

An Epidemiological Study of Varicocele

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Abstract

Background: Varicoceles, or abnormally dilated veins in the pampiniform plexus, have long been associated with male infertility due to the observations that varicoceles are seen more commonly among infertile men and have been associated with abnormalities in semen analyses.

Methods: Hospital based prospective study conducted at Dept. of Surgery, S.P. Medical College and P.B.M Hospital, Bikaner 50 cases reporting to General surgery, Paed. Surgery and urology department within the study duration and eligible as per inclusion criteria was included in study.

Results: Out of 50 patients maximum 44.00% patients were farmer followed by 24.00% patients were Coolies and Rickshaw Pullers, 14.00% patients were students, 12.00% were laborer and 6.00% were policemen.

Conclusion: It conclude that Varicocele epidemiology remains incompletely understood. We need well-designed, large-scale studies that include evaluation of important clinical factors to comprehend fully the epidemiological aspects of this condition.

Introduction

Varicoceles, or abnormally dilated veins in the pampiniform plexus, have long been associated with male infertility due to the observations that varicoceles are seen more commonly among infertile men and have been associated with abnormalities in semen analyses^{1,2}. In fact, varicoceles are the most commonly seen and correctable cause of male factor infertility³. Varicoceles have an incidence of 4.4-22.6% in the general population, 21-41% in men with primary infertility, and 75-81% in men with secondary infertility⁴. Suspicions that the varicocele should be considered as a possible cause or contributing factor in male infertility have existed for centuries, but Tulloch's report of his experience with surgical correction and subsequent improved sperm counts and postoperative fertility spawned significant research interest on the topic over the past 55 years. While most men with varicoceles are able to father children, an abundance of evidence shows that varicoceles are detrimental to male fertility and surgical correction offers an improvement in a couple's chances of obtaining a pregnancy, either spontaneously or through assisted reproductive technologies (ART).

We decided to conduct a prospective an epidemiological study of varicocele in our set up.

Material and Methods

Study Design: Hospital based prospective study.

Study Place: Dept. of Surgery, S.P.Medical College and P.B.M Hospital, Bikaner

Study Population: All patients addmitted in general surgery, paed. Surgery and urology department of S.P medical college and PBM hospital Bikaner.

Sample Size: 50 cases reporting to General surgery ,Paed. Surgery and urology department within the study duration and eligible as per inclusion criteria was included in study

Inclusion Criteria: Patients of varicocele attending department of general surgery, Paed. Surgery and urology, S.P medical college and PBM hospital Bikaner

Exclusion Criteria: We were exclude patients above 40 years of age, patients with subclinical Varicocele, and patients with normal semen analysis and idiopathic nonobstructive azoospermia (INOA). The diagnosis of INOA will be considere in men with decrease testicular volume (<15 cm³), high follicle stimulating hormone (FSH) and azoospermia, or oligoasthenoteratozoospermia (OAT). In those cases, varicocele will be consider a coincidental finding rather than cause of infertility.

Study Methodology: Physical examination, semen analysis and hormonal evaluation will be performed for each patient. In the physical examination, laterality (unilateral or bilateral) and the grade (Grade I to III) of varicocele will be determine by inspection and palpation with the patient in an upright position

Data Analysis: Data was recorded on a Performa. The data analysis was computer based; SPSS-22 will be used for analysis. For categoric variables chi-square test will be used. For continuous variables independent samples's

t-test will be used. p-value <0.05 will be considered as significant.

Observations

This Hospital based prospective study conducted at 50 patients of varicocele attending department of general surgery, paed. Surgery and Urology , S.P Medical College and PBM Hospital Bikaner.

Table 1. Age wise distribution

Age group (Yrs)	No. of patients	Percentage
0-10	1	2.00
11-20	22	44.00
21-30	17	34.00
31-40	10	20.00
Total	50	100.00

The age of patients ranged from 10-50 years. Mean age was 25.56±6.80 yrs. Maximum patients (44.00%) were between 11-20 yrs age group followed by 34.00%patients were between 21-30 Yrs age group

Table 2. Site wise distribution

Site	No. of patients	Percentage
Left	43	86.00
Right	3	6.00
Bilateral	4	8.00
Total	50	100.00

The site of varicocele was left sided in 43(86.00%), right sided in 3 (6.00%) and bilateral in 4 (8.00%) patients.

Table no.3. Area wise distribution

Area	No. of patients	Percentage
Rural	32	64.00 %
Urban	18	36.00 %
Total	50.00	100.00 %

In our study maximum patients were from rural area : 32 (64.00 %) out of the total 50 cases.

Table 4. Grade wise distribution

Grade	No. of patients	Percentage
I	8	16.00
II	29	58.00
III	13	26.00
Total	50	100.00

The Grade of varicocele was 16.00% grade-I, 58.00% grade-II and 26.00% grade III.

