



Research Paper

Varicoceles: A 5 Yr Review of The Patterns of Presentation: A Single Institutional Retrospective Study in Aba South East Nigeria.

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ABSTRACT

Varicocele is a major cause of male infertility.

It is the abnormal dilatation, elongation and tortuosity of the pampiniform plexus of veins and has been associated with male infertility.

It is a common correctable cause of male infertility.

The objective of this study was to review the patterns of presentations of varicocele in our centre.

The study was a retrospective study spanning 5 years from January 2020 to December 2024.

134 cases of varicocele were seen within this period. The youngest was 24 years while the eldest was 83 yrs with a mean age of 65 years.

The most common incidence was in the age group 31-40 yrs with 46 cases (34.3%), closely followed by the age group 41-50 yrs with 44 cases (32.8%).

The most common grade of varicocele was grade 1 with 59 cases (44.0%).

The most common type was left sided varicoceles with 62 cases (46.2%).

The most common form of presentation was male infertility with 85 cases (63.4%).

Grade 3 varicoceles had the greatest probability of developing poor semen parameters with 22 out of 23 cases (95.7%). It appeared the higher the grade of varicoceles, the more likely it is to develop poor semen parameters.

The most common pattern of presentation was OLIGOASTHENOTERATOSPERMIA affecting all the three major parameters with 73 cases out of the 116 cases that had poor semen parameters (62.9%).

While the Varicocele cases presented in 82 males with secondary infertility (70.7%), 34 males (29.3%) presented with primary infertility.

Male infertility was the most common presentation of men with varicoceles in Aba.

KEY WORDS

Varicocele, male infertility, poor semen parameters and Aba.

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I. INTRODUCTION

Varicocele is the abnormal dilatation, elongation and tortuosity of the pampiniform plexus of veins of the testes. It is the most common and treatable scrotal abnormality seen in men with infertility.

Infertility is defined as the inability of a couple to achieve a pregnancy after one yr of unprotected regular sexual intercourse.

The male partner is often primarily or secondarily responsible for infertility.

Varicocele is the most commonly identified correctable cause of male infertility.

Varicocele is often left sided but can be bilateral or right sided.

So many factors contribute to the pathogenesis of Varicocele such as

- Anatomic factors.
- Hormonal factors.
- Hypoxia.
- Hyperthermia.
- Oxidative stress and reactive oxygen species.

With regards to the anatomy, the right testicular vein drains directly into the inferior vena cava (IVC) at an oblique angle while the left testicular vein drains into the left renal vein at a right angle causing a higher hydrostatic pressure on the left.

This pressure is transmitted to the pampiniform plexus and encouraging a retrograde flow and a predominance of varicoceles on the left side.

Also Gonadal Veins associated with Varicoceles lack anti-reflux valves responsible for preventing retrograde flow and reflux

In healthy men, 40% had Incompetent valves on the left compared with only 23% on the right accounting for more varicoceles on the left

With regards to the hormonal effects, there is a base line reduction in the testosterone level in men with varicoceles with subsequent improvement after varicocelectomy.

While the negative effects of Spermatogenesis can be attributable to sertoli cell and germ cell insults, the hormonal effects of varicoceles suggest pan testicular effects including leydig cell dysfunction and impaired testosterone production.

In view of this, several theories have been propounded to explain the pathogenesis of varicoceles and its effects on spermatogenesis. These include:

- Leydig cell dysfunction.
- Elevated levels of reactive oxygen species.
- Retrograde flow of adrenal metabolites.
- Increased intratesticular temperature.
- Depressed antioxidant capacity.
- Depressed oxygen tension from venous stasis.

What appears to be central to all these, is oxidative stress causing DNA damage and fragmentation.

Therefore the use of adjuvant oral antioxidants following varicocelectomy maybe justifiable.

The grading system of Varicocele was introduced by Dubin And Amelar in 1970.

When they evaluated whether pre-operative Varicocele size was related to semen parameter changes, they classified varicoceles into

GRADE ONE- Varicoceles diagnosed only by Valsalva maneuver

GRADE TWO- Varicocele palpated only at rest.

GRADE THREE- Varicocele visible to the eyes.

Clinically, varicocele collapses when patient is placed horizontally except when there is a tumor of the left kidney making spontaneous collapse impossible on the left.

The indications for operative management include

- Presence of poor semen parameters.
- Scrotal pains.
- Hypotrophy- Reduction in volume or size of the affected testis.

