Acoustic neuroma

An acoustic neuroma is a type of brain tumour. It’s sometimes referred to as a vestibular schwannoma or neurilemmoma.

On this page

- Brain tumours
- Acoustic neuromas
- Causes of acoustic neuromas
- Signs and symptoms of acoustic neuromas
- Tests and investigations for acoustic neuromas
- Treatment for acoustic neuromas
- Your feelings
- Useful organisations
- References

This information is about acoustic neuromas, their symptoms, how they’re diagnosed, and possible treatments. It should ideally be read with our general information about brain tumours.

We hope this information answers your questions. If you have any further questions, you can ask your doctor or nurse at the hospital where you are having treatment.

Brain tumours

The central nervous system (CNS) is made up of the brain and spinal cord. Cells within the brain normally grow in an orderly and controlled way, but if for some reason this process gets out of control, the cells continue to divide and form a lump called a tumour.

Acoustic neuromas

An acoustic neuroma is a benign (non-cancerous) tumour that develops from the lining of the auditory nerve, which is also known as the vestibular or acoustic nerve. The vestibular nerve helps control balance and hearing.

An acoustic neuroma starts in the schwann cells, which cover the nerve and so is sometimes called a schwannoma. It’s a slow-growing benign tumour, which means that it may continue to grow, but won’t spread from its original site within the brain.

About 4,300 people are diagnosed with benign tumours of the CNS each year in the UK.

Acoustic neuromas account for about 8 in every 100 primary brain tumours. They are most likely to be found in middle aged adults. Acoustic neuroma is more common in people who have a genetic condition called neurofibromatosis type 2 (NF2).

Causes of acoustic neuromas

Apart from the link with neurofibromatosis type 2, the cause of acoustic neuroma is unknown. Research is being carried out into possible causes. Exposure to loud music or noise at work for a long period of time could increase your risk of developing an acoustic neuroma. If you had low-dose radiation in childhood for
benign head and neck conditions there may be an increased risk of acoustic neuroma.

Signs and symptoms of acoustic neuromas

Acoustic neuromas are usually slow-growing tumours and symptoms often develop gradually over several years. The most common symptom is loss of hearing in the affected ear. This may be accompanied by a buzzing or ringing noise in the ear (tinnitus) and a feeling of fullness in the ear. People may experience dizziness and have problems keeping their balance.

If the tumour is pressing on the nearby nerve that controls feeling and sensation of the face, it can cause numbness or tingling of half of the face. Rarely, the facial muscles can become weak on one side.

Larger tumours may lead to a blockage in the flow of cerebrospinal fluid (CSF), causing headaches and changes to your eyesight.

People who develop acoustic neuroma as part of neurofibromatosis type 2 usually have tumours affecting both sides of the brain (bilateral tumours).

Tests and investigations for acoustic neuromas

Your doctors need to find out as much as possible about the type, position and size of the tumour so they can plan your treatment. You may have a number of tests and investigations.

The doctor will examine you thoroughly and test your reflexes and the power and feeling in your arms and legs.

You will have a range of hearing tests (audiometry) and sometimes a test is done to check your sense of balance.

CT (computerised tomography) scan

A CT scan takes a series of x-rays that build up a three-dimensional picture of the inside of the head. The scan is painless but takes 10-30 minutes. CT scans use small amounts of radiation, which will be very unlikely to harm you or anyone you come into contact with.

You may be given an injection of a dye, which allows particular areas to be seen more clearly. This may make you feel hot all over for a few minutes. If you are allergic to iodine or have asthma you could have a more serious reaction to the injection, so it’s important to let your doctor know beforehand.

MRI (magnetic resonance imaging) scan

This test is similar to a CT scan but uses magnetism instead of x-rays to build up a detailed picture of areas of your body. Before the scan you may be asked to complete and sign a checklist. This is to make sure it’s safe for you to have an MRI scan.

Before having the scan, you’ll be asked to remove any metal belongings including jewellery. Some people are given an injection of dye into a vein in the arm. This is called a contrast medium and can help the images from the scan show up more clearly. During the test you will be asked to lie very still on a couch inside a long cylinder (tube) for about 30 minutes. It’s painless but can be slightly uncomfortable, and some people feel a bit claustrophobic during the scan. It’s also noisy, but you’ll be given earplugs or headphones.

The diagnosis of an acoustic neuroma is usually obvious from the MRI brain scan.

Treatment for acoustic neuromas

The treatment for an acoustic neuroma depends on a number of factors, including your general health and the size and position of the tumour. The results of your tests will enable your doctor to decide on the best type of treatment for you.

Your treatment will usually be planned by a team of specialists known as a multidisciplinary team (MDT). The team will usually include:
- a doctor who operates on the brain (neurosurgeon)
- a doctor who specialises in treating illnesses of the brain (neurologist)
- a doctor who specialises in treating brain tumours (an oncologist)
- a specialist nurse
- other health professionals, such as a physiotherapist or dietitian.