Table 5. Occupation wise distribution

Occupation	No. of patients	Percentage
Farmer	22	44.00
Student	7	14.00
Coolies and Rickshaw Pullers	12	24.00
Policeman	3	6.00
Labourer	6	12.00
Total	50	100.00

Out of 50 patients maximum 44.00% patients were farmer followed by 24.00% patients were Coolies and Rickshaw Pullers, 14.00% patients were students, 12.00% were laborer and 6.00% were policemen.

Table 6. Clinical feature wise distribution

Clinical feature	No. of patients	Percentage
Pain or dragging sensation	27	54.00
Infertility	15	30.00
No complaints come for fitness purpose	8	16.00
Total	50	100.00

Most of the patients (54.00%) were presented with pain and dragging sensations followed by 30.00% patients were presented for infertility and 16.00% patients were

did not have any complaints but referred from various recruitment agencies for fitness purposes.

Discussion

This Hospital based prospective study conducted at 50 patients of varicocele attending department of general surgery , paed. Surgery and urology , S.P medical college and PBM hospital Bikaner. The main aim of present study was an epidemiological study of varicocele at medical college hospital Bikaner.

The age of patients ranged from 10-50 years. Mean age was 25.56±6.80 yrs. Maximum patients (44.00%) were between 11-20 yrs age group followed by 34.00% patients were between 21-30 Yrs age group

Most of the early epidemiological studies on varicocele evaluated the prevalence of this condition in young men.

These early studies reported that the prevalence of varicocele in the general male population is about 15%.⁴⁻⁸

These early observations did not suggest that age was an important determinant of varicocele prevalence. Subsequent epidemiological studies have demonstrated that varicoceles develop at puberty.

Oster observed that no varicoceles were detected in 188 boys 6–9 years of age, but were detected with increasing frequency in boys 10–14 years of age, strongly suggesting that varicoceles develop at puberty.⁹

More recently, Akbay *et al.*¹⁰ evaluated the prevalence of varicoceles in 4052 boys aged 2–19. They reported that the prevalence of varicoceles was <1% in boys aged 2–10, 7.8% in boys aged 11–14 years and 14.1% in boys aged 15–19 years. These epidemiological observations suggest that the venous incompetence that is characteristic of varicocele primarily occurs during testicular development. More recent studies suggest that the prevalence of varicoceles in adult men is age related. Levinger *et al.*

evaluated the age related prevalence of varicoceles in men above the age of 30.¹¹

Out of 504 healthy men, 34.7% were found to have a varicocele on physical examination (with all examinations performed by the same investigator). On further analysis, they observed that the prevalence of varicocele increases by approximately 10% for each decade of life. Varicocele prevalence was 18% at age 30–39, 24% at age 40–49, 33% at age 50–59, 42% at age 60–69, 53% at age 70–79 and 75% at age 80–89.¹⁰

Canales *et al.* reported a relatively high prevalence (42% prevalence) of varicocele in older men presenting to a prostate cancer screening program (mean age 60.7 years).¹²

However, unlike the study of Levinger *et al.*¹¹ the report of Canales *et al.*¹² did not demonstrate an age related increase in varicocele prevalence in their cohort likely because most men in their study were elderly. These epidemiological observations suggest that testicular venous incompetence increases with age, likely a result of the aging of venous valves. These data are in keeping with the age related increase in the prevalence of lower limb varicose veins.

The site of varicocele was left sided in 43(86.00%), right sided in 3 (6.00%) and bilateral in 4 (8.00%) patients in our study.

Dubin and Amelar reported left varicocele 50%, bilateral 46% and right sided only in 4%. Our study shows left sided varicocele 88.00%, bilateral in 8.00% and right sided in 4%. However Turner reported left sided 70% and right sided 9%.¹³

In our study maximum patients were from rural area : 32 (64.00 %) out of the total 50 cases.

In census 2011, 66.14% population of Bikaner was rural and 33.86% population was urban so in our hospital the maximum patients come from rural area.

The size of varicocele was 16.00% grade-I, 58.00% grade-II and 26.00% grade III in our study.

Mamdouh Abdel-Hamid Mohamid *et al*¹⁴ was observed that 13% grade-I, 46 % grade-II and 41 % grade III.

In our study out of 50 patients maximum 44.00% patients were farmer followed by 24.00% patients were Coolies and Rickshaw Pullers, 14.00% patients were students, 12.00% were laborer and 6.00% were policemen.

Bader Alsaikhan *et al*¹⁵ was observed that the prevalence of this condition was more in young men like farmer, military recruits, coolies and rickshaw puller, adolescent school boys.

Most of the patients (54.00%) were presented with pain and dragging sensations followed by 30.00% patients were presented for infertility and 16.00% patients were did not have any complaints but referred from various recruitment agencies for fitness purposes in our study.

Kaye has shown that his 100% patients complained of heaviness in scrotum and dull ache in left groin made worse on exertion¹⁶.

Turner TT *et al* reported 25 out of 38 of his patients presenting with complaint of local discomfort. In a series of high school boys¹⁷.

Conclusion

It concludes that Varicocele epidemiology remains incompletely understood. We need well-designed, large-scale studies that include evaluation of important clinical factors to comprehend fully the epidemiological aspects of this condition.

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