

# Surgical Revision of Cleft Lip, Nose and Palate what are the considerations?

by **Robert J. Wood, MD**

Advances in surgical techniques during the last 10 to 15 years have made it possible for surgeons to achieve remarkable results with cleft lip and palate repairs. In many cases, the initial repair will be the only one the child ever has. The family is pleased with the outcome and there are no subsequent social ramifications for the child. By the time a child enters school, for example, the cleft lip repair should appear quite normal to a child's peers at a conversational distance.

Under what circumstances, then, is a surgical revision of a cleft lip, nose or palate desirable?

## Cleft lip revisions

There are primarily two reasons why a family might seek a revision of a cleft lip repair for their child. The first is that the lip has the appearance of being too short. The second is that the vermilion, or pink part of the lip, on the cleft side is too thick.

Initial repair of an infant's lip is typically done at about 3 months of age. After the repair, the scars gradually worsen in appearance, becoming hypertrophic – thick, raised, red and firm. This inflamed or “angry” appearance usually peaks sometime between four and eight weeks post-surgery.

The scars then begin to soften, lighten in color and relax over a period of about one year. Often the scar will remain contracted upward toward the nose, leaving a shorter distance between the nose and lip on the side of the cleft, than on the opposite side. This gives the appearance of the lip being too short on one side. If this asymmetry is still present after one year, the family may want to consider a revision.

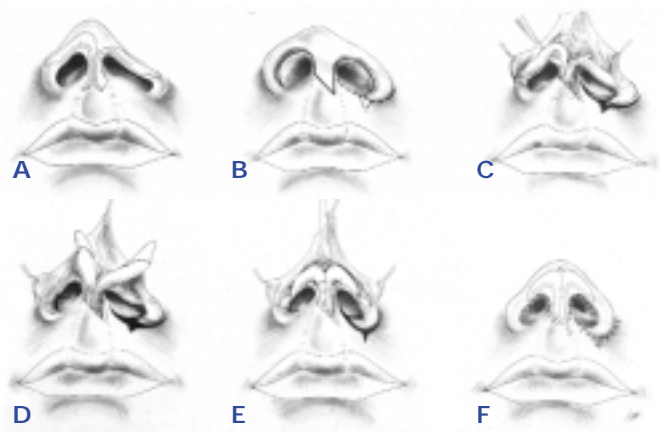
A revision of the lip alone is usually a same-day procedure, lasting about one hour. For a lip that appears too short, adjacent tissue is rotated into the repair to lengthen it. This “rotation advancement” leaves no new scarring because the incision is made along the line of the previous repair. Stitches are removed in about five days.

A revision to correct a lip that is too thick requires a reduction of the vermilion. Usually tissue is removed at the wet-dry junction, where the wet underside of the lip joins the dry outer surface. This procedure is also same-day, using resorbable stitches that save the patient a trip back to the hospital, barring complications.

If the child will also need an initial nasal repair in the next few years, it may be a good idea to hold off on the lip revision until the time of the nasal surgery. Combining the procedures means one less surgery and period of anesthesia for the child.

## Nasal revisions

The overriding philosophy is that an initial nasal repair should be done before the start of school – usually sometime between



## Surgical Revisions of the Nose

- A) Presurgical asymmetry is typically pronounced on the side of the initial cleft repair.
- B) Incisions are made at the base of the nose and on the interior of the nasal passageways.
- C) Skin flaps are folded back to expose the nasal cartilage.
- D) and E) The nasal cartilage is surgically revised to achieve a symmetrical appearance.
- F) Incisions are closed. Sutures are removed in five days.

the ages of 3 and 5. Subsequent repairs are based largely on the needs of the child.

For example, if a child's nose is asymmetrical and noticeable to peers, it may lead to self-consciousness or even low self-esteem for the child. In such cases, a repair is warranted at any age as deemed appropriate by the family and the child's health care provider.

Asymmetry in a nasal repair is usually most apparent at the tip of the nose. The cartilage is often displaced back and down on the side of the cleft. Revision involves relocating the cartilage up and out to restore symmetry. In some instances, a conchal cartilage graft (taken from the external ear) is used to extend the nasal tip. The surgery requires an overnight stay.

Unlike lip revisions, it is harder to see a marked difference between a pre- and post-nasal revision. On average, however, there is significant improvement, and patient satisfaction is generally high.

