza Mansouri MD, Joseph Chen, Kari Smilsky, Farhad Pirouzmand

Neurofibromatosis type 2 (NF2) is an autosomal dominant disorder with an incidence of 1: 33,000. Approximately 90% of NF2 patients commonly suffer from bilateral acoustic neuromas (AN), aka vestibular schwannomas, which progressively result in sensorineural hearing loss either directly attributable to tumor growth or following intervention. The primary disability in NF2 in the late stages is total deafness that has very limited opportunities for treatment. While some patients adapt by acquiring the ability to lip read prior to complete hearing loss, they are nonetheless dependent on visual cues for comprehension of speech. Furthermore, important environmental sounds would not be captured.

In many of these patients, hearing loss is secondary to the injury or disruption of the cochlear nerve, therefore, they are not candidates for cochlear implantation as a method of hearing rehabilitation; rather, they may be candidates for auditory brainstem implantation (ABI).

ABI technology is an extension of the cochlear implant-a biomedical marvel that has been used in nearly half million people around the world. ABI is designed for use in those who do not have an implantable cochlea, or if the brainstem is the only access point to the auditory pathway. Sounds are detected by a microphone in an externally worn speech processor, coded into a digital signal that is transmitted across the skin to the implanted receiver-stimulator, and transmitted signals are then converted to electrical stimulation carried by electrodes located on a small paddle. The placement of the paddle over the cochlear nucleus requires gentle cerebellar retraction in a surgical approach most appropriate for the patient. It takes approximately 4 hours with meticulous real-time electrophysiological testing. To date, studies pertaining to nearly 1,000 NF2 patients undergoing ABI implantation have been reported.

The Food and Drug Administration (FDA) – the American device and pharmaceutical regulatory agency – has approved ABIs for commercial use while Health Canada has not yet given its full approval. An application for 'compassionate use exemption' is required for Canadian hospitals in each individual ABI patient. Sunnybrook Hospital is the first group in Canada to develop a rigorous team-based approach for the preoperative evaluation of patients for assessment of surgical candidacy. It is funded through the cochlear implant program in Ontario with Sunnybrook HSC as the designated site. Appropriate candidates undergo ABI implantation by a surgical team comprised of a neurosurgeon (Dr. Farhad Pirouzmand) and an otolaryngologist (Dr. Joseph Chen). A comprehensive post-operative auditory rehabilitation protocol has also been established within the Department of Otolaryngology-Head & Neck Surgery.

The Sunnybrook Auditory Brainstem Implant Program for NF2 Patients

The Sunnybrook Skull Base Surgery Program has one of the largest surgical experience in the management of Acoustic Neuromas in Canada. The role of hearing related therapies in NF2 are usually discussed from the very beginning of assessment with long-term customized plan in mind.

With regards to the evaluation of NF2 patients with bilateral AN, the preoperative evaluation consists of patients first undergoing a detailed auditory testing by our group's audiologists. Options including optimized hearing aid use, cochlear implantation for those who have not yet had surgical treatment, and ultimately, candidacy for an ABI will be discussed based on hearing profile and past therapies. In addition, appropriate patients are also referred to sign language courses, speech reading courses, and communication strategy support groups that are offered through the Canadian Hearing Society and other community based centres. Patients who have single sided deafness after surgery and are not amenable to standard hearing aid fitting undergo standard contralateral re-routing of sound (CROS- Cross Routing of Signals). This can be fitted by any audiologist/ hearing aid dispenser. Alternatively, bone conduction devices can be used; at Sunnybrook, our group utilizes the MedEl BoneBridge. Previously, bone anchored hearing aids (BAHA) and Sound Bite devices were used to achieve contralateral routing of signals.

