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RESEARCH ARTICLE

INTRA-OBSERVER VARIATION IN PHYSICAL EXAMINATION OF VARICOCELE

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ABSTRACT

Introduction: The most common cause of male infertility is varicocele that is treatable. Clinical examination of scrotum is the main technique diagnosing for it, which is subject to great inter and intra-observer variation. We tried to evaluate intra-observer variation of physical examination in diagnosing of varicocele.

Methods: This study was performed among 113 men who had varicoceles and were reexamined and graded by an urologist. Data were analyzed by SPSS and p-value less than 0.05 were considered significant.

Results: The mean age of patients was 33.4 years. In initial physical examination; in 91(80.53%) of patients, varicocele was in left side and in 22(19.46%) of patients had bilateral varicocele. In second examination, changes in grade of varicocele were seen in 19 of 113 patients (16.81%). In 10 patients (52.63%), the grade was decreased and in 9 patients (47.36 %) the grade increased.

Conclusion: Uniformity of physical examination methods in varicocele diagnosing is needed to reduce intra- observer variation.

INTRODUCTION

Varicocele is an abnormal tortuosity and dilatation of the pampiniform venous plexus that results from valvular incompetence of the spermatic veins. It rarely appears before age 10 years, and it tends to persist throughout life if left untreated. Varicocele is usually asymptomatic, most varicoceles appear in adolescence, and actually it is present in 15-20% of adults and adolescents (Pryor and Howards1987; Kaminsky and Sperling 2014). Approximately 90% are left-sided, and 10% are bilateral (Pryor and Howards1987). It may be accompanied by a decrease in size of the affected testicle and typical histological changes. Early detection is important because varicocele may occasionally cause infertility (Gorelick and Goldstein 1993; Cockett *et al.,* 1979) however, there is a hot discussion regarding role of varicocele in causing male infertility. In one hand, the most common cause of male infertility is varicocele (Choi and Kim 2013), which is present in approximately 35% of men presenting with primary infertility and 69% to 81% of men with secondary infertility (Prabakaran *et al.,* 2007; Stahl and Schlegel 2011). 0n the other hand varicocele is detected in many normal fertile men as an incidental finding (WHO 1985). Physical examination of scrotum is the main stay of diagnosing varicocele and in the great majority of the papers (WHO 1992; Pasqualotto *et al.,* 2005). Patients were examined by one urologist and for one time. Clinical examination of the scrotum remains the most commonly used technique to diagnose varicocele and urologists always emphasis on careful physical examination of scrotum as the sole reliable tool for diagnosis. However the World Health Organization has declared that physical examination has a sensitivity of only 50% in detecting varicocele when compared to venography, with a false-positive rate of 23 % (WHO 1985). Scrotal anatomy and accompanied scrotal disorders (e.g., thick scrotum, scarring, and hydrocele), obesity and anxiety in some men may make physical examination alone unreliable. The physician expertise and experience in physical examination of scrotum certainly has great impact on diagnosis and grading of varicocele too. The issue of inter-observer and intra-observer expertise and accuracy in a physical examination in diagnosing varicoceles is a fact that often is overlooked.

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How All these contradictory results and opinions may be related to a possible inaccuracy in detection and grading of varicocele? This is the question we try to answer in this article. In this study we tried to evaluate intra-observer variation of physical examination in diagnosing varicocele.

MATERIALS AND METHODS

This study was performed among men who were referred to urology clinic for infertility workup or scrotal pain in Shiraz University of Medical Sciences, Shiraz, Iran. All the patients provided informed consent form before participating in the study. Among these, 113 men who had varicoceles in their first physical examination enrolled in this study for a second examination. All patients were examined by an urologist in evening hours and at least after one hour of sitting and standing position. The evaluation performed in the supine and then the upright position in a warm room, with and without a Valsalva's maneuver, in order to obtain a complete evaluation of the fluxes in the spermatic cord veins. Visible varicoceles were graded class 3. Palpable varicoceles were graded class 2.Varicoceles only palpable during Valsalva maneuver was graded Class 1. To prevent recall bias and intervening disorders influencing the results, all patients were re-examined between 3days to 3 weeks after the first examination.

Statistical analysis

Data were analyzed by Statistical Package for the Social Sciences software version 15.0 (SPSS Inc, Chicago, IL). Quantitative data was presented as mean ± standard deviation and we used quantitative data. P-value less than 0.05 were considered significant.

RESULTS

The mean age of patients was 33.4 years (between 17 and 41 years). Sixteen of patients (14.16 %) came due to scrotal pain and 97 of patients (85.84 %) came due to infertility. Among infertile men, 58 of patients (59.79%) had primary infertility and 41of patients (42.27 %) had secondary infertility. The mean duration between first and second examination was 11.5 days (between 3 to 21 days). Any patient with an acute problem between two exams was excluded. In initial physical examination; in 91(80.53%) of patients, varicocele was in left side and in 22(19.46%) of patients had bilateral varicocele. In initial physical examination of left-sided varicocele, 70 (61.94%) were grade 1; 32 (28.31%), grade 2; and 11(9%), grade 3. In 22 patients with right sided varicocele, 16 of patients had grade1 (72.72%) and 6 of patients had grade 2(27.27%). No grade III varicocele was seen in right side. In second examination, changes in grade of varicocele were seen in 19 of 113 patients (16.81%). In 10 patients (52.63%), the grade was decreased and in 9 patients (47.36 %) the grade increased.

DISCUSSION

Varicocele is actually considered the most common cause of male infertility. Varicocele has been found in 15% of the normal male population and in up to 40% of patients with male infertility (Prabakaran *et al.,* 2007). In approximately 70% of male patients with secondary infertility, a varicocele is an underlying cause (Witt and Lipshultz 1993). Infertile patients with varicocele have been found to have semen with decreased density, decreased motility, and abnormal morphology. Varicocele also has been associated with abnormal testosterone and follicle-stimulating hormone levels (Greenberg *et al.,* 1978). Currently, based on the epidemiological facts and pathophysiological theories, varicoceles repair is the world's most commonly performed surgical procedure for treatment of male infertility. (Schlesinger *et al.,* 1994). However, the association between correction of a varicocele and improvement in the quality of the semen is unclear. The fact remains that 80% to 85% of male patients with a varicocele do not present with infertility (Pryor and Howards 1987). Urological literature has stood strongly behind the role of varicocele in male infertility for long time and emphasized in its treatment based on many papers showing significant improvement of semen parameters after surgical varicocelectomy (Cayan *et al.,* 1999, however we can easily notice opposite opinion in gynecological journals that occasionally do not even believe on any benefit from treatment of high grade varicocele (Nagler and Martinis 1997). Although a physical examination is currently the standard diagnostic method for the diagnosis of varicocele; it is subjective and may have significant inter-physician variability. In this study we clearly showed than even an expert urologist may have inconsistency of about. So we think the absence of accurate diagnostic tools and Intraobserver errors in diagnosis of varicocele may be one of the confounding factors leading to controversial results and different rates of success of varicoceletomy in the different studies.

Conclusion

Physical examination of scrotum for detection of varicocle even in the hand of an experienced urologist is subject to overdiagnosis and underdiagnosis. Clearly, standardization of examination and imaging techniques is needed to decrease, if not eliminate, observer variability. Until we ensure the validity and reliability of our measurement tools, we cannot accurately determine whether and which of our infertile patients would gain benefit from treatment.

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