

With 'paper clip technique,' some infant ear deformities can be corrected without surgery

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Certain types of ear malformations in infants can be treated by a simple and inexpensive technique—using paper clips to build custom splints to mold the shape of the growing ear, reports a study in the *Journal of*

Craniofacial Surgery.

Hitomi Matsutani, MD and colleagues of The University of Tokyo report good results with their non-surgical approach to correcting congenital ear deformities in infants. Their experience shows the best chances of success with treatment before age 6 months of age.

Simple technique avoids surgery for some mild ear deformities

Between 2010 and 2019, Dr. Matsutani and colleagues carried out their paper clip technique for non-surgical correction in 80 ears of 63 patients, average age four months. Treated infants had relatively mild deformities: either cryptotia, a condition in which the upper ear cartilage is partially buried under the skin; or constricted ear (sometimes called cup ear or lop ear), in which the upper part of the ear is folded over.

The [plastic surgeons](#) created customized splints from paper clips, bent into the shape needed to guide the growth of the ear cartilage. After this metal frame was placed and padded with cotton to protect the skin, thermoplastic resin was packed around it, providing a mold to guide further growth of the ear. The [splint](#) was worn at all times except bath time.

In addition to improving the appearance of the ears, the technique focused on formation of the space between the upper ear and the side of the head, or "auriculocephalic sulcus"—an important structure for several purposes, including wearing eyeglasses and facemasks.

At several weeks' follow-up, the paper clip technique was highly successful in correcting congenital ear [malformations](#). Independent ratings for before-and-after photographs by experienced plastic surgeons

suggested excellent results in 36.5% of ears and satisfactory results in 73.0%.

Best results with treatment before six months of age

In most [ears](#) that were successfully treated with the paper-clip technique, an adequate auriculocephalic sulcus was created without the need for surgery. The technique was less effective in infants with certain types of more severe deformities, including those with an insufficient amount of skin over the ear.

While ear-molding is not a new approach to correction of ear malformations, the new technique provides a simple, customizable, inexpensive alternative. The authors note that the necessary materials—paper clips and thermoplastic resin—are readily obtained at a cost of less than two dollars. The article includes illustrations demonstrating the creation of the ear-molding splint and giving examples of the results achieved.

"Early initiation of ear-molding treatment is recommended, preferably before six months of age," the researchers emphasize. That's due not only to the malleability of the growing ear cartilage during infancy, but also because older infants are likely to pull the splint out—the most common for technique failure, in the authors' experience.

Because of the importance of early treatment, Dr. Matsutani and colleagues believe that pediatricians should check for congenital ear malformations as part of the routine one-month checkup. In any case, the researchers believe that treatment for ear [deformities](#) is best completed before children start school. They add, "When non-surgical correction of deformity is unsuccessful, surgical treatment would still be possible before five years of age."

More information: Hitomi Matsutani et al, Nonsurgical Creation of an Auriculocephalic Sulcus in Children With Congenital Auricular Deformities, *Journal of Craniofacial Surgery* (2023). [DOI: 10.1097/SCS.00000000000009180](https://doi.org/10.1097/SCS.00000000000009180)

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