LESSON OF THE WEEK

Postpartum splinting of ear deformities

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BMJ 2007;334:366-8
doi:10.1136/bmj.39063.501377.BE

Postpartum splinting can completely correct congenital ear deformities and obviate the need for later surgery

Congenital ear deformities are common and usually corrected surgically in childhood. Ear deformities are often first noticed by parents or non-specialist personnel such as midwives, general practitioners, and health visitors. Splinting of ear deformities in the early neonatal period has been shown to be a safe and effective non-surgical treatment.[1–8] The splint is made from a wire core segment in a 6-French silastic tube and held in place with adhesive skin closure strips. It is applied with no anaesthesia for three to four weeks.[1] We present three cases that show how different congenital ear deformities can be treated non-surgically, thereby obviating the need for surgery.

Case reports

Case 1: constricted ear

A male child was born at full term with bilateral constricted ears. No family history of ear deformity existed. In this deformity, the rim of the ear looks as if it has been tightened, rather like a purse string that has been pulled closed.[1 9] We initiated splinting three days after birth and the programme was continued for one month. By 10 days the upper pole had expanded and a good result was seen at six months' follow-up (fig 1).

Case 2: Stahl's ear

A male child was born at full term with a unilateral Stahl's ear deformity. Stahl's ear is a helical rim deformity characterised by a third crus, flat helix, and malformed scaphoid fossa (fig 2). We initiated splinting three days after birth and the programme was continued for three weeks. By 10 days the correction was already apparent with disappearance of the third crus and a normal helical rim. The good initial result was maintained at six months (fig 2).

Case 3: prominent ears

A female child was born at full term with bilateral prominent ears. This deformity is defined by excessive height of the conchal wall or a wide conchoscaphal angle (>90 degrees). We initiated splinting three days after birth and continued with the programme for four weeks. Initially the ear was protuberant with an increased conchoscaphal angle, but after splinting the angle was reduced and the ear sat in a more natural position (fig 3).

Discussion

Congenital ear deformities are defined as either malformations (microtia, cryptotia) or deformations. Ear deformation implies a normal chondrocutaneous component with an abnormal architecture.[10] Deformed ears are categorised as constricted (fig 1), Stahl's (fig 2), or prominent (fig 3). The causes of these deformities are variable. Abnormal development and functioning of the intrinsic and extrinsic muscles of the ear may generate deforming forces. External forces applied to the ears, such as malpositioning of the head during the prenatal and neonatal periods, may also contribute.[10]

Although ear deformities are anecdotally common, their true incidence is unknown. Around 5% of the white population are thought to have prominent ears, but this may be an underestimate as most reports do not include less severe anomalies.

Although some of these deformities resolve spontaneously, a large proportion do not. In today's society, which puts great emphasis on appearance, the pressure

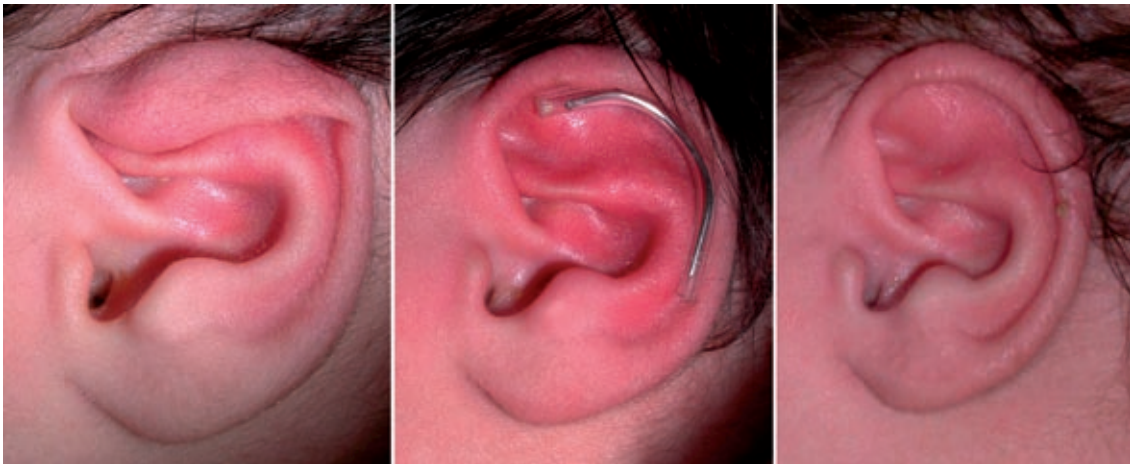

Fig 1 | Case 1 (constricted ear) at 3 days postpartum (left), with splint in situ (middle), and at 10 days (right)