II. METHODOLOGY

This was a retrospective study of the cases of varicoceles within the study period of 5 years between January 2020 to December 2024.

This was done in a major Urological center in Aba.

The case files of the patients with varicocele were withdrawn to collate relevant information.

Such relevant information included.

- Date of presentation.
- Age of patient.
- Mode of presentation.
- Results of clinical evaluation.

- Results of Urological evaluation.
 - Results of seminal fluid analysis using the WHO deadlines.
 - Reproductive history.
- This information was collated, analyzed and interpreted.

INCLUSION CRITERIA

All cases of varicocele presenting within the study period with complete clinical, Radiological and laboratory evaluations were part of the study.

EXCLUSION CRITERIA

All cases of varicocele presenting within the study period without complete clinical, Radiological and laboratory evaluations were not part of the study.

III. RESULTS

TABLE 1 SHOWING DEMOGRAPHIC VARIABLES

S/N	Variable	Outcome
1	Mean age in years	65 years
2	Range in years	24-83 years

TABLE 2 SHOWING THE INCIDENCE OF VARICOCELE PER YEAR DURING THE STUDY PERIOD.

S/N	year	Number	Percentage
1	2020	17	12.7%
2	2021	24	17.9%
3	2020	35	26.1%
4	2023	26	19.4%
5	2024	32	23.9%
6	Total	134	100%

TABLE 3 SHOWING AGE DISTRIBUTION OF PARTICIPANTS N=134

S/N	Age Range	Number	Percentage
1	20-30 yrs	4	2.9%
2	31-40 yrs	46	34.3%
3	41-50 yrs	44	32.8%
4	51-60 yrs	31	23.1%
5	61-70 yrs	5	3.7%
6	71-80 yrs	3	2.2%
7	81-90 yrs	1	0.7%
8	total	134	100%

The highest incidence occurred in the age group 31-40 yrs with 46 cases (34.3%) closely followed 41-50 yrs age group with 44 cases (32.8%).

The bulk of the cases occurred within the age range 31-60yrs with 121 cases (90.3%)

FIG. 1 BAR CHART

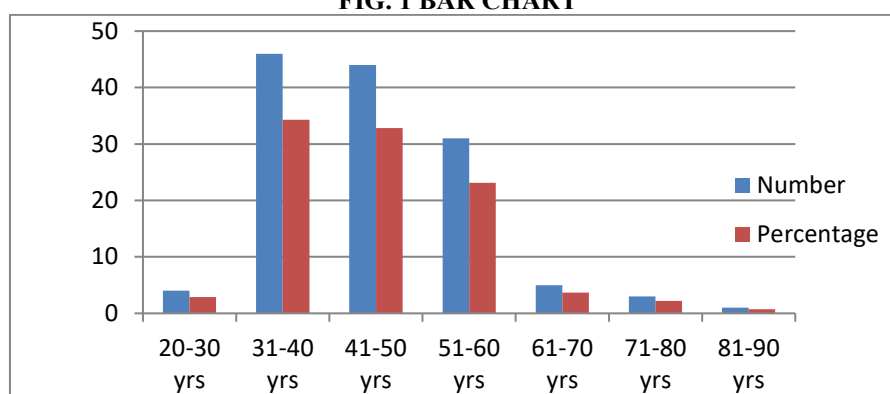


TABLE 4 SHOWING THE GRADES OF VARICOCELES N=134

S/N	VARICOCELE GRADE	NUMBER	PERCENTAGE
1	GRADE 0 SUB-CLINICAL DIAGNOSED THROUGH DOPPLER ULTRASOUND	7	5.2%
2	GRADE 1 DIAGNOSED BY THRILL ON VALSALVA MANEUVER	59	44.0%
3	GRADE 2 DIAGNOSED BY PALPATION	45	33.6%
4	GRADE 3 DIAGNOSED BY VISIBLE DILATED VEINS	23	17.2%
	TOTAL	134	100%

