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Treatment of contralateral hydrocele in neonatal testicular torsion: Is less more?

Martin Kaefer, Deepak Agarwal, Rosalia Misseri, Benjamin Whittam, Katherine Hubert, Konrad Szymanski, Richard Rink, Mark P. Cain

Pediatric Urology, Riley Hospital for Children, Indianapolis, IN, USA

Correspondence to: M. Kaefer, Riley Children's Hospital, 705 Riley Hospital Drive, Suite 4230, Indianapolis, IN 46202, USA

mkaefer@iupui.edu
(M. Kaefer)

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Summary

Objective
Treatment of neonatal testicular torsion has two objectives: salvage of the involved testicle (which is rarely achieved) and preservation of the contralateral gonad. The second goal universally involves contralateral testicular scrotal fixation to prevent the future occurrence of contralateral torsion. However, there is controversy with regards to management of a synchronous contralateral hydrocele. It has been our policy not to address the contralateral hydrocele through an inguinal incision to minimize potential injury to the spermatic cord. Our objective in this study was to determine whether the decision to manage a contralateral hydrocele in cases of neonatal testicular torsion solely through a scrotal approach is safe and effective.

Patients and method
We reviewed all cases of neonatal testicular torsion occurring at our institution between the years 1999 and 2006. Age at presentation, physical examination, ultrasonographic and intraoperative findings were recorded. Patients were followed after initial surgical intervention to determine the likelihood of developing a subsequent hydrocele or hernia.

Results
Thirty-seven patients were identified as presenting with neonatal torsion. Age of presentation averaged 3.5 days (range 1—14 days). Left-sided pathology was seen more commonly than the right, with a 25:12 distribution. All torsed testicles were nonviable. Twenty-two patients were noted to have a contralateral hydrocele at presentation. All hydroceles were opened through a scrotal approach at the time of contralateral scrotal fixation. No patient underwent an inguinal exploration to examine for a patent process vaginalis. None of the patients who presented with a hydrocele have developed a clinical hydrocele or hernia after an average 7.5 years (range 4.3—11.2) follow-up.

Conclusion
We have demonstrated that approaching a contralateral hydrocele in cases of neonatal testicular torsion solely through a scrotal incision is safe and effective. Inguinal exploration was not performed in our study and our long-term results demonstrate that such an approach would have brought no additional benefit. In avoiding an inguinal approach we did not subject our patients to unnecessary risk of testicular or vasal injury. Contralateral hydrocele is commonly seen in cases of neonatal testicular torsion. In our experience this is a condition of minimal clinical significance and does not warrant formal inguinal exploration for treatment. This conservative management strategy minimizes the potential of contralateral spermatic cord injury in the neonate. The aims of the study were met.

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Introduction

Neonatal testicular torsion is an uncommon event occurring with a reported incidence of 6 per 100,000 live births [1]. In many cases of neonatal testicular torsion, a contralateral hydrocele may be appreciated. Although, there have been numerous publications addressing the pros and cons of early surgical treatment for testicular torsion, very little has been written about the incidence or preferred management of the contralateral hydrocele. Herein, we present our 8-year experience with neonatal testicular torsion and present data supporting a minimalist approach to management of the contralateral processus vaginalis.

Materials and methods

We retrospectively reviewed all cases of neonatal testicular torsion occurring at our institution between the years 1999 and 2006. Age at presentation, physical examination, ultrasonographic and intraoperative findings were recorded. The surgical procedure consisted of exposing the side of suspected torsion through a midline scrotal raphe incision or an ipsilateral transverse scrotal incision. Once the diagnosis of torsion had been confirmed the cord was rotated into normal orientation and the contralateral scrotal contents exposed either through the same midline incision or a separate contralateral transverse scrotal incision (when an original transverse scrotal incision had been selected). The tunica vaginalis on the contralateral side was opened and any hydrocele fluid released. If there remained any question as to the possible patency of the processes vaginalis then it was probed with in an eight French feeding tube or a blunt forceps. Regardless of whether or not the processus vaginalis was proven patent, no inguinal exploration was performed. Redundant tunical tissue was excised and the testicle was secured to the scrotal sidewall or septum in three positions with permanent suture (5—0 Prolene). The torsed testicle was subsequently removed after suture ligation of cord vasculature and vas deferens. Patients were followed by way of phone interview to determine the likelihood of developing a subsequent hydrocele or hernia.

Results

Thirty-seven patients were identified as presenting with neonatal torsion during the years studied. A summary of patient data and outcomes is shown in Table 1. Age of presentation averaged 3.5 days (range 1—14 days). Left-sided pathology was seen more commonly than the right, with a 25:12 distribution. Twenty-two patients were noted to have a contralateral hydrocele at presentation (Fig. 1). Nine of the 22 hydroceles were appreciated on initial physical examination, none of which could be successfully reduced. In no case did the attending surgeon note a thickened processus vaginalis extending along the cord. All torsed testicles were nonviable. In eight cases, the proximal processes vaginalis was probed with an eight French feeding tube. In three of these cases, the feeding tube progressed into the abdominal cavity. No patient underwent an inguinal exploration to examine or repair a patent process vaginalis. All of the patients who had presented with a contralateral hydrocele ($n = 22$) were successfully contacted by phone for follow-up, while 12/15 patients who did not demonstrate a hydrocele were successfully reached for interview. There have been no cases of testicular atrophy and no patient who presented with a hydrocele has developed a clinically evident hydrocele or hernia after an average 7.5 years (range 4.3—11.2) follow-up.

Table 1 Patient characteristics and surgical outcomes.

Age at presentation, days	3.5 (1—14)
Laterality of torsion (L/R)	25/12
Hydrocele prevalence	60% (22/37)
Follow up, years	7.5 (4.3—11.2)
Ipsilateral salvage	0%
Contralateral viability	100%
Subsequent hernias	0%

Discussion

Recent publications have underscored the divergent opinions regarding surgical management of the torsed testicle in the newborn period [2—5]. Detractors of early exploration cite the risk of neonatal anesthesia and the very low salvage rate of the torsed testicle [6]. Proponents of early surgical exploration cite a number of documented cases of synchronous contralateral torsion, arguing that failure to surgically secure the contralateral testicle may result in devastating anorchia [7—10].

The purpose of the present study is not to debate the merits of early operation but rather to determine the incidence of contralateral hydrocele and ask the question of how one should optimally address the contralateral hydrocele if present.

The incidence of hydroceles in term newborns with no other scrotal pathology has been reported to be between 1% and 5% [11]. That the incidence in our series was nearly 60% (22/37) suggests that a sympathetic effusion (similar to a sympathetic pulmonary effusion with an inflammatory process under the diaphragm) may be the primary etiology for many of contralateral hydroceles associated with neonatal testicular torsion.

Hydroceles can be either communicating or non-communicating. In the case of a communicating hydrocele, the argument supporting closure of the patent processes is that it will prevent herniation of abdominal structures at a future date.

Three lines of argument support our opinion that contralateral inguinal exploration should be avoided in children with neonatal testicular torsion during their first few days of life. First, it has been documented in many large series that most of neonatal hydroceles will spontaneously resolve during the first 12—18 months of life [11—13]. Our data are in line with these observations. After a mean follow-up of 7.5 years, no patient has developed a clinically evident hernia or hydrocele. This is despite documenting a patent processes in at least three of these patients (by placing an eight French feeding tube retrograde into the abdomen through the scrotal incision). Of additional note is that a