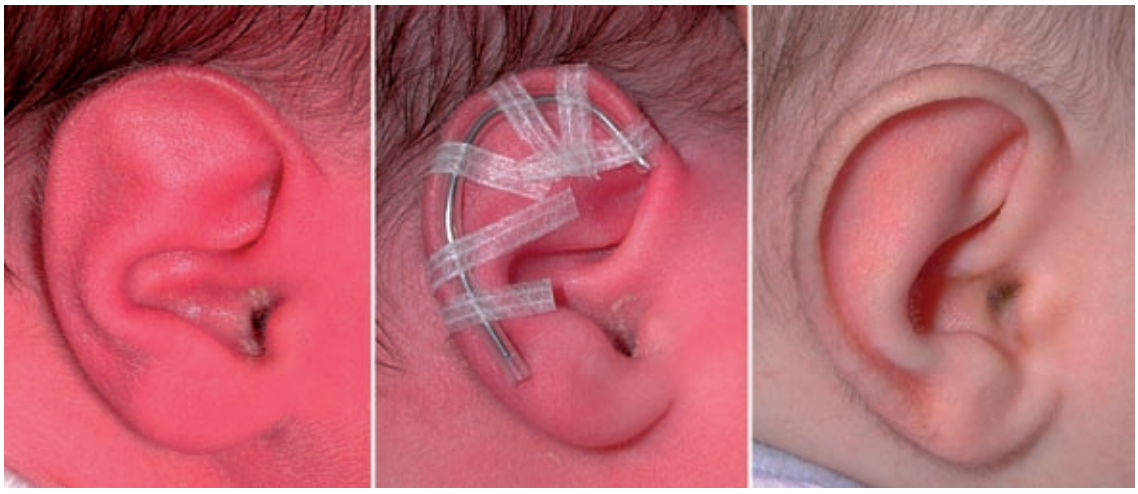

Fig 2 | Case 2 (Stahl's ear) at 3 days postpartum (left), with splint in situ (middle), and at 6 months (right)

on parents to seek surgical treatment if their child has an ear deformity can be great.

Several surgical techniques are available to treat these conditions. Although the results are often good, they can be unpredictable, especially for more complex deformities.

Splinting of ears in the early neonatal period has been advocated as an effective non-surgical treatment[1–8] that often produces better results than surgery. The best results are achieved and the shortest period of splintage is needed when treatment is started immediately after birth. Moulding of the ears is possible then because maternal oestrogens render the ear of the neonate soft and malleable.[4 5] After the first few days of life the ear becomes stiffer and less amenable to moulding, which makes splinting less effective.

Many kinds of splints and moulding materials have been described (table). Methods other than the one we used include self adhering foam designed to prevent skin damage from splints, temporary stopping (dental material) in combination with surgical tapes,[4] dental bite and impression waxes, lead-free soldering wire inserted within an 8-French suction catheter, and thermoplastic material.[11] Splint kits are now also available from various online sources.

Splinting is a simple, effective, and cheap way of treating even the most complex congenital ear deformity. It is non-invasive and avoids the risks associated with surgery and anaesthesia. It prevents later psychological distress by treating the deformity before it is perceived as a problem by the child.

The potential for splinting congenital ear deformities in early neonatal life needs to be better publicised. Tan and Gault[12] reported that parents are the first to notice the deformity at birth in 61% of babies with prominent ears. They should be offered the possibility of splinting to correct these deformities. Postpartum clinical screening and non-surgical treatment are effective for congenital dislocation of the hip joint and congenital club feet. We recommend that similar measures should be taken for congenital ear deformities to obviate the need for surgical correction later in childhood. It is vital that neonatal paediatricians, obstetricians, general practitioners, and midwives are