The Most Common Grade Is Grade 1 Varicocele With 59 Cases 44.0%

FIG.2 BAR CHART

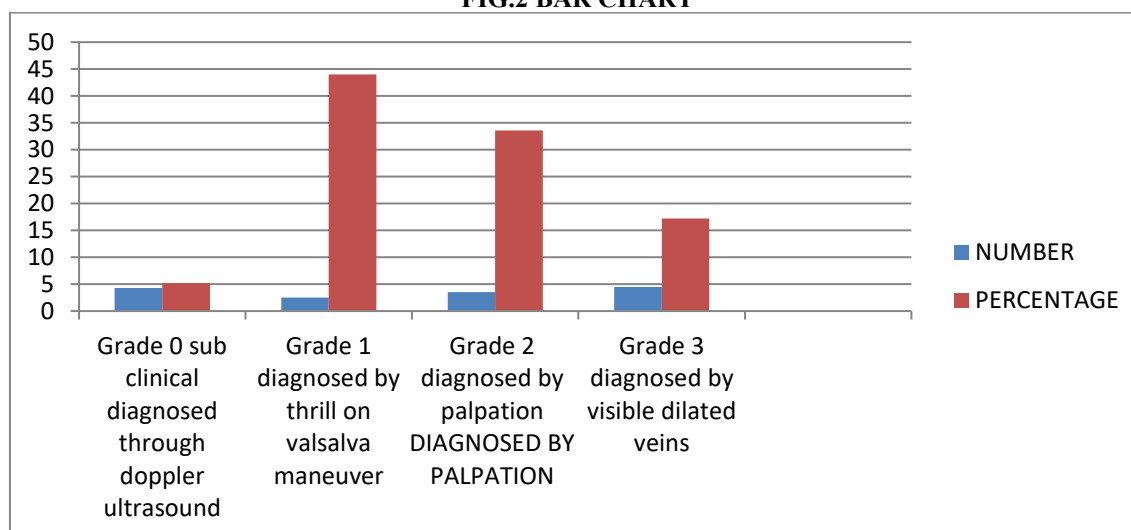


TABLE 5 SHOWING THE CLINICAL VARIETY OF VARICOCELE N=134

S/N	Clinical Variety	Number	Percentage
1	Left varicocele	62	46.2%
2	Bilateral varicocele	39	29.1%
3	Rigth varicocele	33	24.6%
4	Total	134	100%

The left sided varicocele was the most common variety with 62 cases (46.2%)

FIG. 3 BAR CHART

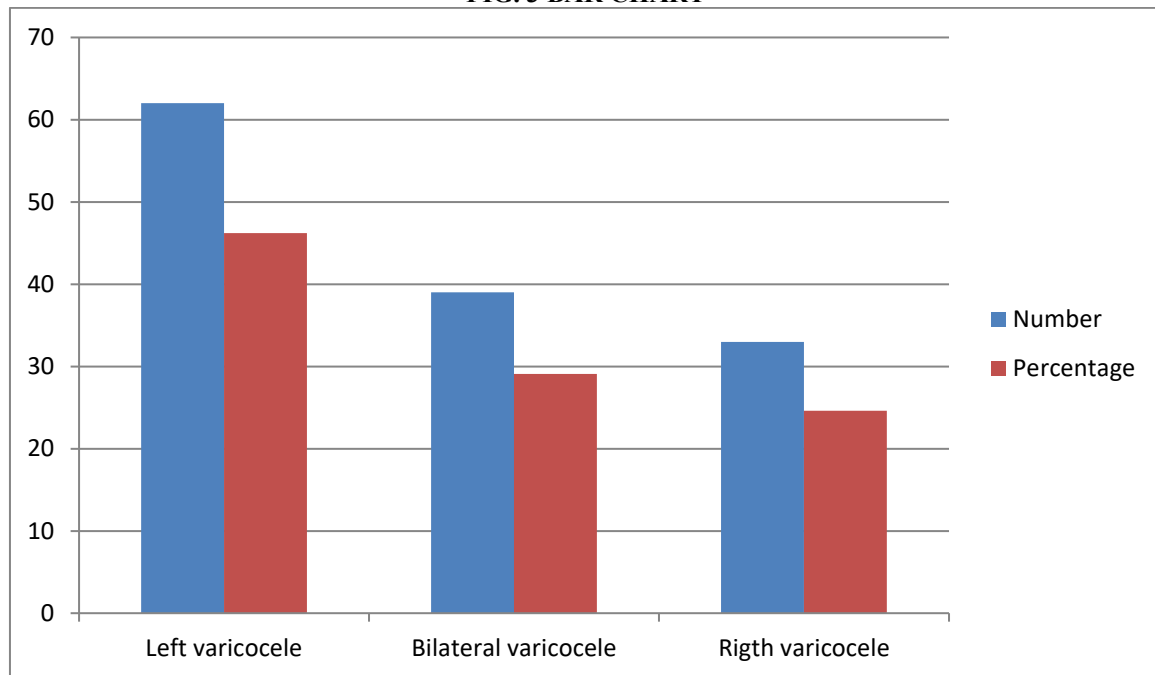


TABLE 6 SHOWING THE CLINICAL PRESENTATIONS OF THE CASES N=134

S/N	Clinical presentation	Number	Percentage
1	Male infertility	85	63.4%
2	Dragging/uncomfortable scrotal pain	28	20.9%
3	Swelling and sagging of scrotum	15	11.2%
4	Noticeable small testis	6	4.5%
5	Total	134	100%

