

AN EPIDEMIOLOGICAL STUDY OF VARICOCELE

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Article Info: Received 16 May 2019; Accepted 17 July. 2019

DOI: <https://doi.org/10.32553/ijmbs.v3i8.479>

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Conflict of interest: No conflict of interest.

Abstract

Background: Varicocele, an abnormal dilatation and tortuosity of the pampiniform plexus of veins is found in about 15% of the general population with a marked left sided predominance. However this incidence rises to 35% in men with primary infertility and 70 to 80% in men with secondary infertility.

Methods: Hospital based prospective study conducted on 100 cases reporting to General surgery department within the study duration and eligible as per inclusion criteria was included in study.

Results: In our study out of 100 patients maximum 42.00% patients were farmer followed by 22.00% patients were Coolies and Rickshaw Pullers, 17.00% patients were students, 10.00% were laborer and 9.00% 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:

Varicocele, an abnormal dilatation and tortuosity of the pampiniform plexus of veins is found in about 15% of the general population with a marked left sided predominance. However this incidence rises to 35% in men with primary infertility and 70 to 80% in men with secondary infertility. Mounting evidence clearly indicates that varicoceles cause progressive size and duration dependent testicular damage. Although varicocelectomy is the most commonly performed procedure for correction of male subfertility with seminal improvement in 60 to 80% of the subjects and pregnancy rates ranging from 20 to 60% there is still no consensus on the best method of performing the varicocelectomy.¹

The etiology of varicocele is though to be multifactorial. The anatomic differences in venous drainage between the left and right internal spermatic vein (accounting for the predominance of left sided varicocele), and, the incompetence of venous valves resulting in reflux of venous blood and increased hydrostatic pressure are the most quoted theories for varicocele development.^{2,3} Physical exertion during puberty may lead to the development of varicocele whereas physical exertion at a later age

can aggravate the condition but does not modify the prevalence of varicocele.

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

MATERIAL AND METHODS

Study design: Hospital based prospective study.

Sample size: 100 cases reporting to General surgery 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

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 determined 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 categorical variables chi-square test will be used. For continuous variables independent samples' *t*-test will be used. *p*-value <0.05 will be considered as significant.

OBSERVATIONS

Table 1: Age wise distribution

Age group (Yrs)	No. of patients	Percentage
0-10	4	4.00
11-20	42	42.00
21-30	38	38.00
31-40	16	16.00
Total	100	100.00

The age of patients ranged from 10-50 years. Mean age was 25.10 ± 8.40 yrs. Maximum patients (42.00%) were between 11-20 yrs age group followed by 38.00% patients were between 21-30 Yrs age group

Table 2: Site wise distribution

Site	No. of patients	Percentage
Left	80	80.00
Right	7	7.00
Bilateral	13	13.00
Total	100	100.00

The site of varicocele was left sided in 80 (80.00%), right sided in 7 (7.00%) and bilateral in 13 (13.00%) patients.

Table 3: Area wise distribution

Area	No. of patients	Percentage
Rural	58	58.00 %
Urban	42	42.00 %
Total	100.00	100.00 %

In our study maximum patients were from rural area : 58 out of the total 100 cases.

Table 4: Grade wise distribution

Grade	No. of patients	Percentage
I	17	17.00
II	57	57.00
III	16	16.00
Total	100	100.00

The Grade of varicocele was 17.00% grade-I, 57.00% grade-II and 16.00% grade III.

Table 5: Occupation wise distribution

Occupation	No. of patients	Percentage
Farmer	42	42.00
Student	17	17.00
Coolies and Rickshaw Pullers	22	22.00
Policeman	9	9.00
Labourer	10	10.00
Total	50	100.00

Out of 100 patients maximum 42.00% patients were farmer followed by 22.00% patients were Coolies and Rickshaw Pullers, 17.00% patients were students, 10.00% were laborer and 9.00% were policemen.

DISCUSSION

The age of patients ranged from 10-50 years. Mean age was 25.10 ± 8.40 yrs. Maximum patients (42.00%) were between 11-20 yrs age group followed by 38.00% 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 80 (80.00%), right sided in 7 (7.00%) and bilateral in 13 (13.00%) 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 out of 100 patients maximum 42.00% patients were farmer followed by 22.00% patients were Coolies and Rickshaw Pullers, 17.00% patients were students, 10.00% were laborer and 9.00% were policemen.

Bader Alsaikhan *et al.*¹⁴ was observed that the prevalence of this condition was more in young men like farmer, military recruits, coolies and rickshaw puller, adolescent school boys.

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.

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