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Standardized education and parental awareness are lacking for testicular torsion

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Summary

Introduction
Testicular torsion leads to orchiectomy in 30–50% of cases, which may cause psychological upset and parental guilt over a potentially avertable outcome. Presentation delay is an important modifiable cause of orchiectomy; yet, families are not routinely educated about torsion or its urgency. The present study assessed parental knowledge regarding acute scrotal pain.

Materials and methods
An anonymous survey was distributed to parents in Urology and ENT offices, asking about their children's gender and scrotal pain history, urgency of response to a child's acute scrotal pain, and familiarity with testicular torsion.

Results
Surveys of 479 urology and 59 ENT parents were analyzed. The results between the two were not statistically different. Among the urology parents, 34% had heard of testicular twisting/torsion, most commonly through friends, relatives or knowing someone with torsion (35%); only 17% were informed by pediatricians (Summary Figure). Parents presenting for a child's scrotal pain were significantly more likely to have heard of torsion (69%) than those presenting for other reasons (30%, OR 5.24, $P < 0.0001$). Only 13% of parents of boys had spoken with their children about torsion. Roughly three quarters of them would seek emergent medical attention — by day (75%) or night (82%) — for acute scrotal pain. However, urgency was no more likely among those who knew about torsion.

Discussion
This was the first study to assess parental knowledge of the emergent nature of acute scrotal pain in a non-urgent setting, and most closely approximating their level of knowledge at the time of pain onset. It also assessed parents' hypothetical responses to the scenario, which was markedly different than documented presentation times, highlighting a potential area for improvement in presentation times. Potential limitations included lack of respondent demographic data, potential sampling bias of a population with greater healthcare knowledge or involvement, and assessment of parents only.

Conclusions
Parental knowledge of testicular torsion was lacking, suggesting both ineffective education in the well-child setting and inappropriately timed education during or after pain occurrence. Awareness was most commonly anecdotal or taught unreliably, as even familiar parents were no more likely to seek emergent attention. Therefore, standardized, effective parental education on testicular torsion and the need for prompt presentation is needed, as is improvement in the quality of information taught in the healthcare setting. Further assessment of knowledge among preadolescent and adolescent boys regarding testicular torsion is warranted. It is hopeful that pre-hospital delay may be minimized and greater rates of testicular salvageability may be achieved through these efforts.

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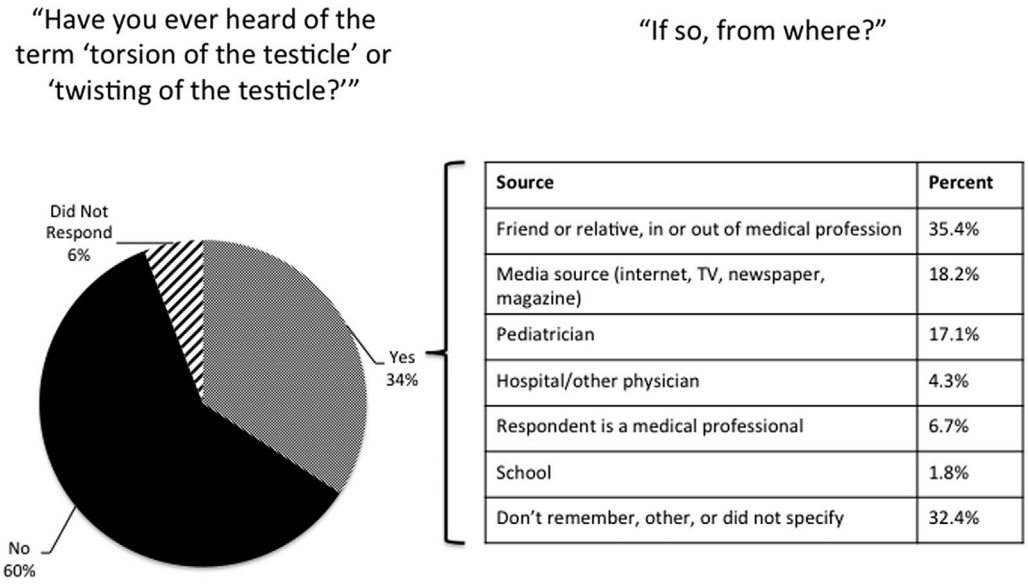

