

## SURFER'S EAR/EXOSTOSES

Dr Hamish Sillars F.R.A.C.S

Surfer's ear is the common name given to the formation of bony lumps within the ear canals. These happen most commonly in surfer's because its repeated cold water immersion that stimulates their growth, early on offering few symptoms but as they progress allowing at times prolonged trapping of water and then, generally at a later point, infections. Management is aimed at trying to prevent their progression, treating deteriorations simply where possible but not uncommonly eventually having to consider a surgical remedy.

### What causes them to happen?

Within the adult ear canal (which is some 2.5 cm long) the inner two thirds has a surrounding ring of bone with only a very thin layer of overlying skin. Sandwiched beneath the skin and the bone is an even thinner layer of bone membrane called periosteum – the two together are almost a single layer so with very little mechanical or thermal cushioning. When swimming and especially when in cooler water and in particular in people who swim alot, repeated chilling and subsequent natural warming of the canal sees the periosteum stimulated and bone cells laid down very slowly but progressively. This is a process that evolves over the years and with the growths often enlarging to a significant point before they become symptomatic. In many the initial awareness of a problem is water getting in and then failing to clear as it becomes "caught" in this narrowed space by surface tension – this is why some, after swimming, have to dance and jiggle their head to shake the fluid loose. With more time and further growth and a channel now even narrower sees trapped fluid, waterlogged skin and now an infection which may be not only very painful but also difficult to treat.

### Diagnosis of Exostoses

These should be suspected in anyone who has been surfing for a significant interval (particularly so if they are winter water enthusiasts and/or have been surfing in colder climates). When the ear is examined typically smoothly rounded white swellings are initially seen – as they enlarge and as they are in a contained space they have to grow towards each other compressing even more the space of the canal. In many and as at an early stage they are often minimally symptomatic diagnosis is at the point where water gets caught after a day in the surf, a doctor looks in the ear and the obvious reason is found.



Normal Ear



Severe Exostoses

## MANAGEMENT:

### 1) Prevention

While these troublesome bony lumps can occur in people who aren't surfers the vast majority are and we know, as above, that it is a cold water effect repeatedly applied that causes these masses to

evolve. Trying to prevent water getting in is the key and in this regard there are simple options such as a Blutac plug particularly when supported by a wetsuit hood or you could use some proprietary products available although I would avoid the mouldable silicone putty ones which can be pushed in too far and be very hard to get out. A particularly effective measure is to approach a local audiology (hearing aid) company and have some custom fitted plugs made conforming to the anatomy of your ear and therefore most effectively keeping water out.

## **2) Water trapping**

As mentioned already this generally doesn't occur until later in the evolution of the exostoses but can often be effectively managed by the use of high concentration alcohol based ear drops – a few drops in the ears after swimming will help evaporate any fluid within as well as benefiting from the antiseptic influence of the alcohol itself. These can be purchased from the chemist under the name of Vosol or if you have some Australian connections a better formulation is available there called Aqua-ear. In this country I use and recommend a very effective drop mixture of steroid, acetate and alcohol which combines an enthusiastic drying agent with an effective anti infection regime.

## **3) Infections**

These are the severity step above water trapping and usually relate to water that's become caught, the skin has become waterlogged then inoculated with bacterial or fungi and an infection sets in. These generally now cause additional blockage, itch, pain, a feeling of moisture or even some discharge – the main problem is the pain which can be excruciating which is not surprising given the inflammatory pressure that's happening within a space tightly contained by bone so therefore no room for soft tissue expansion. Infections should be treated early and aggressively, ideally at the outset with a Doctor or a Practice Nurse taking a swab as at least then, if the infection doesn't get better after a few days, there will be an identified organism and specifically tailored treatment can now be provided. While commonly antibiotics orally are offered these topically delivered are generally more effective as there is a higher concentration in the drop form specifically delivered to the area of concern. Commonly available and used drop formulations include Cipro HC, Sofradex or Maxitrol (the latter are eye drops but can be equally effectively applied to the ear) with some also requiring an early visit to an Ear Nurse to perform a microsuction to remove debris therefore reducing the pain and allowing drops to penetrate more effectively. The combination of a thorough cleaning, the provision of appropriate drops and their effective penetration will generally see most infections settle only rarely requiring additional antibiotic cover but at times, and if severe, potentially an urgent specialist assessment.