### **Cleft palate revisions**

Nationwide, about 10 to 20 percent of initial cleft palate repairs have a residual fistula, or hole, between the mouth and nasal cavity. This causes air to egress into the nose and can result in speech disturbances. Fluid and food from the mouth can also come up through the nose.

This usually requires surgical revision, and can be fixed upon identification (but no sooner than four to six months after prior surgery).

Another problem associated with cleft palate repairs is velopharyngeal insufficiency — the inability of the soft palate or the superior constrictor muscle to close off the passageway to the nose during speech. The result is hypernasal speech, especially with a sound requiring pressure in the mouth such as 'p' and 'b' sounds.

A trial of speech therapy is always the first course of action once velopharyngeal insufficiency is identified. In most cases, this adequately reduces hypernasality. If it fails to correct the problem, however, surgery may be indicated.

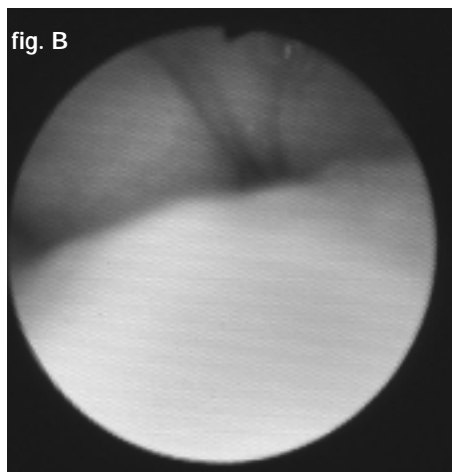
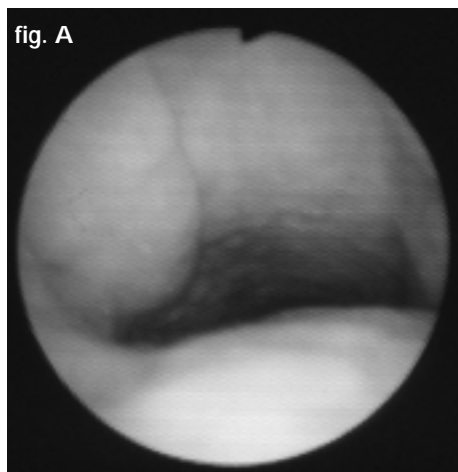
To tailor the surgery to the child's specific difficulty, an image is taken through a fine caliber endoscope, while the child is awake, without sedation. This allows the observer to watch how the muscles in the palate and walls of the throat move as the child speaks, and can help identify what the anatomic problem is (see figures A and B).

A surgical correction is then made by creating either a pharyngeal flap or by a pharyngoplasty. In the former procedure, tissue from the back of the throat is attached to the opening in the palate to create two smaller holes – two lateral ports – decreasing the overall surface area that needs to be closed for speech. Pharyngoplasty involves taking tissue from the side of the throat and swinging it back to make a large hole smaller.

Surgery for velopharyngeal insufficiency should be done no later than 4 to 5 years of age. Children with this condition learn to compensate very early on for the sounds they cannot make. For example, a 'p' sound may become a 'g' sound. Substitutions (saying papa for the word mama) and omissions (saying 'og' for dog) are also common. After that point, it can be difficult for a child to unlearn abnormal compensations.

### **The older child or teen**

There are no age limitations when it comes to cleft revisions. If an initial repair produced an inadequate result, a revision often produces a very acceptable outcome. This not only helps to normalize the person's physical appearance, but can boost self-esteem and perhaps create a greater sense of well-being.



**Figure A** demonstrates velopharyngeal insufficiency as viewed through the fine caliber endoscope.

**Figure B** demonstrates proper closure.

## Author's Profile



**Robert J. Wood, MD**

Dr. Robert J. Wood is medical director of the Minnesota Center for Craniofacial Services at Gillette Children's Specialty Healthcare. Previously, he served as director of the Emory Egleston Center for Cleft and Craniofacial Anomalies in Atlanta.

He received his medical degree from the University of Minnesota Medical School and completed a general surgery residency at Hennepin County Medical Center, Minneapolis. Dr. Wood trained in plastic surgery at Emory University, Atlanta. He went on to complete a fellowship in craniofacial surgery at New York University Medical Center.

