Hair Tourniquet Syndrome

Jared D. Klein, MD, MPH, and Clifton C. Lee, MD
Children’s Hospital of Richmond at VCU, Richmond, Virginia

Muhammad A. Mansoor
Virginia Commonwealth University School of Medicine, Richmond, Virginia

A 2-month-old girl who had been born at term and who had no past medical history presented to the emergency department (ED) with a hair tourniquet and suspected infection on her right second, third, and fourth toes. Her primary care physician had noted the finding incidentally during the girl’s well-child visit and had referred her to the ED.

Physical examination findings were notable for tenderness, edema, erythema, and bleeding from her right third toe. An orthopedic surgeon was consulted to evaluate the neurovascular status of the toe and to perform complete removal of the

The 2-month-old’s foot 12 hours after removal of a hair tourniquet. Note the indentations in the skin of the second and fourth toes created by the constriction, as well significant edema and skin breakdown on the third toe.
Torsion in a newborn

The patient was treated with an over-the-counter depilatory (Nair) and had a few remaining loops of hair removed with micro-forceps; this was followed with application of topical bacitracin. The girl was admitted and monitored overnight.

Physical examination findings following the procedure were notable for a third toe with purplish color, 2+ distal pedal pulse, and brisk capillary refill in all toes (Photo). The social work department and the child protection team were consulted, and a report to child protective services (CPS) was made due to concerns about the parents’ delay in seeking care.

During the hospitalization, the girl was noticed to have resolving edema, no tenderness to palpation of any of the affected toes, and full passive and active range of motion. CPS and the social work department determined that the girl could be discharged with her parents. A follow-up appointment with her pediatrician was made at the time of discharge.

Hair tourniquet syndrome must be considered in the differential diagnosis of the fussy infant. The condition most often affects children from 4 days to approximately 6 years of age. The toes, primarily the second and third digits, are most commonly affected. Fingers and genitalia also can be affected.

One hypothesis to explain this phenomenon proposes that a child’s digital movements within a confined area, such as a mitten or a sock, cause the hair fiber to wrap around the affected area. The mechanism of injury begins with impendence of lymphatic return of the digit, followed by obstruction of venous outflow and subsequent arterial constriction. Ischemic injury, necrosis, and auto-amputation may result if the hair is not removed promptly. In addition, child abuse must be ruled out as the cause.

Inspection can be difficult, because the hair may be so deeply embedded that it escapes detection. Hair tourniquets may be removed with over-the-counter depilatories and forceps, but surgical evaluation and exploration may be needed if there is uncertainty that all hair fibers have been removed.

REFERENCES

Testicular Atrophy as a Late Complication of Orchiectomy

Lynnette Mazur, MD, MPH; Laura Rosas, BBA; and Kyle Hoquard, BS
University of Texas Health Science Center at Houston

A 12-year-old boy presented with a chief concern of a small left testicle. His past medical history was significant for a left-sided undescended testicle at age 4.

On physical examination, the boy had Tanner stage 3 genitalia. The right testicle measured 15 mL and the left measured 4 mL. The rest of the examination findings were normal.

Cryptorchidism is the most common genital problem encountered in pediatrics. The prevalence reaches 3% in full-term newborns and 30% in premature infants. Because undescended testes rarely descend spontaneously after 6 months of life, correction before 1 year of age is recommended to improve surveillance for testicular cancer (TC); to decrease the risk of TC, torsion and inguinal hernia; and to preserve fertility. Medical and surgical cryptorchidism treatments have varying success rates. Hormonal agents such as human choriomic gonadotropin and gonadotropin-releasing hormone promote testicular descent in 20% of patients but may result in apoptosis, inflammation, and a reduced number of germ cells in the developing testes. Surgical intervention has success rates of up to 90% and is the preferred treatment. However, early complications can include inadequate positioning of the testis in 10% of patients, division of the vas deferens in 1% to 2% of patients, and epididymo-orchitis in rare cases. Late complications can include testicular atrophy, TC, and infertility. Atrophy occurs in up to 8% of patients after orchiectomy but can occur in as many as 25% of patients with an intra-abdominal testis.

TC occurs in 1 in 100,000 men among the general population, but the prevalence increases to 1 in 1,000 in men with cryptorchidism. While insufficient evidence exists to state that orchiectomy reduces the lifetime incidence of TC, the procedure does reduce the lead time to its detection. Because TC is fast growing, testicular self-examination (TSE) of an intrascrotal testicle may detect a tumor earlier than a periodic well-child examination or ultrasonography.

Cryptorchidism can affect fertility, but it does not affect paternity. Of the children who had orchiectomy, 23.5 million men had higher sperm quality (36.2% vs. 14.0%) who had the testis lowered at birth. How does it function in males with normal fertility?

Testicular atrophy for cryptorchidism may become evident as an incidental finding or regular TSE is performed, especially for those with undescended testes. Before orchiectomy, boys as young as 1 year after testicular descent should be offered orchiectomy. Because these results may be of significance, the discussion about the potential risks and benefits should be made at the time the testicular cup is removed to improve the chance of conception and future fertility.

REFERENCES