To optimize surgical outcomes, a team-based approach is taken. In addition to surgeons, the participation of our neurophysiology colleagues is of immense value. With regards to technology, we utilize imaging, neuro-navigation, microscope, neuro-monitoring (neurophysiology), and electrocorticography. An altered incision is used to accommodate the subgaleal placement of the receiver-stimulator. The tumor resection and identification of the optimal position of the ABI electrode is performed using standard anatomical landmarks and brainstem recording using a placement electrode. When the optimal position is identified, the test electrode is replaced by a permanent 12-channel electrode array ABI. Further eABR (electrically evoked auditory brainstem recordings) are performed to confirm the electrode placement. To minimize damage to the facial nerve, we take advantage of the latest imaging techniques to map its course. Neuro-monitoring is used to identify and preserve the important cranial nerves.

Following standard post-operative monitoring applicable to any surgical approach to the skull base, the patients are discharged home when appropriate. The first postoperative stimulation is performed at 6 to 8 weeks, under heart rate and blood pressure monitoring. This is performed by first using the impedance/ coupling test to verify the electrode function. Then each electrode is stimulated with monopolar stimulation, assessing for sound quality and pitch and to ensure there

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are no non-auditory effects (e.g. facial nerve stimulation); patient comfort is used to guide the limit of stimulation. Pitch ranking is performed so the electrodes can be ordered in a tonotopic arrangement. The programming of the device is complex and requires an experienced implant audiology team. This is done several times over the first 3-4 months and then again at 6 months and 1 year and then as needed for the remainder of the recipient's life. This is required to optimize functional outcomes. Patient commitment to full participation throughout the process is critical. In addition to hearing rehabilitation, we also recognize that NF2 patients could require vestibular and facial nerve rehabilitation as well. Ataxia and oscillopsia from bilateral peripheral vestibular dysfunction are managed by vestibular exercises through physiotherapy at Sunnybrook Centre for Independent Living. For more information about our program please contact Kari Smilsky: Kari.Smilsky@sunnybrook.ca

Dr. Farhad Pirouzmand having completed residency in the neurosurgery at the University of Toronto in undertook a fellowship in skull base and reconstructive surgery and another fellowship in spinal trauma and peripheral nerve surgery. Prior to joining the neurosurgical faculty at the University of Toronto in 2003, he served as Program Director of Neurosurgery at the University of Saskatchewan, where he also completed a Masters in Epidemiology on the topic of skull topographic organization. His main areas of interest are skull base, and orbital reconstructive surgery. He is actively involved in neurosurgery clinical trials at Sunnybrook Health Sciences Centre and in leadership roles in undergraduate and resident education at the University of Toronto. Dr. Pirouzmand is currently associate professor of neurosurgery at the University of Toronto.

The Canadian National Vestibular Special Interest Group (CNVSIG): An Update

By: Janine Verge, AuD, Aud (C)

The Canadian National Vestibular Special Interest Group (CNVSIG), a committee within the Canadian Academy of Audiology (CAA), was created in 2013 to improve the quality of life of people living with vestibular dysfunction by supporting audiologists who perform vestibular assessment and management. Vestibular disorders are linked to an increased incidence of falls, psychological and psychiatric disturbances, and cognitive impairment. It can cause symptoms such as imbalance or unsteadiness, vertigo (spinning), lightheadedness, blurred vision, and nausea. It can be an invisible and isolating condition that can affect all

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aspects of life including the ability to work, relationships with family and friends, the ability to do or enjoy hobbies, drive, or read.

An acoustic neuroma (vestibular schwannoma) can cause vestibular dysfunction by compressing the nerve fiber and obstructing the blood supply to the nerves. Although hearing loss is the most common first symptom of an acoustic neuroma, vertigo is often rated as the most distressing symptom (von Kirschbaum et. al. (2016); Soulier et. al. (2017)).

The results of the hearing and vestibular tests and assessment by audiologists are important because they can point to the existence of an acoustic neuroma, of secondary labyrinthine pathology, and/or can have implications on the decision of the therapeutic approach used such as wait and see, radiotherapy, or microsurgery. Vestibular test results can also point to the need for vestibular rehabilitation which is a form of therapy performed by audiologists and physiotherapists. It is based on performing specific head, body, and eye exercises designed to retrain the brain to recognize and process signals from the vestibular system and coordinate them with information from vision and the somatosensory system.

The CNSVIG's mandate is to support audiologists who provide vestibular assessment and management.