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**Consent**

Before you have any treatment, your doctor will tell you about the aims of the treatment and what it involves. They will ask you to sign a form saying that you give your permission (consent) for the hospital staff to give you the treatment. No medical treatment can be given without your consent.

**Benefits and disadvantages of treatment**

Treatment can be given for different reasons and the potential benefits will vary for each person. If you have been offered treatment that aims to cure your condition, deciding whether to have the treatment may not be difficult. However, if a cure is not possible and the treatment is to control the tumour for a period of time, it may be more difficult to decide whether to go ahead.

Your doctor may offer you a choice of treatments and it may be hard to make a decision. If you are asked to make a choice, make sure you have enough information about the treatment options and any side effects, so that you can decide on the right treatment for you. If you feel that you can't make a decision about the treatment when it's first explained to you, you can always ask for more time to decide.

You are free to choose not to have the treatment and the staff can explain what may happen if you do not have it. You don’t have to give a reason for not wanting to have treatment, but it can be helpful to let the staff know your concerns so they can give you the best advice.

**Observation**

If the tumour is small and causing only mild symptoms you may not need immediate treatment. This is because acoustic neuromas tend to be very slow-growing and it may be a long time before symptoms require treatment. In this situation, you will have regular scans to check for any growth of the tumour.

**Radiotherapy**

Radiotherapy treatment uses high energy rays to destroy the tumour cells. Radiotherapy may be given as a course of treatment over a number of days or as a single session.

**Stereotactic radiotherapy**

This type of radiotherapy focuses several beams of radiation from different angles, which overlap at the tumour. The radiotherapy dose to the tumour is very high and the dose to surrounding healthy tissue is very low. This helps to reduce side effects. Treatment usually involves a number of sessions.

**Stereotactic radiosurgery**

Sometimes the radiotherapy can be given as a single high-dose of focused treatment. This is known as stereotactic radiosurgery. This is becoming established as the preferred first line treatment for smaller tumours, as there are likely to be fewer side effects than with surgery.

Occasionally, the surgeon will have to leave a tiny part of the tumour to avoid causing nerve damage. In this situation, you will need regular MRI scans to check the tumour every couple of years. It is very rare for these tiny parts of the tumour to regrow.

**Surgery**
In many cases, the tumour can be completely surgically removed and no further treatment is necessary. However, surgery is reserved for larger tumours as it’s likely to have more side effects than stereotactic radiosurgery.

Unfortunately, hearing loss in the affected ear is unavoidable for many people. A hearing aid, which diverts sounds from the affected ear to the good ear, can often be fitted. Your doctor can give you more information about this. Your GP may be able to arrange an appointment with a hearing therapist, who can help with communication, special equipment for people with hearing problems and provide counselling.

Occasionally during surgery, the facial nerve may be slightly damaged. This can cause temporary or permanent numbness or drooping (palsy) of one side of the face. Facial palsy can cause problems with facial movements such as chewing and blinking. Often, exercises and massage can help to stimulate facial movement, but these should be done under medical supervision. The British Acoustic Neuroma Association produces information about practical ways to cope with facial palsy.

Damage to the facial nerve, which controls blinking, may lead to eye problems such as dry eyes or difficulty in closing the eye properly. Your doctor can refer you to an eye specialist if necessary.

For people with tumours affecting both acoustic nerves and at risk of total hearing loss, surgery may be delayed if at all possible and the tumours will be monitored for any growth. Occasionally, one side will be operated on first — usually the side with the worst hearing loss. If the person can still hear through this ear after the operation, the other side can then be operated on.

If hearing is lost during the first operation it may be possible to delay surgery on the second tumour, or to use radiotherapy, which is less likely than surgery to cause hearing loss.

Your feelings

You may find the idea of a tumour affecting your brain extremely frightening. You may experience many emotions, including anxiety, anger and fear. These are all normal reactions and are part of the process many people go through in trying to come to terms with their condition.

Many people find it helpful to talk things over with their doctor or nurse, or with one of our cancer support specialists. Family members and close friends can also offer support.

Useful organisations

British Acoustic Neuroma Association

The British Acoustic Neuroma Association gives information and support for people with acoustic neuroma. Has a network of local branches throughout the UK.

The Neuro Foundation

The Neuro Foundation offers information and advice about neurofibromatosis.

References

This information has been compiled using a number of reliable sources, including:


Thanks
With thanks to Dr Nick Plowman, Consultant Clinical Oncologist, and the people affected by cancer who reviewed this information. Reviewing information is just one of the ways you could help when you join our Cancer Voices network.

Content last reviewed: 1 January 2013

Next planned review: 2015

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