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Management of undescended testis may be improved with educational updates for referring providers

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Abstract *Objective:* A large proportion of boys referred for undescended testis (UDT) is not managed optimally prior to the referral, with the majority seen at >1 year of age and many having unnecessary ultrasound (US). Our objective was to assess the magnitude of these problems in our area and to determine if unnecessary US decreased following interventions to educate referring providers (RPs).
Materials and methods: A chart review was done on new patients referred for UDT from January 2010 to June 2012. Data collection included age on date of pediatric urology office visit, whether or not RPs obtained an US, and whether the pediatric urology examination revealed an UDT or retractile testis. Several educational updates for RPs were provided and the proportion having US was tracked during the study period.
Results: Of 363 boys referred for UDT, only 17% (62) were seen at <1 year of age, and 62% (227) had retractile testis. US had been obtained in 24% (87/363). There was a statistically significant decrease in the proportion of patients having had an unnecessary US following the last update ($p < 0.01$).
Conclusions: Delayed urology consultation and unnecessary US for UDT are common in our area. A brief focused educational update was effective in decreasing US in our area.

Introduction

Early diagnosis and treatment of undescended testis (UDT) before 12 months of age may improve future fertility [1,2]. Thus, the recommended age of orchiopexy changed to 6—12 months of age over a decade ago [3—5]. However, three

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articles published since 2009 reported that the mean age of referral for UDT and orchiopexy was well over 1 year [6–8].

Current management of UDT is also not cost-effective. Several studies, including a meta-analysis [9], concluded that ultrasound (US) is not helpful in diagnosing UDT [10–13]. Yet, two studies (one from California and one from Texas) noted that a large number of patients had US prior to referral to an urologist [8,11]. In a random national survey of pediatric practices, 34% of pediatricians reported ordering US for UDT [14]. If these are issues nationwide this may translate into millions of wasted medical care dollars each year [9].

Another issue noted in the study from Texas was that 43% of boys referred for urological consultation for UDT had normal/retractile testis on pediatric urology examination [8]. When the referring provider (RP) is in doubt about diagnosis it is best that these boys have urological consultation. However, this also adds to the cost of care for UDT: for every one boy with UDT about two are sent in for urological consultation.

Based on our clinical observations our hypotheses were that the magnitude of these problems is similar in our area, and we believed some aspects of management could be improved with educational updates for the RPs. The first part of the study was to objectively assess the proportion of patients who had a US to diagnose UDT, the proportion with delayed referral for orchiopexy, and the proportion of those referred for UDT, but found to have a retractile/normal testis. The second aim of the study was to determine if we could reduce the number of unnecessary US by providing educational updates for our RPs. To our knowledge, this is the first study to assess results of educational services focused on reducing wasted medical care dollars in our field.

Materials and methods

Institutional review board approval was obtained from Albany Medical College (AMC).

Part 1: assessment of management of UDT prior to referral to urology

Chart review was carried out for all new patients with diagnosis of UDT or retractile testis seen by one of three pediatric urology providers in our practice during the study period of 1 January 2010 to 30 June 2012. Data collection included patient age on date of pediatric urology office visit, whether or not RP obtained an US for diagnosis of UDT, date of US, and whether the pediatric urology examination revealed an UDT or retractile/normal testis. Patients were excluded from the study for the following reasons: (1) prior failed orchiopexy, (2) prior inguinal surgery for UDT or hernia/hydrocele (to avoid including any acquired UDT), and (3) in cases where the diagnosis of retractile testis(s) was an incidental finding and not the reason for referral to us. If the patient had a US in the past that was ordered for testis pain, hydrocele, or any reason except UDT diagnosis, that patient was counted in the group *not* having had an US.

After the initial retrospective chart reviews conducted in October 2010, a special template for this patient population was employed in order to standardize data collection among the providers and to ensure specific enquiry about prior US. Chart reviews were carried out every 3 months throughout the remainder of the study period.

For age of presentation, the patients were grouped by $<$1 year old, 1–10 years old, and $>$10 years old. Children presenting to pediatric urology at $<$1 year of age indicates that the primary care physician diagnosed and recommended urological evaluation before the child's 1-year well baby checkup, which is appropriate management. The second age group, boys aged 1–10 years, was arbitrarily selected to be consistent with, and allow comparison with, the study by Snodgrass et al. [8].

Part 2: assessment of the effectiveness of educational services to RPs

Although all pertinent aspects of UDT management were addressed in our educational updates, we chose to track one parameter, unnecessary US, to determine if management could be modified. US was selected because it is an objective parameter to evaluate (US was, or was not, obtained) and one would expect to observe a decrease in US in boys over the 2.5 years of study period if the updates were, indeed, effective. In addition, the educational message to not obtain imaging is more easily communicated than teaching RPs how to differentiate a retractile testis from a true UDT. The updates provided included the following: (1) a continuing medical education course with a presentation on UDT management in March 2010; (2) inserting a note that US is not helpful in patient evaluations going back to the RPs, in October 2010; (3) a general update in pediatric urology with a statement that US is not helpful for UDT diagnosis was sent to the RPs in June 2011; (4) an educational intervention specifically aimed to decrease unnecessary US was designed in December 2011, the title of which was "US NOT recommended for UDT" and the update was entirely on UDT management. The update was sent to all providers who had referred a patient to either of our pediatric providers over the last 2 years, or were on the mailing list from the Department of Pediatrics at AMC or are members of the American Academy of Pediatrics in our referral area (Table 1).

Table 1 Educational updates sent to referring providers (RPs) during the study period.

Month	Type of educational update
March 2010	A CME course with a presentation on UDT management
October 2010	Inserting a note that US is not helpful in patient evaluations going back to the RPs
June 2011	A general update in pediatric urology with a statement that US is not helpful for UDT diagnosis was sent to the RPs
December 2011	A brief bulletin entirely on UDT management with title "US NOT recommended for UDT"

Note. CME = continuing medical education; UDT = undescended testis.