



University Hospitals Birmingham
NHS Foundation Trust



Acoustic Neuroma

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What is an acoustic neuroma?

An acoustic neuroma is a benign tumour. The tumour develops on the cells lining the hearing and balance nerves which connect the brain to the inner ear. An acoustic neuroma, a type of brain tumour, can also be known as a vestibular schwannoma, as it usually arises from the vestibular or balance portion of the nerve. It tends to grow very slowly.

What is the cause for acoustic neuroma?

It is not known what causes acoustic neuromas. Acoustic neuroma is not usually inherited. If this is the case for you, your consultant will tell you. A small minority of patients are diagnosed with acoustic neuroma due to a genetic abnormality called neurofibromatosis type 2 (NF2).

Symptoms

The most common symptom is hearing loss on one side. Approximately 90% of people with acoustic neuroma experience some degree of hearing loss. This is due to the tumour interfering with the hearing nerve. Hearing loss is usually gradual and therefore you may not have noticed the hearing loss in its early stages. For some people, hearing loss can be sudden.

Other symptoms include tinnitus and dizziness. Tinnitus is a sensation of ringing/buzzing noise in your ears. It affects approximately 70% of patients with acoustic neuroma. Vertigo or dizziness affects around 50% of patients.

Balance problems can arise as the vestibular portion of the nerve is compressed, reducing the balance function on one side of the body. This usually occurs slowly and your body adapts and compensates for this change. As a result, some people may not notice any change in their balance. However, it is common to find issues with balance are worse when you move around in the dark.

Facial numbness is an uncommon symptom, and is a symptom of a larger tumour. You may notice sensation changes such as numbness or pins and needles.

Diagnosis

Your consultant may have examined your ears, hearing, balance and other nerve functions if they suspect you have acoustic neuroma. Acoustic neuroma diagnosis confirmation is usually through an MRI (magnetic resonance imaging) scan. Your surgeon may also recommend a CT (computed tomography) scan. MRI scans are the best way of detecting these types of tumour.

Once an acoustic neuroma is diagnosed, it is important that you are referred to a specialist team who are used to managing these tumours. At University Hospitals Birmingham NHS Foundation Trust (UHB), we have a wide multidisciplinary team who may be involved in your diagnosis and treatment. The team includes ENT surgeons, neurosurgeons, oncologists, radiologists, specialist nurses, neuro-ophthalmologists, maxillo-facial surgeons, pathologists and radiographers. We work together with other disciplines and ward teams to ensure that the highest quality care is delivered to you during your time with us.

Treatment for acoustic neuroma

Treatment for your acoustic neuroma will depend upon many factors. The main determinant will be the size of the tumour and it's growth. However, when considering treatment options we may also take into account other factors such as your age and other health conditions you may have. Your consultant will discuss the results of your MRI scan with the rest of the skull base team.

Your consultant will discuss the best available treatment options during your consultation.

How am I likely to be managed with acoustic neuroma?

Most patients diagnosed with acoustic neuroma will be followed up with an MRI scan. 10% of patients will undergo surgery at some point and 20% of patients will be recommended to have radiation-based surgery.

The available treatment options are:

Regular surveillance: if your tumour is small, we will almost always suggest no active treatment until clear tumour growth is demonstrated. We would recommend a further scan in 6–12 months time. If your tumour remains static or if the growth rate is very slow, your consultant may simply suggest continued monitoring with MRI and clinical follow ups.

How often will I have a scan?

At UHB, patients undergoing observation of their acoustic neuromas are scanned six months after the original scan. If this is stable, we then:

- Scan yearly for three years
- Then every two years for the following six years
- If the tumour is stable after this time, every 10 years

The close monitoring and regular review would enable the team to reassess your options at any given time. If your tumour shows slight growth, you may continue to have scans every year before any intervention is needed. If your tumour shows significant growth, your team will revisit your treatment options. It is important that you inform the team of any new or worsening of symptoms in between hospital visits. In particular, if sudden hearing loss occurs your team will decide on steroid injection treatment.

CyberKnife (SRS - stereotactic radiosurgery) radiotherapy: Acoustic neuromas may benefit from having highly focused radiotherapy known as Stereotactic Radiotherapy (SRT). If only one treatment is given, it is often referred to as Stereotactic Radiosurgery (SRS). SRT and SRS is delivered at the QE using CyberKnife unit. The CyberKnife is a radiotherapy machine mounted on a robot arm. The CyberKnife enables treatment to be delivered from multiple angles, so that normal tissue around the area being treated receives a much lower dose than with conventional radiotherapy. It is usually offered to patients who have growth of their tumour after surveillance. Radiotherapy slows delivery of higher radiation dose to the tumour with a minimum impact on the surrounding nerves and brain tissue

Robot System is a revolutionary development of radiotherapy. This Acoustic Neuroma radiotherapy treatment differs from other radiotherapy treatments. Radiotherapy is a treatment which involves precisely targeting high energy x-rays (ionising radiation) at a specific area, with the aim of destroying any abnormal cells there.

It is usually offered to patients who have growth of their tumour after surveillance. Radiotherapy slows delivery of higher radiation dose to the tumour with a minimum impact on the surrounding nerves and brain tissue. Other than the fractionated radiation therapy, it is given in one single radiation dosage. If only one treatment is given, it is often referred to as stereotactic radiosurgery (SRS). In special cases the dosage normally applied in one single shot are divided into 2–3 smaller doses.

The treatment pathway procedure usually comprises the following a preliminary discussion with oncologist, creation of face mask, Imaging (CT & MRI) and consent agreement for the treatment. You will be able to discuss the risk and side effects with the oncologist and the radiographer team. The CyberKnife unit is located within the Cancer Centre in the Heritage Building at the Queen Elizabeth Hospital Birmingham.

The follow treatment pathway meet with oncologist and sign consent

- MRI for CyberKnife planning
- Appointment of making of the face mask and CT scan
- CyberKnife treatment (one treatment or three treatments delivered consecutively)

Surgery: Surgery is offered to patients with larger tumours and it carries significant risks. If surgery is the recommended treatment option, your consultant will discuss this with you in more detail. Most patients who undergo surgical treatment go on to have a good quality of life after the operation.

Useful information and websites

British Acoustic Neuroma Association

Tapton Park Innovation Centre
Brimington Road, Chesterfield
Derbyshire S41 0TZ
United Kingdom
Telephone: **01246 550011**
Email: **admin@bana-uk.com**
Website: **www.bana-uk.com**

The Brain Tumour Charity

Hartshead House
61–65 Victoria Road, Farnborough
Hampshire, GU14 7PA
Telephone: **0808 800 0004**
Email: **support@thebraintumourcharity.org**
Website: **www.thebraintumourcharity.org/brain-tumour-diagnosis-treatment/types-of-brain-tumour/**

Action on Hearing Loss (formerly the RNID)

Telephone: **0808 808 0123**

Text phone line: **0808 808 9000**

Email: **information@hearingloss.org.uk**

Website: **www.actiononhearingloss.org.uk/**

Macmillan Cancer Support & helpline (Acoustic Neuroma and Brain Tumours)

Telephone : **0808 808 00 00** (7 days a week, 08:00–20:00 hours)

Website: **www.macmillan.org.uk/cancer-information-and-support/brain-tumour/acoustic-neuroma**

The Skull Base Team

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