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Correspondence and Communications

Stahl's ear deformities treated with auricular splinting

Dear Sir,

Stahl's ear is a congenital anomaly of the upper third of the ear characterized by an abnormal antihelical third crus with a horizontal orientation extending from the site of the normal bifurcation of the antihelix to the postero-superior margin of the helix. This horizontal crus causes the unrolling of the helical rim and consequently the appearance of a flat helix which is associated with a broad scaphoid fossa and a lack of proper development of the superior crus.

Between January 2012 and December 2019, 16 newborn infants were referred to us with Stahl's ear deformity, one bilateral and 15 unilateral. Newborns were examined in the Neonatal Care Unit usually one or two days after birth. Pictures were taken of the infants born with Stahl's ear who were considered suitable for ear splinting. The natural evolution of the deformed auricles was monitored for 2–3 days after birth. Parents were then fully informed about the proposed treatment, timeframe, alternatives and the possibility of failure in achieving the desired result. Treatment was started as soon as possible. The splint was composed of a wire core portion in a 6-French Silastic tube. It was custom cut to the appropriate length and shaped according to the specific ear curvature and then positioned in the groove between the infants' helix and antihelix, perpendicular to the abnormal third crus. The splint was held in place with 5 to 6 Steri-strips in order to force the cartilage in the appropriate position.[1]

The intended purpose of Stahl's ear splintage was to press out the abnormal fold in the scapha,flattening the convex third crus and converting it to a planar or slightly concave geometry and augmenting the helical rim curvature.

Anterior protrusion of the upper ear was corrected by taping the pinna to the mastoid region with surgical tape (Micropore, 3 M) so as to reduce the auricular-cephalic angle. An elastic bandage or a headband was strongly recommended for reinforcement.

The splint was applied for the first time in the Neonatal unit or in the clinic as an outpatient procedure with no anesthesia. Parents were asked to leave the splint in place 24 h a day and come back at weekly intervals at which time the splint was removed, the correction achieved was monitored and photographed and the splint curvature was adjusted. The splint was then sanified and repositioned with fresh Steri-strips. Once the satisfactory correction was achieved, the splint was again applied until the shape remained stable for one more week

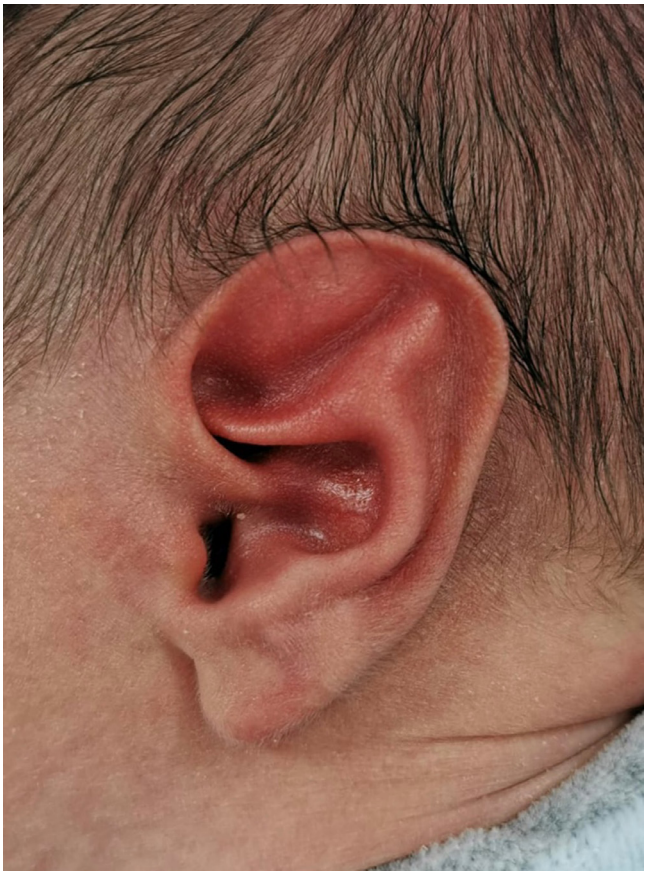

Figure 1 Left Stahl's ear deformity at day 3 post birth.

