

Adolescent Varicoceles and Infertility



Jessica T. Casey, MS, MD*, Rosalia Misseri, MD

KEYWORDS

• Varicocele • Infertility • Adolescent • Semen analysis • Varicocelectomy

KEY POINTS

- Varicoceles are associated with testicular atrophy and abnormal spermatogenesis, and varicocele-related testicular damage is thought to be progressive in nature.
- The main indications for varicocele repair include male infertility, adolescents with ipsilateral reduced testicular size or abnormal semen parameters, pain, and low testosterone.
- It is unknown whether adolescent varicoceles are associated with adult infertility and benefit from early repair, because 80% of adult men with varicoceles are fertile.
- Adolescents likely demonstrate asynchronous testicular growth and multiple ultrasound evaluations should be used to demonstrate stable, worsening or improving asymmetry before proceeding with varicocelectomy.
- A meta-analysis demonstrated that sperm density, motility, and morphology were decreased in adolescents with varicoceles; varicocele repair led to improvement in sperm density and motility.

INTRODUCTION

A varicocele is a tortuous dilation of the testicular veins of the spermatic cord (plexus pampiniform) palpable within the scrotum owing to high venous back pressure. The majority of varicoceles occur on the left side given the insertion of the left gonadal vein into the left renal vein and its associated higher venous pressure than the inferior vena cava.

Although varicoceles are rare in prepubertal children (3% in <10 years old), the incidence approaches 15% in those 10 to 19 years old, similar to the incidence in adults.^{1,2} Varicoceles are the most common cause of male factor infertility, found in up to 40% of men with infertility.³ Although the treatment of a varicocele in a man desiring paternity is warranted, the treatment of varicoceles in adolescent males is controversial.

The authors have nothing to disclose.

Department of Pediatric Urology, Riley Hospital for Children, 705 Riley Hospital Drive, Suite 4230, Indianapolis, IN 46202, USA

* Corresponding author.

E-mail address: jtc Casey@iupui.edu

Endocrinol Metab Clin N Am 44 (2015) 835–842

<http://dx.doi.org/10.1016/j.ecl.2015.07.007>

endo.theclinics.com

0889-8529/15/\$ – see front matter © 2015 Elsevier Inc. All rights reserved.

Varicoceles are associated with testicular atrophy and abnormal spermatogenesis, and varicocele-related testicular damage is thought to be progressive in nature.⁴ Infertile adult men with varicoceles have been found to have decreased sperm density, decreased spermatic motility, and abnormal sperm morphology. Additionally, varicoceles are associated with low testosterone and high follicle-stimulating hormone levels in adult men.⁵ In the adolescent population, varicoceles are worrisome given the concern for progressive effects on testicular growth, ongoing spermatogenesis, and future fertility.

Varicoceles can be associated with a feeling of “heaviness” after a prolonged period of standing. However, most varicoceles are asymptomatic, and fewer than 5% of adolescents present with symptoms of scrotal or testicular pain.¹ Adult varicoceles are often detected on an evaluation for infertility. In adolescents, they are most often detected during a well-child visit or by self-examination, possibly related to asymmetry in testicular size or the mass itself.

Physical examination to identify varicocele should be performed in both the supine and standing positions. Palpable varicoceles feel like a “bag of worms” in the upper scrotum. When supine, the size of the varicocele should reduce. For a thorough examination or when a varicocele is not obvious, the clinician should have the patient stand and perform a Valsalva maneuver.

Varicoceles are graded on a scale described by Dubin and Amelar.⁶ Grade I/III varicoceles are palpable only during or after a Valsalva maneuver. Grade II/III varicoceles are palpable on routine physical examination without the need for a Valsalva maneuver. Grade III/III varicoceles are visible to the eye and palpable on routine physical examination. Subclinical varicoceles are not detected on physical examination and found by radiologic examination, most commonly scrotal ultrasonography. Subclinical varicoceles have been shown to have no impact on fertility, and repair of subclinical varicoceles has not been shown to improve fertility rates.⁷ However, subclinical varicoceles in the pediatric population have been shown to progress over time and may require long-term follow-up.⁸

If a unilateral, right-sided varicocele that does not decompress while supine is palpated, one should suspect a retroperitoneal mass and undergo cross-sectional imaging.

In the adolescent population, relative testicular size should be assessed by physical examination using an orchidometer and verified by ultrasound. Ultrasound has been shown to be superior for assessment of volume differentials, a necessary component for evaluation of the adolescent varicocele.⁹

PATHOPHYSIOLOGY OF VARICOCELES

The theories behind varicocele-associated abnormal spermatogenesis and impaired fertility include elevated temperature effects on spermatogenesis and increased levels of oxidants/gonadotoxins.¹⁰ The prevailing theory is that poor venous drainage associated with varicoceles leads to disruption of the countercurrent heat exchange along the spermatic cord, leading to elevated scrotal temperatures, which leads to impaired spermatogenesis.¹⁰ Higher scrotal temperatures have been associated with decreased production of testosterone by Leydig cells, altered Sertoli cell function and morphology, injury to the germinal cell membrane, as well as decreased protein synthesis and decreased amino acid transport.^{11–15}

Other theories include oxygen deprivation leading to impaired spermatogenesis, increased levels of gonadotropins owing to impaired drainage from poor venous drainage, and increased levels of oxidants within the semen.¹⁰ Seminal reactive

Download English Version:

<https://daneshyari.com/en/article/3267586>

Download Persian Version:

<https://daneshyari.com/article/3267586>

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