

### **An Epidemiological Study of Varicocele at Medical College Hospital Bikaner**

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#### **Abstract**

**Background:** A varicocele is described as pathologically enlarged, tortuous veins of the pampiniform plexus, leading to an increased testicular temperature and adrenal metabolite reflux into the testes. The purpose of this work was to find presentations of “varicocele.

**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:** Mean age was 24.82±7.31 yrs. The site of varicocele was left sided in 44 (88.00%), right sided in 2 (4.00%) and bilateral in 4 (8.00%) patients. Maximum patients were from rural area : 30 ( 60.00 % ). The Grade of varicocele was 16.00% grade-I, 58.00% grade-II and 26.00% grade III. Maximum (42.00%) patients were farmer. Most of the patients (56.00%) were presented with pain and dragging sensations followed by 28.00% patients were presented for infertility.

**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**

A varicocele is defined as an abnormal venous dilatation and/or tortuosity of the pampiniform plexus in the scrotum. Although varicoceles are almost always larger and more common on the left side, up to 50% of the men with varicocele, have bilateral varicoceles.<sup>1</sup> The rare, isolated right sided varicocele generally suggests that the right internal spermatic vein enters the right renal vein, but it should prompt further investigation as this finding may be associated with situs inversus or retroperitoneal tumors. It is generally reported that varicoceles are present in 15% of the general male population, in 35% of men with primary infertility, and in up to 80% of men with secondary infertility.

The etiology of varicocele is thought to be multi-factorial. 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.<sup>2,3</sup> 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.

**Study duration:** 12 months

**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 was 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 cm<sup>3</sup>), 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.

### Assessment Tool

- Clinical history
- Clinical examination
- Various treatment modulaties
- Palamos surgery
- High inguinal ligation
- **Investigation Required**
- Routine blood investigation
- Semen analysis
- USG Doppler

**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'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 varicoceleattending 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	2	4.00
11-20	20	40.00
21-30	19	38.00
31-40	9	18.00
<b>Total</b>	<b>50</b>	<b>100.00</b>

The age of patients ranged from 10-50 years. Mean age was 24.82±7.31 yrs. Maximum patients (40.00%) 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	44	88.00
Right	2	4.00
Bilateral	4	8.00
<b>Total</b>	<b>50</b>	<b>100.00</b>

The site of varicocele was left sided in 44 (88.00%), right sided in 2 (4.00%) and bilateral in 4 (8.00%) patients.

**Table 3. Area wise distribution**

Area	No. of patients	Percentage
Rural	30	60.00 %
Urban	20	40.00 %
<b>Total</b>	<b>50.00</b>	<b>100.00 %</b>

In our study maximum patients were from rural area : 30 ( 60.00 % ) 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
<b>Total</b>	<b>50</b>	<b>100.00</b>

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	21	42.00
Student	8	16.00
Coolies and Rickshaw Pullers	11	22.00
Policeman	4	8.00
Labourer	6	12.00
<b>Total</b>	<b>50</b>	<b>100.00</b>

Out of 50 patients maximum 42.00% patients were farmer followed by 22.00% patients were Coolies and Rickshaw Pullers, 16.00% patients were students, 12.00% were laborer and 8.00% were policemen.

**Table 6. Clinical feature wise distribution**

Clinical feature	No. of patients	Percentage
Pain or dragging sensation	28	56.00
Infertility	14	28.00
No complaints come for fitness purpose	8	16.00
<b>Total</b>	<b>50</b>	<b>100.00</b>

Most of the patients (56.00%) were presented with pain and dragging sensations followed by 28.00% patients were presented for infertility and 16.00% patients were did not have any complaints but referred from various recruitment agencies for fitness purposes.

**Table 7. Association between age group and grade**

Age group (Yrs)	Grade I	Grade II	Grade III	Total
0-10	1	1	0	2
11-20	3	14	3	20
21-30	3	11	5	19
31-40	1	3	5	9
<b>Total</b>	<b>8</b>	<b>29</b>	<b>13</b>	<b>50</b>
	<b>p-value=0.24</b>			

The association between age group and grade of varicocele was found stastically insignificants.(p-value >0.05).

**Table 8. Association between site and grade**

Site	Grade I	Grade II	Grade III	Total
Left	5	26	13	44
Right	1	1	0	2
Bilateral	2	2	0	4
<b>Total</b>	<b>8</b>	<b>29</b>	<b>13</b>	<b>50</b>
	<b>p-value=0.321</b>			

The association between site and grade of varicocele was found statically insignificant.(p-value >0.05).

**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 24.46±8.36yrs. Maximum patients(40.00%) were between 11-20 yrs age group followed by 38.00% patients were between 21-30 Yrs age group in our study.

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%.<sup>4-8</sup>

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.<sup>9</sup>

More recently, Akbay *et al.*<sup>10</sup> 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.<sup>11</sup>

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.<sup>10</sup>

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).<sup>12</sup>

However, unlike the study of Levinger *et al.*<sup>11</sup> the report of Canales *et al.*<sup>12</sup> 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 44 (88.00%), right sided in 2 (4.00%) 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%.<sup>13</sup>

In our study maximum patients were from rural area : 30 ( 60.00 % ) 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 <sup>14</sup>was observed that 13% grade-I, 46 %grade-II and 41 % grade III.

In our study out of 50 patients maximum 42.00% patients were farmer followed by 22.00% patients were Coolies and Rickshaw Pullers, 16.00% patients were students, 12.00% were laborer and 8.00% were policemen.

Bader Alsaikhan et al <sup>15</sup>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 (56.00%) were presented with pain and dragging sensations followed by 28.00% 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 exertion<sup>16</sup>.

Turner TT et al reported 25 out of 38 of his patients presenting with complaint of local discomfort. In a series of high school boys<sup>17</sup>.

## 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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