With this in mind, three strategic priorities of the CNSVIG are to:

1. support audiologists and supportive personnel who specialize in vestibular testing and rehabilitation;
2. enhance communication between members of the vestibular special interest group; and
3. advocate on behalf of members.

To date, the CNVSIG has worked on several initiatives to meet its strategic priorities. We have a Facebook page to enhance communication and to help support members with links to free webinars, brochures, and research articles. There are audiologists who follow this page across the world which provides a forum to follow Canada's role in vestibular audiology practice. The CNVSIG Facebook page is also available for the public to follow for those people who have a vestibular disorder, or their loved ones, who want more information on best practice.

The CNVSIG has an on-going column in the *Canadian Audiologist* called, "Striking the Right Balance." This column helps support audiologists, and the public, through continuing education with a focus on vestibular clinical practice in Canada. This column helps advocate to other team members on the role of an audiologist in vestibular assessment and management and helps clinicians with best practice techniques.

The Canadian National Vestibular Special Interest Group (CNVSIG): An Update

The CNVSIG recently published, "Vestibular Assessment & Management for Canadian Audiologists: A Scoping Review." It is a literature review used as a framework for audiologists who perform vestibular assessment and management. Although it is not a regulatory document, the scoping review was a way to formulate a proposed outline of knowledge required for university training, provide an overview of interpretation to improve consistency across clinics and programs, and to provide protection for the public to support their understanding of what kind of services are available.

With regards to fall prevention, the physical consequences of sustaining a fall can be severely debilitating and are linked with morbidity, mortality and poorer overall functioning (American Speech-Language-Hearing Association, 2015). A recent study by Low Choy (2016) found that people being monitored with a small acoustic neuroma (average age of 58.7 years) had increased dizziness handicap; reduced vestibular-ocular reflex (VOR) control; reduced stability standing feet together on foam with eyes closed; walked slower with divided attention; had more difficulty walking with head movement; negotiating obstacles; and using stairs; and walked shorter distances compared to age-matched controls. A study by Saman et. al. (2013) reported older acoustic neuroma patients are at significant risk of falls. Balance symptom severity, anxiety symptoms, and ambulant posture were significant contributors to disability and they suggest should be the focus of vestibular rehabilitation strategies.

In June, the CNVSIG sent out a national survey on fall prevention to audiologists who are CAA members to find out what steps Canadian audiologists are currently taking to prevent falls. The survey included several questions including if a fall history question is on their case history form, how often they refer at risk patients to occupational therapy and physiotherapy, and if they were satisfied with the training they received in university.

November is fall prevention month. The results of the survey are going to be published in the November issue of the Canadian Audiologist to help raise awareness about the importance of fall prevention. A focus will also be on educating people about different interventions that can be used to prevent falls including environmental adaptation or modification, exercise adaptation, medication reduction or withdrawal, orthostatic hypertension, vitamin D, treating vision impairment and hearing impairments, cardiac pacing, managing foot and footwear problems, and education (American Geriatrics Society and British Geriatrics Society, 2011; Danhauer *et al.*, 2011; American Speech-Language-Hearing Association, 2015).

It is important for anyone living with an acoustic neuroma to talk to their physician or audiologist about problems with dizziness or balance symptoms, falls or near falls, or any anxiety and

depression that it may be causing. This can help determine the right test and the right intervention that might help. Audiologists are well known for their testing and management of hearing loss but should also be recognized for the work they do in helping people with vestibular problems. We hope the initiatives the CNVSIG have worked on highlighting the role that audiologists serve in vestibular assessment and management, in fall prevention, and our role in working within an inter-professional team.

Janine Verge, who has worked as an audiologist at the Nova Scotia Hearing and Speech Centres for the past 18 years, is an adjunct professor at Dalhousie University, teaching in the area of vestibular testing and management. She co-created the CAA National Vestibular Special Interest Group and is co-editor of "Striking the Right Balance," an on-going feature column in the Canadian Audiologist. Janine has served as president of the Speech and Hearing Association of Nova Scotia, a co-founder of the Dalhousie Hearing Aid Assistance Program and is currently a board member of the Canadian Academy of Audiology along with Rex Banks, ANAC's president. Janine is particularly interested in improving hearing accessibility, fall prevention and mental health advocacy.