## **4) Hearing Loss**

This can occur briefly with water trapping or in a more persisting fashion during an infection. Generally however hearing restores as the blockage reduces. At a severe point and the growths now occlude the canal a sustained hearing loss appears but one that will be reversed by successful surgery

## **SURGERY FOR SURFERS EAR:**

The aim of surgery is to enlarge the space within the ear canal with some techniques merely reducing some of the growths but preferably an option removing not only the bulk of the exostoses but also some of the underlying bone so now an over corrective technique, an outcome therefore more durable and one which I believe is significantly safer. The key to good surgery and a great result is not just the removal of the overgrowth of bone but also the scrupulous protection of the very delicate skin that lines the ear canal - it is essential that this is all preserved during the operative process otherwise healing can be slow and the outcome compromised. Meticulous surgical technique is therefore essential. Historically the approach incision was a small cut at the

upper aspect of the opening of the ear canal– while seemingly “simple” it was inevitably followed by a restricted removal of bone, in some significant degrees of post operative pain and the not uncommon eventuality of a recurrence of the exostoses and the need for repeat surgery. My preferred approach is to access the ear by an incision behind the external ear – although a bigger cut paradoxically this is often much less sore and it definitely provides a superior operative view which in turn enables more bone to be removed in a safer fashion and here being aware of very important surrounding anatomy that must be protected including the jaw, the drum deeply and even the nerve that moves the face. I strongly believe this to be superior as it takes no longer to perform and while it does require longer post operative care longer term results are substantially enhanced. The only negatives of this option are the incision and a longer recovery interval of approximately 4-6 weeks (as it takes a much bigger ear canal volume more time to heal). These slight negatives I firmly believe are more than outweighed by what I think is a safer and usually less painful technique and a much more durable result.

### **WHEN TO OPERATE**

The time to consider surgery is when the intrusion of the exostoses is becoming significant rather than just considering their size - as previously mentioned symptoms often don't appear until a late stage is reached so once the point of water trapping is met it becomes much more likely that surgery may need to be a seriously considered option. The historic reputation of canalplasty surgery as an unpleasant experience best avoided has been superseded by this enhanced and much better tolerated operative technique.

### **THE PROCESS OF SURGERY**

The procedure is carried out under general anaesthetic and takes approximately 1.5 to 2 hours. The technique involves a high power operating microscope and microdrills to progressively remove the overgrowths. You will wake up with a turban like bandage which needs to remain in place for 3 days and be home some 2-3 hours afterwards. For the first week the operated ear will be totally blocked as there will be an antiseptic dressing in the canal which will be removed at the first post op appointment 7 days later – from here hearing will be restored and a new lighter dressing placed. This cleaning and redressing continues on a weekly basis until the canal has fully healed – 4-6 weeks is the expectation. It is not regarded as safe practice to operate on both ears at the same time but as often both need to be remedied the plan would be the worst ear first so now post operatively blocked on this side from the operative dressing then a few days later the caution of a hearing test of this ear to ensure no hearing harm. With this confirmed the second ear surgery is scheduled a week later at the same time carrying out the first dressing change for the initial (and now hearing) ear. This then enables the expected healing interval for both to be contained within the same following few weeks. Pain following is expected to be restrained and water pursuits can generally be considered after 6-8 weeks.

### **RISKS OF SURGERY**

While there are potentially many risks fortunately these are very unusual especially when the operation is carried out by a highly experienced surgeon:

Hearing loss and tinnitus to a sustained degree < 1%

Damage to the facial nerve – has been described in the literature but should never eventuate

Delayed healing 2-3 %

Canal scarring / narrowing – in my experience never happens with careful surgical and post op care

Damage to adjacent structures such as the jaw joint or the ear drum / middle ear bones <0.2%

## PERSONAL EXPERIENCE



I am a senior Ear Surgeon in Auckland working in both public and private practice after undertaking, at an early point in my career, a second fellowship in complex ear surgery including specific training in the management of exostoses by the renowned Sydney Surgeon Professor Paul Fagan. Returning I introduced this revolutionary “behind the ear” canalplasty technique to NZ and it’s been very gratifying to see this method subsequently adopted by so many of my ear surgical colleagues. My personal operative experience of relevance is of approximately 1000 canalplasty procedures of which some 450 have been for surfers (and some windsurfers) exostoses. I am informed that I am the countries most experienced surgeon in the definitive operative management of this condition. The employment of a meticulously undertaken technique, a structured and therefore

predictable surgical method, one well understood and with a usually very low pain profile along with a generally very predictable recovery and the expectation of an excellent result should reliably see a very pleasing outcome.

Should you wish to schedule an appointment to discuss any of these points in greater detail please contact my office for an appointment on 09 9254060