

Prevalence of Testicular Microlithiasis in Asymptomatic Males 0 to 19 Years Old

J. Goede,* W. W. M. Hack, L. M. van der Voort-Doedens, K. Sijstermans and F. H. Pierik

From the Department of Pediatrics, Medical Center Alkmaar, Alkmaar and Netherlands Organization for Applied Scientific Research TNO, Delft (FHP), The Netherlands

Abbreviations and Acronyms

CTM = classic testicular microlithiasis

LTM = limited testicular microlithiasis

TM = testicular microlithiasis

UDT = undescended testis

US = ultrasound

Submitted for publication February 23, 2009.

Supported by a grant from Pieter van Foreest Institute of Medical Center Alkmaar.

Study is part of a trial for obtaining normative values for testicular volume measured by ultrasound and was approved by hospital ethical committee (reference number M06-056).

Supplementary material for this article can be obtained at www.rimon.nl/science/table_3.pdf.

* Correspondence: Department of Pediatrics, Medical Center Alkmaar, Wilhelminalaan 12, 1815 JD Alkmaar, The Netherlands (telephone: 31-72-548-4444; FAX: 31-72-548-2190; e-mail: j.goede@mca.nl).

Purpose: We assessed the prevalence of testicular microlithiasis via ultrasound in asymptomatic males 0 to 19 years old.

Materials and Methods: We studied only patients with 2 scrotal testes at birth and at examination. We excluded boys with a history of undescended testis, hydrocele, varicocele and syndromes associated with testicular microlithiasis. To assess for testicular microlithiasis, we scanned the scrotum ultrasonographically by recording transverse and longitudinal images of each testis. Classic testicular microlithiasis was defined as 5 or more echogenic foci in either or both testes. Boys with fewer than 5 microliths (but with at least 1) were deemed to have limited testicular microlithiasis.

Results: We examined 694 asymptomatic boys between October 2007 and July 2008, of whom 670 participated in the study. Classic testicular microlithiasis was present in 16 boys (2.4%) and limited testicular microlithiasis in 12 (1.8%), yielding a total prevalence of 4.2%. Classic testicular microlithiasis was found in 1 patient younger than 6 years, 8 boys 6 to 12 years old and 7 boys older than 12 years. There was a significant difference in prevalence among the 3 age groups ($p = 0.032$). Testicular malignancies were not found in any patient. Of the 24 boys excluded from the study testicular microlithiasis was seen in 4.

Conclusions: The prevalence of classic testicular microlithiasis in asymptomatic boys is 2.4% and increases with age.

Key Words: lithiasis, malignancy, prevalence, testicular diseases, ultrasonography

TESTICULAR microlithiasis is characterized by multiple echogenic foci less than 3 mm without acoustic shadowing within the testis parenchyma. The presence of 5 or more foci is defined as classic testicular microlithiasis, while the presence of fewer than 5 microliths meets the criteria for limited testicular microlithiasis.¹ In adults testicular microlithiasis is presumably related to testicular malignancies and infertility, while reports of associated testicular tumors in chil-

dren are scant.² The prevalence of classic testicular microlithiasis is reportedly 0.6% to 9% in symptomatic adults and 2.4% to 5.6% in asymptomatic populations.³⁻⁶ The prevalence of testicular microlithiasis varies among ethnic groups and is generally increased in blacks.⁵

In boys several benign conditions, including cryptorchidism, Down syndrome, varicocele and Klinefelter syndrome, are associated with TM,⁷ which may indicate that TM is a predictor of

future testicular disorders. However, this association is difficult to assess, since the prevalence of TM in asymptomatic boys has not yet been established. One recent study revealed a 1.9% prevalence of CTM in symptomatic boys.⁸ We prospectively studied asymptomatic males ultrasonographically from birth to adolescence to determine the prevalence of TM.