Does Loss of Hearing Embarrass You?

By: Gael Hannan

THE WAY I HEAR IT

Do you admit to being embarrassed by your loss of hearing?

Whether you like to admit it to or not, if you are like every other person with hearing loss, there will be times when one feels mild to profound mortification. When one says the right thing at the wrong time or vice versa. When you're told you're speaking too loudly. When you get caught bluffing. Or just having to admit to yourself that you're not as perfect as you once thought you were.

The fact is that my hearing loss no longer bothers me, and I don't try to hide it. But it still has the power to cause communication glitches that make me blush or squirm. Those lovely little social *faux pas* – perhaps laughing at a friend's back pain because of her weird little smile and you thought she was telling a joke.

I'm still haunted by a long-ago humiliating moment. During school, every single day of every year, I sat at the front of the class in order to understand the teacher. Except for that one day in high school. Just for once, I wanted to sit at the back with my friends. The teacher called on me to

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answer something, but I hadn't heard what he said, probably because my friend was whispering at me. Deciding to be honest, I stood up and said, *"Sorry, sir, I wasn't listening."* The class went dead silent. The teacher said, *"Well, thanks for telling me that, Gael, but I called on Dale, not you."* My face burned for the rest of the day. For the rest of my life, actually.

After six decades of hearing loss, you'd think I'd be cool with it – roll with the punches and all that. But even now, I *hate it* when I "talk over" someone. Talking-over is more than just two people starting to speak at the same time. It's more like:

Someone Else: "My husband and I have decided that…"
Me (jumping in): "So! What's everyone doing for Christmas?"
Another Person: "Uh, Gael, So-and-So was talking…"
Me: "Oh, sorry." (Then I don't talk again until someone returns to my question about Christmas, or until I'm dead certain there's a significant gap in the conversation which, in my group of female friends, is usually never.)

Hearing loss causes painful moments, but it's mostly embarrassing for *us*, not other people, especially those who know about our hearing loss. Strangers, however, might think we're odd when we answer inappropriately.

Server: "Would you like more coffee?"
Me: "No thanks, but would you mind filling up my coffee?"

In that case, the server might pause for a moment before complying. But if you were to answer *"yes, please"* to the question *"would you prefer chicken or steak?"*, it takes a bit more work to straighten things out. Learning to laugh these moments off puts hearing loss into perspective and other people at ease.

And hey, it could be worse. You could stub your toe, hard, in the dark. Maybe that's what you have to tell yourself.

This article appeared in a different form in hearinghealthmatters.org and Canadian Academy of Audiology.

Gael Hannan (The Way I Hear It) is a hard of hearing advocate that understands both sides of the fence between the consumer and the hearing health care professional. Gael's columns are humorous, sometimes cutting, but always constructive and to the point.hannangd@gmail.com

Acoustic Neuroma Research Abstracts

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U.S. National Library of Medicine, National Institutes of Health

Long-term Hearing Preservation After Resection of a Vestibular Schwannoma: A Systematic Review and Meta-analysis.

Ahsan SF[1], Huq F, Seidman M, Taylor A.

The objective is to perform a systematic review and meta-analysis which is a quantitative study design used to systematically assess the results of the literature on the long-term results of hearing preservation after vestibular schwannoma resection.

Study Selection:

Inclusion criteria: age ≥18 years, minimum 10 patients in the treatment group, hearing preserving microsurgery, no previous radiation treatment, serviceable hearing at immediate postop follow-up, hearing outcomes reported using Gardner Robinson or the American Academy of Otolaryngology-Head and Neck Surgeons hearing grading scales, and average follow-up of 5 years. Preoperative, immediate postoperative, and last follow-up audiograms were required. Exclusion criteria included neurofibromatosis type 2 patients and surgery for salvage therapy or decompression.

