Ask the Expert Information Sheet
About Vestibular Schwannomas

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What is a vestibular schwannoma?
Vestibular schwannoma is a non-malignant brain tumour which develops from the lining of the vestibular nerve, the nerve responsible for balance. They are composed of slowly-growing abnormal schwann cells. Schwann cells are normal myelin-forming cells found wrapped around nerves. These tumours are found within the internal auditory canal (the innermost part of the ear within the skull) and can affect a patient’s balance and hearing. Classically, vestibular schwannomas affect the right or the left side, only in rare cases can they affect both. Historically, these tumours were called acoustic neuromas but this terminology is no longer used.

What are the signs and symptoms of vestibular schwannomas?
The first symptoms of a vestibular schwannoma are usually related to hearing. Although, as it expands, this tumour may place pressure on other surrounding nerves which are responsible for movement of the face. Very large tumours may also involve the nerve which provides facial sensation. Symptoms may include vertigo, balance problems, feelings of ear fullness, hearing loss, buzzing, or ringing on the affected side, facial paralysis, weakness or even facial numbness.

Who gets Vestibular Schwannomas?
Most commonly, vestibular schwannomas occur in individuals between 40 and 60 years of age. The incidence is higher among females than males. Although rare, pediatric cases may occur.

The majority of patients (95%) with schwannoma have no known genetic or environmental risk factors. However, approximately 5% of patients with vestibular schwannomas have an inherited genetic condition called neurofibromatosis Type 2. In these patients, vestibular schwannomas can develop at younger ages (often younger than 20 years old) and can occur in both ears instead of just one.

Are there different types of vestibular schwannomas?
There are several different types of schwannomas and they can develop anywhere within the central nervous system (the brain and spinal cord). Within the brain, the most common sites where schwannomas develop are the vestibular nerve (called vestibular schwannoma), the facial nerve (called facial schwannoma), and the trigeminal nerve (called trigeminal schwannoma).

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Another common site for schwannomas is within the spinal canal, where they arise from the lining of the nerves which exit the spinal cord.

**What is the treatment for vestibular schwannomas?**

Vestibular schwannomas are typically diagnosed by a neurosurgeon through MRI or CT scan. Unlike other brain tumours, vestibular schwannomas have a fairly characteristic appearance on MRI and therefore usually do not require a biopsy for confirmation of the diagnosis.

The typical treatment for vestibular schwannoma is surgical removal. In cases where the tumour cannot be fully removed, radiation therapy such as stereotactic radiosurgery (a form of precision radiation) may be used alone or in addition to surgery, with very high success rates in the appropriate patients. In some cases observation alone with frequent follow-up appointments may be indicated.

**Do all vestibular schwannomas require surgery?**

No. Although surgery is the treatment of choice for these tumours in patients who are symptomatic, surgery may not be necessary or recommended for certain patients.

As an example, radiation therapy or observation alone may be best for patients with:

- Small, slowly growing tumours with minimal or no symptoms
- Patients with incomplete hearing loss
- Tumours less than 3 cm in size, inoperable tumours or recurrent tumours

**What is the prognosis for vestibular schwannomas?**

After surgery, recurrence rates are very low. Some data suggests that recurrence is as low as 5% or less. Factors associated with an increased likelihood of recurrence include:

- Larger tumour size and attachment to neighbouring normal structures
- Less than complete tumour removal

In patients who are symptomatic prior to surgery, symptoms may resolve immediately after surgery or after a series of weeks. In some patients however, changes such as hearing loss may be permanent. In general, the longer patients have had symptoms, the more likely they will be permanent despite a successful surgery. The facial nerve can be unaffected in up to 75% of cases and preservation of hearing can be as high as 20%. A discussion should be had with your treating neurosurgeon to discuss the likely risks and benefits of surgery for your unique case.