

IN BRIEF:

Topics in Pediatric Orthopedics

Congenital Constriction Bands in the Upper Extremities

By Ann Van Heest, M.D., orthopedic surgeon specializing in care of hands and upper extremities

Overview

Congenital constriction bands are also called amniotic bands, Streeter's dysplasia or ring constriction syndrome. They occur anywhere from one in 1,200 to one in 15,000 births (Can J Plast Surg. 2008 Winter; 16(4): 221-223) and appear in the upper extremity or lower extremity or both. The level of deformity ranges in severity, from simple constriction bands to constriction bands with secondary distal deformity or lymphedema, constriction bands with distal fusion of parts (syndactyly), or amputation distal to the constricting band.

Diagnosis

Congenital constriction bands are readily apparent at birth during a clinical exam, so no diagnostic tests are needed. To confirm a diagnosis of congenital constriction band, a clinical diagnosis can be made based on the observation of multiple bands in multiple sites on multiple digits. Anything less indicates some other condition, such as failure of formation or syndactyly.



Congenital banding at the distal radius/ulna can result in lymphedema of the hand and further impairments to motor function.

Treatment

Usually a baby is seen in the first three to six months of life, unless the constriction band is threatening blood flow (viability) of a digit. Then an immediate referral to an orthopedic hand specialist would be indicated.

If no other issues are present, syndactyly repair and constriction band repair surgery can be scheduled when the child is between 6 to 12 months. Often, the surgery is staged to preserve blood flow to the digits.

Release of a constriction band may also be staged, particularly if a circumferential ring band is present. In addition to syndactyly release with skin grafting, constriction band excision can be performed. To allow for better growth, a Z-plasty technique is used. The amniotic band is excised along with any abnormal tissue, and the incision is closed. The patient will be followed up periodically to ensure his or her development is appropriate. If necessary, the child may be referred for physical and occupational therapy. Typically, outcomes are excellent.



Ann Van Heest, M.D., is an orthopedic surgeon at Gillette. She specializes in treating pediatric upper extremity conditions, including congenital and acquired disorders. She has a special interest in upper extremity problems related to neuromuscular disorders, such as arthrogryposis, cerebral palsy and spinal cord injuries.

She received her medical degree from the University of Minnesota, where she later completed her orthopedic surgery residency. At Harvard University, she completed a fellowship in hand and upper extremity disorders.

She is board-certified by the American Board of Orthopaedic Surgery, with a certificate of added qualifications in hand surgery. Her professional memberships include the American Academy of Orthopaedic Surgeons and the American Society for Surgery of the Hand.

Key Insights

- Congenital constriction bands are readily apparent at birth; no diagnostic testing is required.
- True congenital constriction bands meet these criteria: multiple bands in multiple sites affecting multiple digits.
- Repair surgery may be staged: release syndactyly, then release constriction bands.
- Postsurgical outcomes are excellent.

INSIDE:
 Repairing Congenital
 Constriction Bands in the
 Upper Extremities



To make a referral, call
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Fig. A – Baby Girl
 A congenital band affected development of this child's left hand: the thumb and third digit are incomplete, and digits 4 and 5 have syndactyly. Only the index finger is relatively normal.



Fig. B – Baby Girl
 (right hand of the child shown in Fig. A)
 As a result of a congenital band, digits 3 and 4 have syndactyly, and the index finger has a terminal amputation.



Fig. C – Baby Boy
 Banding affects two areas of this boy's arm—a key indicator of congenital constriction bands.