Salvage of Bilateral Asynchronous Perinatal Testicular Torsion

Christopher C. Roth,* Gerald C. Mingin and Joseph Ortenberg

From the University of Vermont College of Medicine (GCM), Burlington, Vermont, and Louisiana State University Health Sciences Center, Children's Hospital of New Orleans, New Orleans, Louisiana

* Correspondence: 200 Henry Clay Ave., New Orleans, Louisiana (telephone: 504-896-9233; FAX: 504-896-9861; e-mail: croth@lsuhsc.edu).

Purpose: Current management strategies for prenatal torsion include observation alone, delayed contralateral orchiopexy and emergent contralateral orchiopexy. Bilateral torsion is now being reported with more frequency and approximately a third of these patients have asynchronous torsion. We highlight the role of scrotal exploration in neonates diagnosed with bilateral asynchronous testicular torsion.

Materials and Methods: We reviewed the clinical experience from 2000 to present of 2 senior pediatric urologists to identify cases of bilateral perinatal testicular torsion. Asynchronous torsion was identified by the varying physical findings of each testicle at exploration. A literature review was done to evaluate the evolving management of perinatal testicular torsion.

Results: Six cases of bilateral perinatal torsion were identified since 2000. In 3 of the 6 cases extravaginal torsion of the contralateral testis was incidentally identified at surgical exploration. All 3 testes had normal Doppler flow before exploration. Testicular salvage was not successful in the 2 patients with bilaterally absent blood flow on newborn ultrasound. The 3 cases of incidentally diagnosed contralateral torsion and 1 of preoperatively diagnosed contralateral torsion were successfully salvaged. Thus, 4 of 6 patients with bilateral torsion were left with 1 viable testis.

Conclusions: Physical examination findings and radiography can be inaccurate to assess the contralateral testis in males born with prenatal torsion. We have adopted the strategy of emergent surgical exploration in cases of prenatal torsion. Using this approach anorchia was minimized in patients with bilateral asynchronous torsion.

Key Words: testis; spermatic cord torsion; infant, newborn; salvage therapy; ischemia

Optimal treatment in neonates with testicular torsion remains an unsettled issue.[1] During the last quarter century many groups have reported their case series of male newborns with testicular torsion. This literature has helped better characterize the variable presentations and outcomes of the rare but diverse entity of perinatal testicular torsion. As such, management for prenatal testicular torsion has evolved to ensure the preservation of maximal testicular function in affected males.

We have now routinely adopted the strategy of emergent surgical exploration in otherwise healthy male newborns with prenatal torsion. This strategy is supported by our experience with 6 patients with asynchronous bilateral perinatal testicular torsion. Timely surgical exploration allowed salvage in 4 of the 10 testicles with torsion. We discuss the clinical features of these unique

0022-5347/11/1856-2464/0
THE JOURNAL OF UROLOGY®
© 2011 by American Urological Association Education and Research, Inc.
Vol. 185, 2464-2468, June 2011
Printed in U.S.A.
DOI:10.1016/j.juro.2011.01.013

cases and highlight how our experience provides further evidence in support of prompt surgical exploration in patients with known prenatal testicular torsion.

METHODS

The clinical experience from 2000 to the present of 2 senior pediatric urologists (JO and GM) was reviewed to identify cases of bilateral perinatal testicular torsion. The medical records of identified patients were reviewed for important clinical information, including newborn scrotal examination, radiographic and surgical findings, and clinical and laboratory evidence of testicular salvage. Physical examination findings included in the review represent those of the attending urologists. For the purpose of this discussion prenatal torsion is considered an ischemic event that is believed to have occurred before delivery. Neonatal torsion is believed to have occurred after delivery. Prenatal and neonatal torsion are collectively defined as perinatal torsion.

