

# Craniotomy & Excision of Acoustic Neuroma

There are several options in the treatment of an acoustic neuroma.

- Observation with serial MRI scans – in general small acoustic neuromas in the order of a few mms in size may be observed with regular MRI scans of the region. This is specifically so in the elderly where the risks of surgery may be greater.
- Surgery – in cases larger than a few mms in size, enlarging acoustic neuromas or neurological deficits due to size and compression of surrounding vital structures, an operation may be indicated to remove the tumour. There are several different approaches that may be taken to reach the acoustic neuroma including retrosigmoid, translabyrinthine.
- Radiosurgery – in cases of small acoustic neuromas radiosurgery may be considered in the treatment options. The basis of radiosurgery is that many tumours consist of cells that die after exposure to radiation. Radiosurgery is usually delivered in several small fractionated doses over a few weeks.

The choice of treatment will be discussed with Mr Han, usually in conjunction with an ENT (ear nose and throat) surgeon.

## OPERATION

### *Retrosigmoid Approach*

The procedure is performed under general anaesthetic. An “S” shaped cut is made behind the ear on the relevant side after that area has been prepared with antiseptic solution and then draped. The bone is removed and access is gained to the tumour coming around the side of the brain. A microscope is then used.

The tumour is then removed in a ‘piece-meal’ fashion and in doing so, all attempts are made to identify the cranial nerves in the area. Those below the tumour are the 9th, 10th and 11th cranial nerves and those intimately related to the tumour are the 7th and 8th, and the nerve above it is the 5th. Often a facial nerve stimulator will be used to identify the 7th cranial nerve. The bone may be replaced or cement may be used to cover the opening, and the wound is then sewn up.



### *Trans-labyrinthine approach*

The procedure is performed under a general anaesthetic by a neurosurgeon and an ear, nose and throat (ENT) surgeon. The approach is performed by the ENT surgeon and irreversibly causes loss of hearing, thus being unsuitable in cases where hearing is preserved. The neurosurgeon then removes the tumour using a microsurgical technique in conjunction with the ENT surgeon. The major advantages of this approach over the retro-sigmoid approach is early identification of the facial nerve and preservation of this nerve, less retraction of the cerebellum and greater access to the intracranial aspect of the tumour.

#### *Risks of this Procedure:*

The risks of this operation include the following. A detailed discussion with your surgeon is recommended prior to surgery.

- **Infection:** Superficial infections may cause reddening of the skin around the wound or small stitch abscesses, which may require antibiotics. Deeper infections may involve the bone - resulting in osteomyelitis, or the brain - resulting in an abscess, or the fluid around the brain - resulting in meningitis. This is very uncommon.
- **Bleeding:** Superficial bleeding - staining the underlying skin or deep which may require a second operation because it has resulted in impairment of function. If bleeding occurs at the time of surgery, a transfusion may be required. Deeper bleeding – damage as a result of deep bleeding may be permanent.
  - If deeper infection or bleeding occurs, a second operation may be required to remove the collections
- **Cranial nerve damage:** if hearing was present preoperatively, it may be lost postoperatively because of the involvement of the nerve by the tumour. Facial weakness can occur depending on the size of the tumour. If it does, it usually recovers although there are alternatives to overcome such weakness if recovery is incomplete. Double vision, numbness over the side of the face, difficulty swallowing and problems moving the shoulder can occur less commonly.
- **Cerebrospinal fluid leakage:** can occur through holes in the bone of the skull which have been closed off at the time of the operation but fail to seal and can require a second relatively minor operation to repair such holes. Patients may complain of fluid leaking out of their ear, or nose.
- **Hydrocephalus** - which may be temporary or permanent and may require a second operation.
- **Headaches & neck pain.**
- **Weakness, numbness, speech disturbance or paralysis** (stroke like symptoms).
- **Coma** – this is rare.
- **Death** – this is very rare.