Source	Percent
Friend or relative, in or out of medical profession	35.4%
Media source (internet, TV, newspaper, magazine)	18.2%
Pediatrician	17.1%
Hospital/other physician	4.3%
Respondent is a medical professional	6.7%
School	1.8%
Don't remember, other, or did not specify	32.4%

Summary Figure Knowledge of testicular torsion among parents and their sources of knowledge. Percentages are among only those who knew about torsion and not of the total respondents. Roughly a third of parents had heard of testicular torsion. Among them, the most common source of knowledge was a friend or relative, i.e. "word of mouth." In contrast, traditional sources of health education (i.e. Pediatricians, schools) were infrequent sources of testicular torsion knowledge, seen among 17.1% and 1.8% in this group, respectively, and 5.8% and 0.6% of parents overall.

Introduction

Testicular torsion occurs in one in 1500—4000 boys under the age of 25 [1,2], and leads to orchiectomy in roughly 30—50% of cases [1—5], although rates up to 61—64% have been reported [6,7]. In the adult oncology literature, testicular loss can lead to concerns over body image and masculinity [8] and feelings of uneasiness or shame [9]. Compared with older patients, those who undergo orchiectomy in late adolescence or young adulthood are significantly more likely to report missing a removed testicle, feeling uneasiness or shame, and have higher rates of anxiety and depression [9]. Similar studies have not been conducted in children, although this is an age at which boys are particularly vulnerable to body image issues. Orchiectomy in the setting of testicular torsion may also lead to caregiver grief over a relatively preventable outcome.

The biggest risk factor for orchiectomy due to testicular torsion is duration of symptoms prior to treatment [6,10—13]: exploration within 6 h results in salvageability in over 90% [14], whereas beyond 18—24 h results in near complete unsalvageability [11]. There is evidence that pediatric patients have higher rates of delayed presentation and orchiectomy [3—7,12,13,15], with both patients and caregivers representing the most common sources of delay [16].

Whilst acute scrotal pain is generally evaluated and treated emergently once patients present for evaluation, anecdotal reports abound of patients and families that were unaware of the importance of emergently evaluating acute scrotal pain. Without parental knowledge of the need for emergent presentation, patients may be at risk of significant care delay and subsequent orchiectomy.

The aim of this study was to evaluate parental knowledge of acute scrotal pain and its relationship to testicular torsion.

Methods

A 10-question, anonymous survey was developed with the input of several Urology faculty and trainees and distributed to parents of children visiting the outpatient Pediatric Urology office. It asked parents about: number and gender of their children; history of scrotal pain in their children; how urgently they, as parents, would respond if their children developed acute scrotal pain; whether or not they were aware of testicular torsion and, if so, the source(s) of their information (see Appendix). The primary objective was to determine knowledge of testicular torsion among laypeople. Secondary objectives included sources of knowledge and layperson responsiveness to acute scrotal pain. The survey was successfully tested among 20 parents and then distributed *en masse*. Surveys were included with the intake paperwork upon patients' arrival at the office, prior to being seen by the Urologist; one survey was distributed per family. Identical surveys were additionally distributed to parents at an Otolaryngology office in the same demographic setting to assess for sampling bias. Surveys were included in analysis if at least 33% was complete.

Descriptive statistics were performed for analysis of responses. Chi-squared analysis was performed for comparison within the urology cohort and between the urology and ENT cohorts.

Results

Surveys were collected from 560 parents in the Urology offices, with 479 (85.5%) sufficiently completed for analysis. A total of 65 surveys were collected from the ENT parents — 59 (90.8%) were sufficient for analysis. There was