The criteria chosen to assess our results were divided into four categories: not improved, improved, satisfactory, excellent.[2] Almost all the treated ears improved significantly within the first 1 or 2 weeks after application of the splint. Deformity correction was achieved within three to four weeks. No superficial skin necrosis nor allergy to Steri-Strips was detected in this patient series. Follow-up ranged between 1 and 9 months. Results were rated as "excellent" in 87,5% of the treated Stahl's ear deformities. (Figure 1; Figure 2) In the remaining 12,5% of cases results proved "satisfactory".

Stahl's ear and other congenital ear deformities are traditionally corrected surgically, but results are often unpredictable, especially for more complex cases.

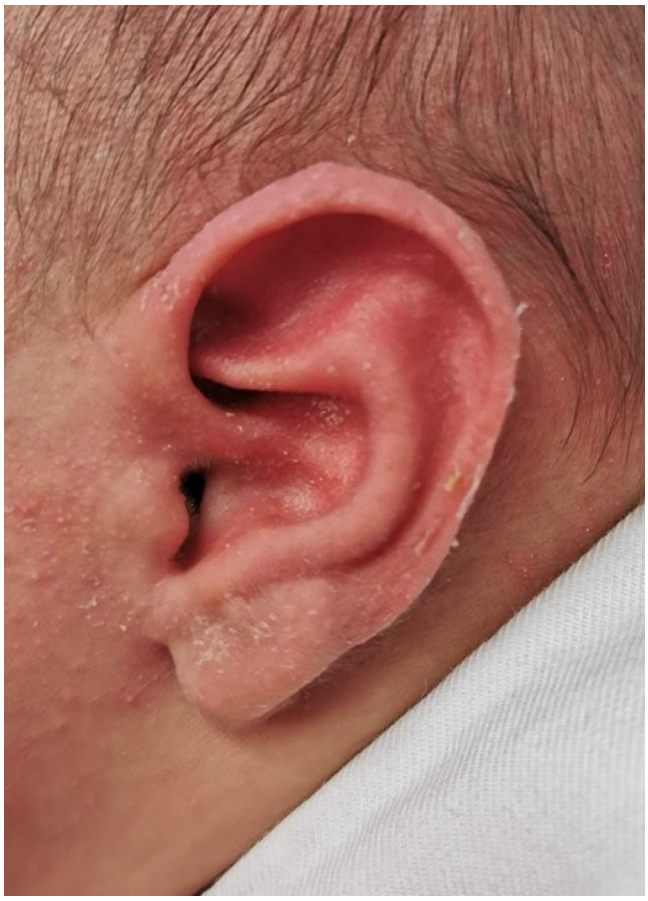

Figure 2 Same ear after three weeks of splinting.

Non-surgical correction of ear deformities, including Stahl's ear, obtained by splinting external ears in the early neonatal period has been advocated as an effective treatment that often produces better results than surgery.[3] Many different types of materials have been used for ear splinting: Reston foam, dental materials, Aluwax, coated wire, thermoplastic materials and a system consisting of Velcro, conformers, and polysiloxane gel. One of the most diffused molding systems in the U.S. is the Ear-Well Infant Ear Correction System.[4]

However, we have found that the possibility to assemble the splint in an easy manner within a short time frame is essential as the earlier the newborn is treated, the better the results.

Parents' collaboration and motivation are extremely important for the success of this treatment. Stahl's ear requires an extremely reduced treatment period in comparison to most other congenital ear deformities. It is very important that neonatal pediatricians, obstetricians and general practitioners are informed about early detection of the deformities.

Our results reported herein demonstrate that the best results are achieved and the shortest period of splintage is needed when treatment is started as soon as possible because, after the first post-partum weeks, as the blood estrogen levels decrease, the infant's ear becomes stiffer and less amenable to being molded.[5]

Based upon our experience we conclude that our proposed method of ear splinting of Stahl's ear deformity is an effective and safe technique for treatment of infants in the early neonatal period. It also prevents later psychological distress by treating the deformity before it is perceived as a problem by the child.

Ethical approval

N/A

Declaration of Competing Interest/Funding

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