The most common clinical presentation was male infertility- difficulty in achieving pregnancy with spouse 85 (63.4) while scrotal pain was the second most common presentation with 28 cases (20.9%)

FIG. 4 BAR CHART

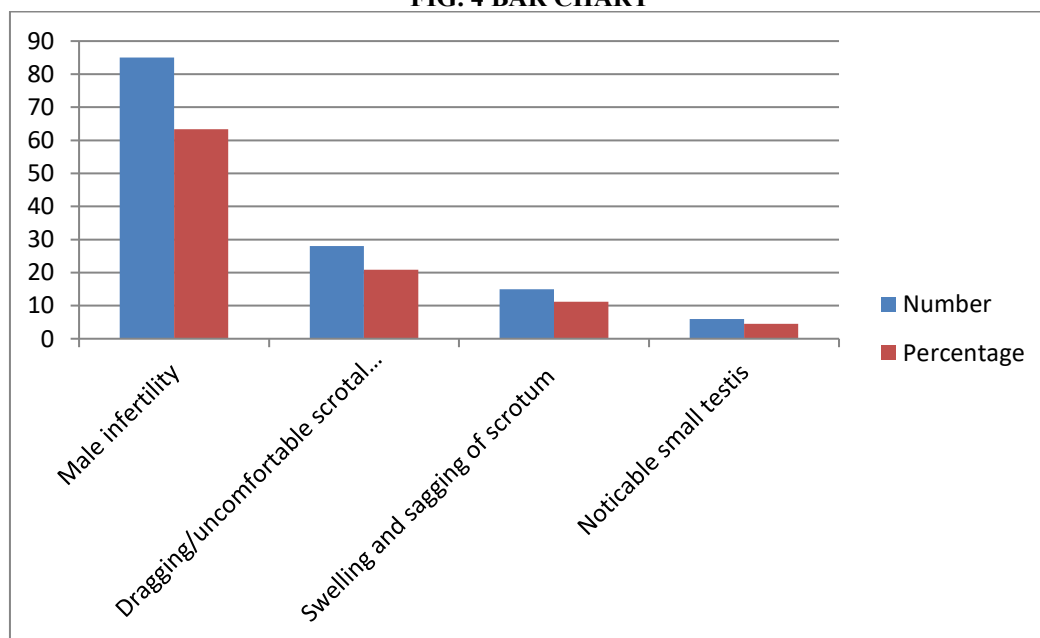


TABLE 7 SHOWING THE RELATIONSHIP BETWEEN THE CLINICAL VARIETY AND POOR SEMEN PARAMETER N= 116

S/NO	Clinical variety	Number with poor semen parameter	Percentage
1	Left sided varicocele	52	44.8%
2	Bilateral varicocele	39	33.6%
3	Right sided varicoceles	25	21.6%
4	Total	116	100%

116 out of the 134 participants had poor semen parameters (86.6%) while 18 had Normospermia (13.4%) all patients with bilateral varicocele had poor semen parameters unlike left sided and right sided varicoceles

