

Ear Anatomy

Diagram showing the basic structure of the ear before (left) and after (right) ear canal ablation and bulla osteotomy.

Aural Haematomas

When the external ear flap is inflamed it is easily damaged by head shaking. This can cause seepage of serum or blood between the skin and cartilage, or within the cartilage, on the inside of the ear flap. This results in marked swelling.

Haematomas and seromas frequently re-form after simple drainage, so surgery is required, one or more holes being created on the inside of the ear flap before the layers are sutured back together. The holes are left open so that suitable scar tissue forms to hold the layers together and help prevent recurrence. Without treatment haematomas result in fibrosis and shrinkage which results in a "cauliflower ear".

Chronic Ear Infections and Tumours

Deep seated and recurrent ear infections are common, being seen secondary to anatomical abnormalities, allergies, hormonal imbalances and more rarely tumours. Thorough investigation of recurrent and persistent ear problems is important so that the underlying cause can be correctly identified and treated. Laboratory investigation, cleaning and examination under anaesthesia and radiography are routinely required. Other investigations such as biopsy, ultrasound scans, CT and MRI scans sometimes being necessary.

There are several surgical options when medical treatment has failed or is not indicated:

Lateral Wall Resection

This is the least invasive form of surgery. Basically the outer wall of the vertical part of the ear canal is opened to improve drainage from the vertical canal. Unfortunately this procedure is rarely beneficial as the problem is usually more deeply seated.

Vertical Canal Ablation

The vertical ear canal is removed leaving an opening into the horizontal canal. This is beneficial when there has been an injury to, or there is a warty growth causing problems in the vertical canal, but is rarely any more successful than lateral wall resection in infected ears.

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Total ear canal ablation

This is the most effective surgery in most ear infections as the entire lining of the tube down to the middle ear is removed preventing it from causing further problems. Unless the problem is confined to the ear canal the procedure needs to be combined with bulla osteotomy.

Bulla Osteotomy

The tympanic bulla is the sounding chamber of the hearing mechanism. It is a thin walled bony structure surrounding the middle ear. In health it is filled with air, but it frequently becomes infected and fills with debris and discharge. The lining and surrounding bone becomes thickened and these changes often show up on x-rays. It is impossible to clean the lining thoroughly, so it needs to be removed.

To get into the bulla the bony side wall is usually removed (lateral bulla osteotomy). The bulla can also be entered from below (ventral bulla osteotomy), this approach being used most in cats for removal of polyps. Once access has been gained, the bulla can be cleaned out and as much of the lining removed as possible. In the rare event of finding a tumour, wider excision is required in order to have the best chance of controlling the problem.

In many cases a surgical drain will be placed for 3-7 days to allow any discharges to escape from the surgical site, thus reducing these problems. During this time a protective collar will be required.

Complications

There are risks associated with any surgery. Modern techniques and the use of monitoring equipment has improved anaesthetic safety considerably, however, there is still a slight risk of serious complications from anaesthesia and/or surgery.

As far as total ear canal ablation and bulla osteotomy are concerned, there is a very high success rate when the procedures are performed by experienced surgeons, but however careful the surgeon, some complications cannot be avoided.

Inflammation and disease has usually spread to involve

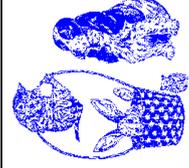
the tissues surrounding the ear canal and middle ear, so the base of the skull (including the part containing the inner ear), the facial and other adjacent nerves, the parotid salivary glands and several large blood vessels become particularly susceptible. Any of these already sensitised structures may be damaged during the procedure or by post-operative inflammation causing further dysfunction.

About half of patients treated for infection related ear disease are expected to have some, usually mild, complications such as:

- Head tilt
- Increased deafness
- Balance difficulties
- Droopy lips and eyelids
- Reduced tear production
- Discharge from the drain
- Delayed wound healing

Patients are given strong analgesics during and after surgery so pain is rarely a problem. In around one in five, some of the above signs will be significant enough to require additional treatment. In the case of significant balance problems, hospitalisation may be necessary for a few days. Whilst complications normally resolve rapidly, some take a few weeks and an occasional patient (about 1 in 20) will have some persistent ear problem or later recurrence of infection requiring ongoing treatment or repeat surgery. Obviously, any underlying allergy, skin disease or hormonal condition will still require treatment.

Overall the risks of surgery are insignificant when compared to leaving the original infection or tumour untreated. If you have any concerns, please discuss them with your veterinary surgeon.



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Ear Surgery

Notes for pet owners

by

David A. Crossley

BVetMed MRCVS FAVD DipEVDC

Reasons for ear surgery

Ear surgery is indicated for the treatment of a range of conditions such as :

- developmental abnormalities
- congenital deformities
- traumatic injuries
- chronic infections
- tumours

Inflammation associated with allergies and infections causes narrowing of the ear canals and makes the eardrums fragile so perforation is common. This allows infection and discharge into the middle ear. It becomes impossible to thoroughly clean the deeper part of the ear canals and middle ears, even under an anaesthetic, and neither drops nor internal medications reach the seat of the problem in sufficient concentration to be effective.

Types of ear surgery

There are various basic types of surgery which may be applied to ears, such as simple skin wound repair and more complex plastic surgery for reconstruction after injury, in addition to more specific ear surgery.