Dr. Wood is active in craniofacial research and helped pioneer current techniques in endoscopic surgery to remove facial masses. He also developed an intra-oral bone expander and is internationally known for his experience in resorbable fixation.

Dr. Wood is a member of the American Cleft Palate and Craniofacial Association and the American Society of Maxillofacial Surgeons. In addition to his certifications by the American Board of Surgery and the American Board of Plastic Surgery, he is a fellow of the American Academy of Pediatrics.

## New Staff Addition for Craniofacial Services Program

The Minnesota Center for Craniofacial Services at Gillette Children's welcomed pediatric nurse practitioner, Mary Ellen Smith, to its staff in early April.



Smith joined Gillette from HeathPartners where she not only had a general pediatric practice, but served as a lactation consultant to health care providers system-wide. As co-founder and past director of the Breastfeeding Center, Smith provided intensive education and lactation follow-up for maternal problems, normal newborns, premature infants and babies with special needs.

At Gillette Children's, Smith's duties include:

- Initial consults at local hospitals to families who have a newborn with a cleft condition or other craniofacial anomaly
- Comprehensive patient education development
- Post-surgical exams and discharge
- Developmental assessment and ongoing support for children with chronic craniofacial conditions

Smith will also develop a service within the craniofacial program at Gillette for children with feeding issues.

Smith received her bachelor's degree in nursing from the University of Minnesota in 1973, and later earned her certification as a pediatric nurse practitioner at the College of St. Catherine in Minneapolis. She also has her Master's of Public Health from the University of Minnesota, where she completed a fellowship in adolescent medicine.

**A Pediatric Perspective** focuses on specialized topics in pediatrics, orthopaedics, neurology and rehabilitation medicine.

Please send your questions or comments to:

*A Pediatric Perspective*  
Marketing Communications Department  
200 East University Avenue  
St. Paul, MN 55101  
(651) 229-1729

Editor-in-Chief.....Steven Koop, MD  
Editor .....Katie Colón  
Designer .....Kim Goodness  
Photographers .....Anna Bittner  
.....Paul DeMarchi

05-01SEXTON7600GG



**Gillette Children's**  
Specialty Healthcare

200 East University Avenue  
St. Paul, Minnesota 55101  
(651) 291-2848  
TDD (651) 229-3928  
1-800-719-4040  
www.gillettechildrens.org

Nonprofit  
Organization  
U.S. Postage  
**PAID**  
St. Paul, MN  
Permit No. 5388

## Referral Information

Gillette Children's accepts referrals from physicians, community professionals and outside agencies. Contact the admitting manager at the number listed below. Physicians who are on staff may admit patients through our Admitting Department from 7 a.m. to 4:30 p.m. Physicians who are not on staff should contact the admitting manager.

Admitting Manager (651) 229-3845	Craniofacial Program (651) 229-3905
Admitting Dept. (651) 229-3848	Neurology Programs (651) 229-1716
Arthritis Program (651) 229-3903	Orthopaedic Programs (651) 229-3951
Brain Injury Program (651) 290-8712	Spina Bifida Program (651) 229-3903
Cerebral Palsy Program (651) 290-8712	Spinal Cord Injury Program (651) 290-8712

## Mobile Outreach Clinic Rolls Into a Community Near You

Gillette Children's Mobile Outreach Clinic provides a variety of assistive technology services to individuals with disabilities throughout Minnesota. Certified orthotists, seating specialists and rehabilitation engineers can fit and modify a variety of equipment, including: upper and lower limb orthoses, spinal orthoses, seating systems, wheelchairs and other mobility devices, protective headgear, recreational equipment and lap trays.

Upcoming outreach clinics for May and June will be held in the following communities:

Brainerd	May 22	Brainerd	June 7
Alexandria	May 23	Marshall	June 7 & 8
Detroit Lakes	May 22	Duluth	June 11 & 12
Fergus Falls	May 23	Alexandria	June 13
Fergus Falls	May 24	Austin	June 14
Alexandria	May 30	Owatonna	June 15
Roseau	May 30	Willmar	June 19 & 20
Roseau	May 31	Mankato	June 21
Red Lake	June 1	Brainerd	June 26
Windom	June 5 & 6	Alexandria	June 27
Alexandria	June 6		

To schedule an appointment for a patient, or to learn more about the services provided through the Mobile Outreach Clinic, contact the Gillette Technology Center (651) 636-9443.