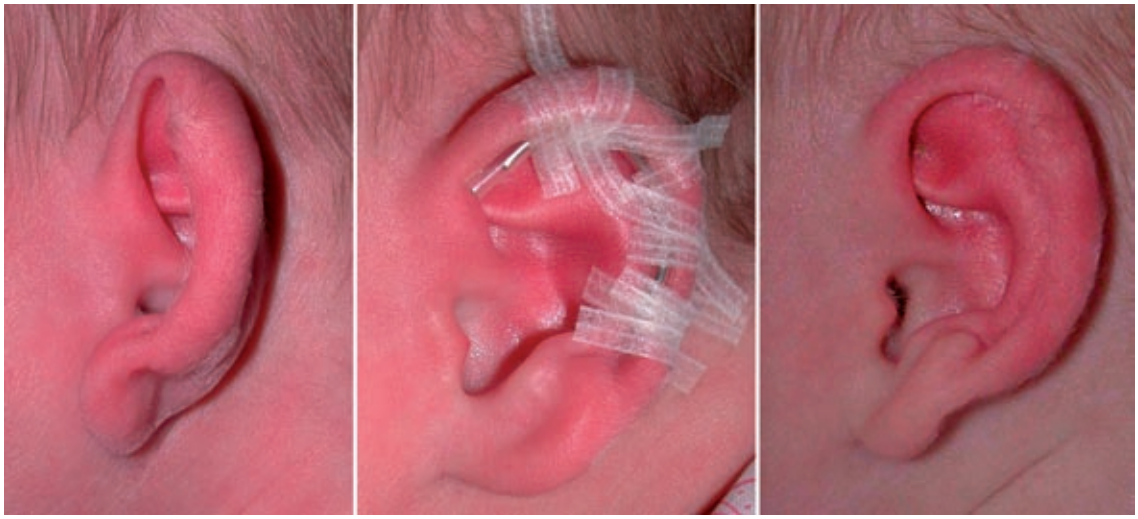

Fig 3 | Case 3 (prominent ears) at 3 days postpartum (left), with splint in situ (middle), and at 30 days (right)

Splinting materials and methods

Material	Method
Wire core segment in 6-French silastic tubing[4]	The splint is shaped and positioned in the groove between the helix and the antihelix and held in place with 3-5 skin closure strips
Self adhering foam designed to prevent skin damage from splints[3]	Applied at the bottom of the fold of the auricle and in the conchal fossa itself
Temporary stopping (dental material, a kind of gutta percha latex)[4]	Used to press and correct abnormal folding from anterolateral or posteromedial surface; kept in place with skin closure strips
Dental bite and impression waxes[5]	Heated under hot tap water and moulded to achieve the desired normal contour and held in place with skin closure strips
Thermoplastic material[11]	Elastic and hard at room temperature but becomes soft in seconds at a temperature of >60°C; warmed and softened material is applied with light pressure from the anterior and posterior side of the ear—it hardens in minutes
Ear Buddies (Fresca Commerce; http://earbuddies.fresca.co.uk/pws/Content.ice?page=Home&pgForward=content)	Commercially available kit

educated about early detection and how to initiate treatment themselves.

The delay incurred by referring to a plastic surgeon may result in a missed opportunity to treat these deformities. If successful, an effective splinting programme could consign the surgical correction of all but the most severe ear deformities to the past.

Contributors: AJL, SH, and FS thought of the idea for the paper. FS cared for the three patients. AJL and SH reviewed the literature and wrote the article. SH is guarantor.
Funding: None.
Competing interests: None declared.

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Accepted: 4 December 2006

MRSA: to disclose or not to disclose?

During my first foundation programme appointment as a new doctor, I was called by the nurses to speak to a relatively young patient who had spent a considerable time on the ward. The patient was clinically well and progressing with physiotherapy, but a recent superficial nose swab had cultured methicillin resistant Staphylococcus aureus (MRSA). As a result, the patient had been promptly isolated to a side room, and the nurses now wanted a doctor to explain the swab result. They were adamant that I should be open about the fact that MRSA had been cultured as they felt withholding this information could have serious consequences if the patient found out by chance later.

As I was still inexperienced in such discussions with patients, I asked one of my seniors for advice. He advised a completely different approach, however. He felt it would be unwise to mention MRSA specifically because of the media sensationalism of this infection—it might upset the patient unnecessarily and have negative connotations. He suggested the best thing to do would be to explain that the patient had acquired a skin infection, which required isolation in a side room to prevent spread to other patients, and would need topical treatment to eradicate the infection, without stating explicitly that the infection was MRSA. He reasoned that, if a patient was found to have a urinary tract infection, you would not feel obliged to specify that *Escherichia coli* was the causative organism but would simply tell the patient that he or she had "an infection of the urine that requires treatment."

When giving patients information about their condition, one must strike a balance between providing enough information to allow an informed choice without overwhelming the patient with unnecessary information. This case was made more difficult because of the heightened media and public interest in MRSA and the reporting of several high profile cases of this "hospital acquired" infection. MRSA infection is perceived by patients to be different from other bacterial infections, and it therefore requires special consideration.

I have subsequently been asked to discuss MRSA positive statuses on several other occasions. I have found that, as long as patients' perceptions of MRSA are explored and they are given accurate information about the implications of colonisation or infection, they are usually satisfied. To disclose or not to disclose MRSA infection is not the question, but rather how to disclose.

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