



CASE REPORT

Operating in an eczematous surgical field: don't be rash, delay surgery to avoid infective complications

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Summary Prominent ear correction is a common operation. Complication as a result of infection has been quoted at between 3% and 5% [Calder JC, Nasaan A. Morbidity of otoplasty: a review of 562 consecutive cases. *Br J Plast Surg* 1994;47:170–4 and Jeffery SLA. Complications following correction of prominent ears: an audit review of 122 cases. *Br J Plast Surg* 1999;52:588–90.]. We present two cases referred for ear reconstruction following catastrophic post-operative infection at the time of pinnaplasty, leaving each patient with significant helical rim deformities. Both patients displayed evidence of active post-auricular eczema at the time of their primary surgery. Dermatological research has highlighted the increased colonisation of *Staphylococcus aureus* in particular within areas of atopic eczema in comparison to normal skin. We advise delaying ear surgery in the presence of a rash in view of the potentially devastating complications that may result. This approach may be extended to all cutaneous surgery where treatment of the rash is advocated prior to embarking on an elective surgical procedure.

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Case report 1

A 14-year-old girl presented to the Plastic Surgery department three years following bilateral

pinnaplasty for prominent ears. This had been performed at a different unit as a day case procedure, using an anterior scoring technique. A localised post-auricular rash was noted at the time of surgery, although there was no history of eczema elsewhere. Several days post-operatively the patient reattended with left post-auricular pain due to infection, and she was admitted for IV antibiotics. Microbiological swabs grew

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Staphylococcus aureus. The infection eventually settled but she was left with a significant residual upper pole helical rim deformity as a result of the cartilage necrosis (Fig. 1).

The deformity was corrected using an autologous costal cartilage graft framework sutured onto the normal lower pole framework as a one-stage procedure (Fig. 2).

Case report 2

An 11-year-old patient was referred from an outside Plastic Surgery unit for ear reconstruction following attempted correction of bilateral lop ears at the age of five. She was known to suffer from eczema of the scalp, which was present at the time of surgery. The original surgery was complicated by the development of chondritis, with associated skin and cartilage necrosis. A microbiological swab taken, revealed a streptococcal infection, which was treated with intravenous antibiotics. Once healing had occurred she was left with a significant disfiguring upper pole defect (Fig. 3).

The resulting deformity was corrected as a two-stage procedure using an autologous costal cartilage framework which was covered with a temporoparietal flap as the first stage, with release of the reconstructed ear at the second stage (Fig. 4).



Figure 1 Upper pole helical rim deformity secondary to cartilage necrosis.



Figure 2 Patient's ear immediately post-reconstruction with an autologous costal cartilage graft.

Discussion

Successful pinnaplasty has been credited with improving patient satisfaction and appearance and decreasing psychological distress. Relatively few workers have examined the complications of this procedure, in particular looking at infective complications, with suggestions on how outcome could be improved.¹⁻⁴

Infection following pinnaplasty has been thought to be relatively rare, and has been attributed to the excellent blood supply within the surgical field.³ Infection rates were 3.3% in an audit by Jeffery in 1999² on 122 patients, while Calder and Naassan¹ in a study of over 500 patients demonstrated an infection rate of 5.2%. None of these workers elaborated further on the morbidity that resulted due to infection and on the long-term outcome. As far as we are aware no-one has highlighted the possible potential for post-operative infection when the surgical field is associated with the presence of an active skin rash such as eczema.

The normal skin is resistant to colonisation and invasion by most bacteria. Defense mechanisms include an intact epidermis, the presence of



Figure 3 Preoperative photograph demonstrating complete loss of upper pole cartilage.

sebum and epidermal lipids, and components of the humoral immune system. Changes in the cutaneous flora occur in the presence of eczematous inflammation, with an increase in colony



Figure 4 Patient following reconstruction with a costal cartilage graft.

forming bacterial units, in particular *Staphylococcus aureus*.^{5,6} A study investigating skin swabs of patients with eczema and normal control patients revealed a significantly higher colonisation of the eczematous skin with a 74% colonisation rate in comparison to a rate of zero in the controls.⁷ In all cases the commonest pathogen was identified as *S. aureus*, with streptococcal colonisation as a lesser pathogen. Eczematous change within the skin is thus related to higher bacterial colonisation in comparison to normal skin.

We report two cases where infection has been related to the pre-existence of a rash in the post-auricular area, with scaling and fissuring of the skin. Periauricular fissuring has been indicated as one of the characteristic clinical markers of atopic eczema in children,⁸ with a prevalence ranging from 30% to 57%.^{9–11} *S. aureus* is frequently implicated as a common coloniser of these fissured areas.⁸

During surgery for correction of prominent ears, the skin is prepped and draped in a standard fashion. However, in the presence of a rash with scaling and excoriation, it is likely that antiseptics such as hibiscrub or betadine may not penetrate beyond the surface layer of the epidermis. Thus, pathogens have greater potential to become exposed to the wound when the surface skin is wiped with a swab and the underlying unprepped epidermal layers are revealed.

We would advocate that elective surgery for pinnaplasty should be delayed in the presence of a periauricular rash, in order to avoid the risk of an increased and potentially catastrophic post-operative infection occurring. This approach may be extended to any type of surgery that involves operating in close proximity to a skin rash. A dermatological review in order to treat the underlying problem should be obtained, prior to proceeding further.

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