Findings on physical examination and surgical exploration were used to determine the chronology of testicular ischemia. Atrophic or fibrotic remnants diagnosed in the neonatal period were judged to be ischemic events occurring well before delivery. A firm, enlarged testis with associated induration of the hemiscrotum on newborn examination was judged to be an ischemic event that occurred shortly before delivery. Each scenario represented prenatal torsion. Acute changes on physical examination (new onset scrotal edema, testicular enlargement and tenderness) during the newborn period were judged to represent acute ischemia occurring after delivery. Neonatal torsion was diagnosed if surgical findings confirmed acute ischemia. Based on these criteria bilateral asynchronous torsion can affect the 2 testes as a prenatal event, 1 testis prenatally and 1 neonatally, or the 2 testes as a neonatal event.

RESULTS

Six cases of bilateral torsion were identified and all were characterized as asynchronous based on differing degrees of testicular ischemia present on surgical exploration. Four males were born with a unilaterally enlarged, nontender testicle with associated induration of the affected hemiscrotum, 1 was born with bilaterally enlarged, nontender testicles with associated induration of the entire scrotum and 1 was born with unilateral enlargement and induration with a contralateral atrophic testis. Thus, all 6 patients were born with at least 1 testicle that had undergone a prenatal ischemic event. Physical examination findings in the contralateral hemiscrotum in the 4 patients with unilateral prenatal torsion revealed a noncommunicating hydrocele with normal, nontender testes in 2, and normal testes and scrotum in 2.

All 6 patients underwent scrotal ultrasound before surgical exploration. In all testes with physical examination findings suggesting a prenatal ischemic event ultrasound characterized the testes as having varying degrees of parenchymal heterogeneity and no demonstrable blood flow on Doppler imaging. The 2 testicles associated with hydrocele on physical examination demonstrated normal Doppler blood flow (fig. 1). One patient with prenatal torsion and a normal contralateral testis was undergoing observation by the pediatrician when contralateral scrotal edema was observed on day 2 of life. Ultrasound at that time revealed absent flow in each testis. The remaining patient with 1 normal testicle on newborn physical examination had normal blood flow in that testis.

Scrotal exploration was done in all 6 patients. No patient experienced anesthetic complications. Four patients underwent exploration within 24 hours of birth. The patient with recognized prenatal torsion who was undergoing observation was explored after scrotal edema developed on day 2 of life. One patient with induration of 1 testis and atrophy of the other also had increased creatinine on newborn laboratory

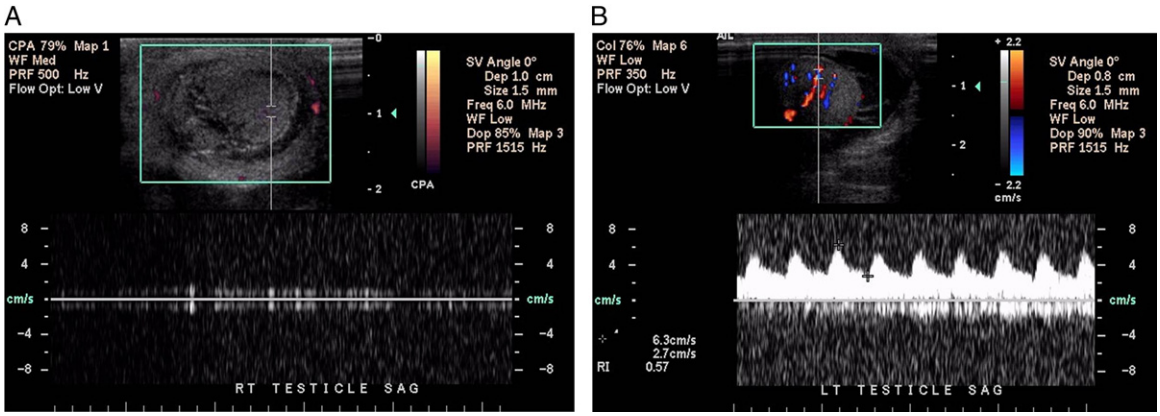

Figure 1. Doppler ultrasound reveals absent blood flow in testicle with prenatal torsion (*A*) and blood flow in testicle found to have torsion at surgical exploration 4 hours later (*B*).

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