Data Synthesis:

The systematic review found that if hearing was preserved at Class A or B at early postop visit, the chance of preserving hearing at 5 years was excellent. Those who maintained speech discrimination score ≥ 89% at the early postoperative follow-up had better long-term hearing preservation. The meta-analysis reveals that only preoperative and postoperative pure-tone average was associated with long-term hearing preservation.

Conclusion:

Long-term (>5 yr) hearing durability rates are generally very good. Most studies do not report patient and tumor characteristics, therefore precluding combining studies for meta-analysis. Only preoperative and postoperative pure-tone average was associated with long-term hearing durability.

***Otol Neurotol.* 2017 Dec;38(10):1505-1511. doi: 10.1097/MAO.0000000000001560.**

Tom Krause, author, coach, and motivational speaker reminds us that:

"There are no failures—just experiences and your reactions to them."

Here's a simple truth stated succinctly. We are in charge of our actions and our reactions so every thought we think, every word we say, and every action we take is a success in itself because it's one step closer to the result we're aiming for.

Acoustic Neuroma Research Abstracts

Factors Affecting Hearing Deterioration in Vestibular Schwannoma Patients Treated with Gamma Knife Radiosurgery: Asan Medical Center Experience.

Park MJ[1], Park HJ[1], Chung JW[1], Lee DH[2], Cho YH[2], Choi YJ[3], Ahn JH[1].

To investigate the changes in hearing and to determine factors predicting hearing deterioration in patients with vestibular schwannoma VS) who undergo gamma knife radiosurgery (GKRS).

Design:
A retrospective review of medical records in patients diagnosed with VS and initially treated with GKRS at a tertiary care medical center between 1995 and 2015 was performed. Tumor factors (location, volume), parameters related to irradiation to the tumor and cochlea, and distance between the tumor and cochlea were reviewed.

Conclusions:
A significant hearing deterioration was shown in 2 years after GKRS. Tumor location, number of radiation shots, and distance between the tumor and cochlea affected hearing level after GKRS.
***Acta Otolaryngol.* 2017 Oct 25:1-9. doi: 10.1080/00016489.2017.1386800.**

Leaving a Legacy

When you remember the Acoustic Neuroma Association of Canada through a gift in your will – known as a bequest – you will join a very special group of people who wish to ensure ANAC can develop innovative programming and will be there for others impacted with an acoustic neuroma so they won't have to face their uncertainty alone .

It's as simple as inserting a few sentences into your will or living trust. You can change your mind at any time. A bequest may reduce the taxes on your estate and, most of all, you will feel good knowing that your decision is helping others. For more information, contact Carole Humphries, Executive Director of ANAC, today at director@anac.ca. If you have already included ANAC in your estate plans, please notify us so that you may be part of our special group. We encourage you to review your options with your tax advisor and/or lawyer.

The Acoustic Neuroma Association of Canada is working to develop support groups in each province across Canada to ensure people affected by Acoustic Neuroma receive the support they need. Volunteers are currently needed in British Columbia, Quebec and all East Coast Provinces. If you are interested in helping establish a new group in an underserviced area, please contact Carole Humphries at the National Office for an information package and support.

director@anac.ca 1-800-561-2622

Upcoming Chapter Meetings Planned

KITCHENER—WATERLOO CHAPTER

Date: TBC
Location: Home of Tom & Helen Horlings
#30—50 Bryan Court, Kitchener, ON N2A 4N4
For more info: Linda Darkes
(519) 696-3445 / pdarkesc659@rogers.com
Helen Horlings
(519) 954-5581 / healto@rogers.com

BRITISH COLUMBIA: COURTENAY/NANAIMO CHAPTER

Date: TBC
Location: Atrium at Crown Isle Resort & Golf Community
399 Clubhouse Drive, Courtenay, BC
For more info: Evalyn Hrybko
(250) 282-3269 / wehrybko@saywardvalley.net

TORONTO CHAPTER

Dates: **Tuesday, January 23, 2018**
Location: Canadian Hearing Society
271 Spadina Road, Toronto, ON (Parking in the rear)
For more info: Lynda Nash
(416) 282-0036 / lynda_lu123@sympatico.ca
Kathryn Harrod
(905) 891-1624 / kath.harrod@live.ca

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