FIG. 5 BAR CHART

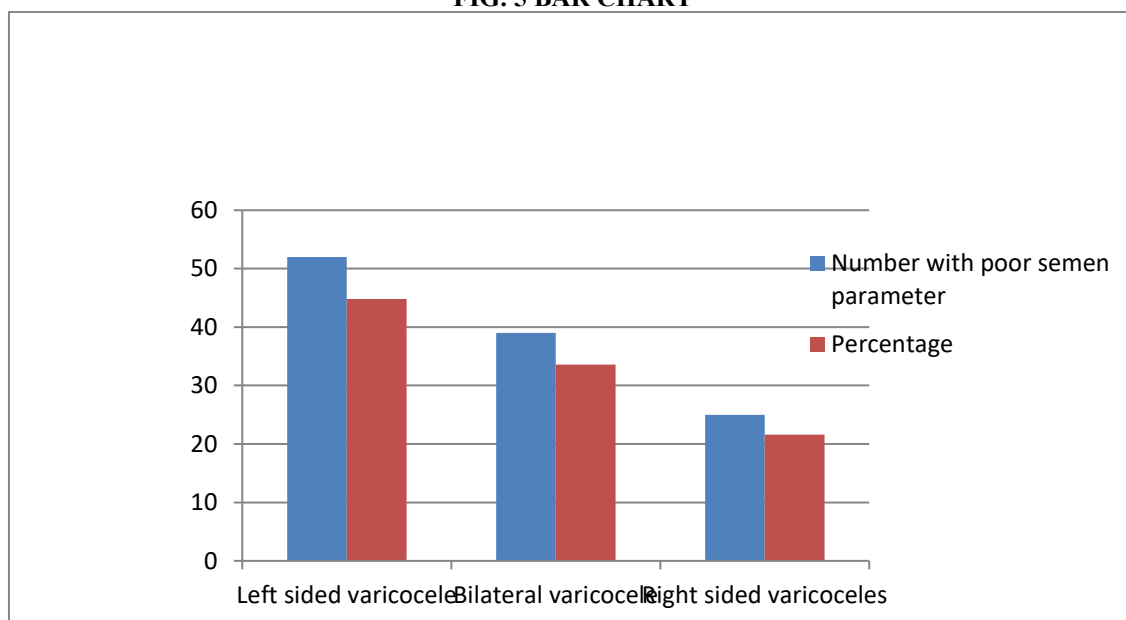


TABLE 8 SHOWING THE RELATIONSHIP BETWEEN VARICOCELE GRADE AND SEMEN QUALITY

S/NO	Grade of varicocele	Total	Number with poor semen	Percentage
1	Grade 0 Subclinical	7	2	28.6%
2	Grade 1	59	51	86.4%
3	Grade 3	45	41	91.1%
4	Total	134	116	

TABLE 9 SHOWING THE PATTERN OF POOR SEMEN QUALITY N=116

S/NO	Semen pattern	Number	Percentage
1	Oligospermia + Asthenospermia + Teratospermia.	73	62.9%
2	Oligospermia with Asthenospermia only	25	21.6%
3	Oligospermia with Teratospermia only	10	8.6%
4	Normospermia with Asthenospermia and Teratospermia	8	6.9%
5	Total	116	100%