MATERIALS AND METHODS

Study Design

Boys were recruited from the general population surrounding the Medical Center Alkmaar. Patients were part of a cohort that was constructed to obtain normative values for testicular volume measured by ultrasound in a general population. To invite participation in the study, an informative letter was sent to 2,600 boys and their parents (100 to 200 letters for each year of age) randomly selected from the records of the Youth Health Care Institutions of the Gemeenschappelijke Gezondheidsdienst Hollands-Noorden en Eveen-Gezondheidszorg. Several media were used to invite patients to participate in the study, including regional newspapers and a local radio and television station. A local secondary school also participated in recruitment. The letter stated that only boys with 2 scrotal testes and no known scrotal pathology could participate. The study is part of a trial for obtaining normative values for testicular volume measured by ultrasound, and was approved by the ethical committee of the hospital (reference number M06-056).

Inclusion and Exclusion Criteria

Healthy boys with 2 scrotal testes at birth and at examination were included in the study. Boys with retractile testes were also included. Boys with UDT at physical examination or at birth were excluded, as were boys who suffered from syndromes and other conditions possibly associated with TM.⁷ Patients with hydrocele and varicocele at examination were also excluded.

Definitions

TM was defined as classic if 5 or more echogenic foci 1 to 3 mm in diameter were present in either or both testes.⁹ Patients who had at least 1 microlith but did not meet the criteria for CTM were considered to have LTM. CTM grade I was defined as presence of 5 to 10 microliths, grade II as 10 to 20 microliths and grade III as more than 20 microliths.

Study Protocol

At the pediatric outpatient clinic a questionnaire was used that included the items medical problems, medication, major surgery, prior groin surgery, gestational age, birth weight and ethnicity. Ethnic background was divided into white, Turkish, North African, Asian and black. Adenotonsillectomy, middle ear drainage and acquisition method regarding study enrollment were not considered.

Examination of the left testis was performed first, followed by the right testis, with the patient in the supine and cross-legged position. Testis position was

classified as low scrotal, high scrotal, inguinal or absent and was categorized as descended, retractile or undescended.

To assess for TM the scanner was placed on the scrotum, and transverse and longitudinal images of each testis were recorded. We documented the testicle involved, number of calcifications and whether the calcifications were focal or diffuse. Color Doppler ultrasound of the testis was not performed. All 694 scans were performed by the same physician (JG) with the same equipment (Falco Auto Image, Falco Software Co, Tomsk, Russia, and 12 MHz linear array transducer).

If TM was diagnosed, boys were referred to our outpatient clinic. All patients underwent a full physical examination. Scrotal US was repeated to confirm the diagnosis of TM. No further investigations were performed if physical examination and US demonstrated no indications for testicular malignancy. Brothers of patients diagnosed with TM were also requested for scrotal ultrasound.

Statistics

Chi-square tests were performed to compare gestational age/birth weight, groin surgery and other medical problems in boys with and without LTM and CTM. Chi-square tests were also used to compare the frequency of CTM in different age groups. A p value of less than 0.05 was considered significant.

RESULTS

A total of 670 asymptomatic boys with a median age of 8.6 years (range 0.2 to 18.9) were included in the study. Testicular microlithiasis was present in 28 boys with a median age of 10.6 years (range 4.6 to 17.6), yielding a prevalence of 4.2%. CTM was seen in 16 boys (2.4%) with a median age of 11.7 years (range 5.5 to 17.6) and LTM in 12 boys (1.8%) with a median age of 8.6 years (4.6 to 13.0).

Patients were grouped according to age in 3-year (table 1) and 5-year (table 2) increments. There was a statistically significant difference in the prevalence of CTM between the age groups when divided by 5-year increments ($p = 0.032$). Table 3 lists the distribution of TM with respect to the number of testicles and side involved. Images representative of CTM and LTM in our series are shown in the figure.

Table 1. Prevalence of classic and limited testicular microlithiasis by age (2 to 3-year increments)

| Pt Age (yrs) | No. Pts | No. CTM | No. LTM |
|--------------|---------|---------|---------|
| 0-2 | 99 | 0 | 1 |
| 3-5 | 115 | 1 | 2 |
| 6-8 | 138 | 2 | 3 |
| 9-11 | 142 | 6 | 3 |
| 12-14 | 107 | 4 | 3 |
| 15-17 | 62 | 3 | 0 |
| 18-19 | 7 | 0 | 0 |
| Totals | 670 | 16 | 12 |

Download English Version:

<https://daneshyari.com/en/article/3873684>

Download Persian Version:

<https://daneshyari.com/article/3873684>

[Daneshyari.com](https://daneshyari.com)