OLIGOASTHENOTERATOSPERMIA was the most common pattern seen 62.9%

FIG. 6 BAR CHART

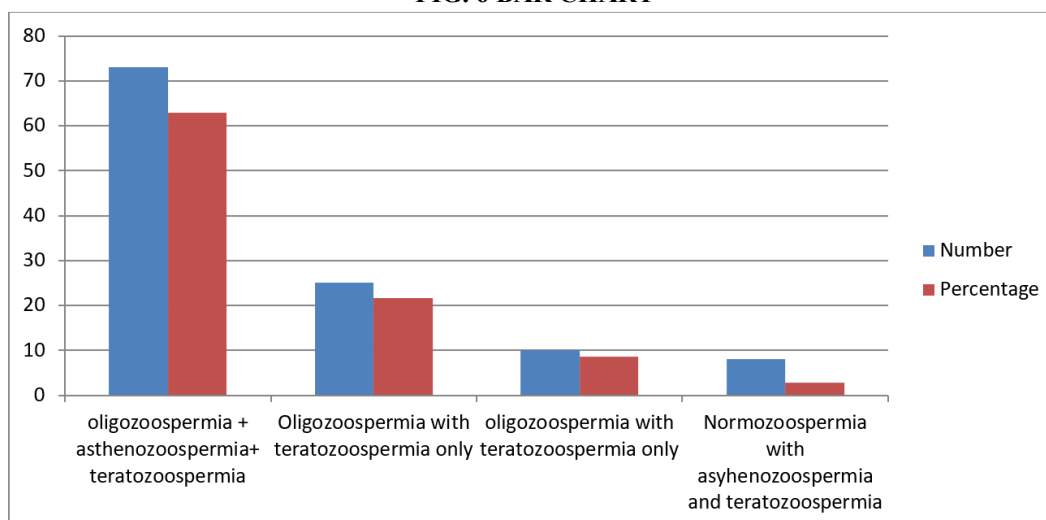
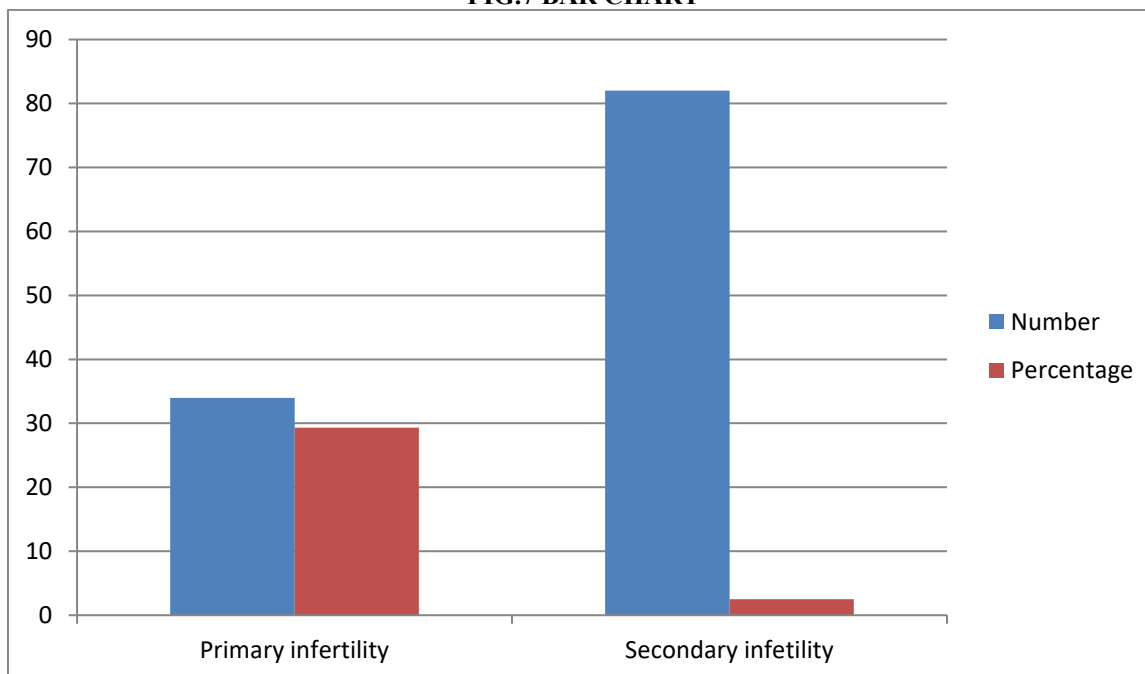


TABLE 10 SHOWING THE TYPE OF MALE INFERTILITY SEEN N=116

S/N	Type of infertility	Number	Percentage
1	Primary infertility	34	29.3%
2	Secondary infertility	82	70.7%
3	Total	116	100%

FIG.7 BAR CHART



IV. Discussion

Varicocele, a disorder characterized by dilatation, elongation and tortousity of the pampiniform plexus of veins is popular because it is a correctable cause of male infertility.

Although, its pathogenesis is not clear, it is of surgical interest due to its ability to cause.

- Poor semen parameters.
- Uncomfortable, dragging scrotal pains.
- Testicular hypotrophy.

In our study, we found varicocele most common within the age group 31-40 yrs (34.3%) closely followed by the age group 41-50 yrs with (32.8%).

Over all, most of the cases occurred within the age range 31-60yrs with 121 cases (90.3%).

The most common pattern of presentation was OLIGOASTHENOTERATOSPERMIA.

While 82 males with varicocele (70.7%) presented with secondary infertility, 34 males (29.3%) presented with primary infertility.

In a work by Osifo O.D etal on male infertility secondary to varicocele – A study of the management of 45 patients, they found out that patients were aged between 16 and 65 years with mean age of 37 +- 7.4 years.

They had the highest incidence in the age group 31-40 years (67.7%).

Poor semen parameters occurred in 91% of cases.

In another work by Moses Adebisi Ogunjimi etal on the prospective study of the association between varicoceles and semen quality in men with infertility, they concluded that bilateral varicoceles are significantly present in males with infertility.

They also concluded that the varicoceles are more common in males with secondary infertility and that higher grades of varicoceles are significantly with abnormal seminal fluid parameters.

Okeke etal in their work on- Is varicocelectomy indicated in sub fertile men with clinical varicoceles who have asthenospermia or teratospermia and normal sperm density concluded that, significant improvement was seen in semen parameters after varicocelectomy in those with preoperative oligospermia. But those who had Normospermia with asthenospermia and teratospermia recorded no significant improvement in semen quality after varicocelectomy.

V. CONCLUSION

Varicocele is common cause of male infertility in Aba. However, the awareness is low among the male population as most people presented after a long period of infertility.

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