

# Original Research Article

## THE ROLE OF VARICOCELECTOMY IN THE TREATMENT OF VARICOCELES

### ABSTRACT

#### Introduction

Varicocele is a physical abnormality in men commonly seen between puberty and 40 years of age. Most are bilateral but when it occurs unilaterally, it's mostly left sided.

Varicocele can lead to failure of testicular growth, scrotal pain, scrotal swelling and infertility. Diagnosis can be done clinically or radiologically.

Treatment of varicoceles can be by open varicocelectomy, laparoscopic varicocelectomy or radiological embolisation. This study aims at looking at the outcome of open inguinal varicocelectomy amongst patients treated for varicocele during the study period.

#### Methodology

A retrospective study of patients who had inguinal varicocelectomy on account of varicoceles at Lily Hospitals Limited, Warri, Delta State, Nigeria between April, 2020 and May, 2021. Data analysis was done using SPSS version 20.0 and results reported in percentages, mean  $\pm$  standard deviation.

#### Results

A total of 23 patients had inguinal varicocelectomy during the study period with mean age of  $29.74 \pm 11.37$ . The commonest presentation was scrotal pain ( 73.9%) with bilateral varicocele accounting for 82.6% of the cases seen.

Scrotal Doppler ultrasound scan was diagnostic for varicoceles in all the patients treated. Following surgery, there were complete resolution of symptoms in all symptomatic patients with 100% pregnancy rate in those that presented with male factor infertility; no complication was recorded during the follow up period.

#### Conclusion

Inguinal varicocelectomy is an effective treatment modality for varicoceles with excellent post operative outcomes when done for patients that met the indications for surgical treatment.

**Keywords:** Varicocele, Varicocelectomy, Inguinal, Scrotal

## INTRODUCTION

Varicocele is a physical abnormality present in 11.7% of men with normal semen analysis and in 25.4% of men with abnormal semen.<sup>1</sup> It is commonly believed to begin with the onset of puberty, at around the age of 15.<sup>2</sup> Most varicoceles are left sided and the left sided predominance is explained by turbulent venous flow related to the right angle insertion of the left testicular vein into the left renal vein.<sup>3</sup> Varicocele commonly leads to the following andrological implications: failure of ipsilateral testicular growth and development, symptoms of pain and discomfort, male infertility.<sup>2</sup> Bilateral varicocele occur in 80% of patients depending on the method of detection which can be clinical or radiological.<sup>4,5,6</sup>

Varicocele also results from incompetent or absent tricuspid valves in the gonadal vein which allow venous reflux into the scrotum, reflux of adrenal toxins such as adrenomodulin and catecholamine as well as nut cracker phenomenon due to compression of the testicular venous drainage leading to venous hypertension and development of collateral circulation which when it involves the scrotal veins lead to varicocele.<sup>7</sup> In proximal or classical nutcracker phenomenon, the left renal vein is compressed between the aorta posteriorly and superior mesenteric artery anteriorly while in the distal nutcracker phenomenon, the left common iliac vein is compressed by the crossing left common iliac artery.<sup>8</sup>

Varicocele is graded at the time of initial physical examination according to the Dublin grading system from 1 to 3.<sup>9</sup> Indications for treatment include symptomatic cases, grade 3, presence of infertility, stress pattern of seminal function and decline in ipsilateral testicular size by 2ml or 20%.<sup>10,11</sup>

A systematic review of 4,473 men aimed at determining the best treatment modality for varicocele concluded that open inguinal or sub-inguinal techniques of varicocelectomy resulted to better outcomes with fewer complications compared to laparoscopic procedure or radiological embolisation.<sup>12</sup> The aim of this study is to present the role of open inguinal varicocelectomy in the treatment of patients who presented with varicoceles at Lily Hospitals Limited, Warri, Delta State, Nigeria and met the indications for surgical treatment.

## METHODOLOGY

This is a retrospective study of patients who had inguinal varicocelectomy on account of varicoceles at Lily Hospitals Limited, Warri, Delta State, Nigeria between April, 2020 to May, 2021. Relevant data was retrieved from the establishment computer data base, entered in a structured proforma and analyzed using SPSS version 20.0. Results were reported in percentages, mean± standard deviation.

All the patients had open inguinal varicocelectomy under spinal anaesthesia, all the procedures were done by the same surgeon. Scrotal support was applied immediately after surgery which was removed 48 hours after surgery with discharge of the patients on the same day after removal of the scrotal support.

## RESULTS

A total of 23 patients had varicocelectomy during the study period. The age range was 15-75 years with mean age of 29.74 and standard deviation of 11.37. The commonest presentation was scrotal pain accounting for 73.9% (Table 1) this was followed by scrotal swelling accounting for 43.5%, the least presentation was infertility accounting for 8.6% of cases( Table 2) Majority of patients had bilateral varicocele following physical examination accounting for 82.6% of cases(Table 3) All the unilateral varicocele seen in this study(17.4%) were left sided. Testicular atrophy was seen in one of the patients(4.3%). Seminal fluid analysis revealed oligoasthenoteratospermia(OAT) in 39.1% of cases(Table 4) Scrotal Doppler ultrasound scan done for all the patients was diagnostic for varicoceles in all of them. Following surgery, there were complete resolution of symptoms in the symptomatic patients. There was 100% pregnancy rate following surgery in the 2 patients that presented with male factor infertility secondary to varicocele. All the patients that presented with abnormal seminal fluid analysis had improvement in it following surgery. Repeat Doppler ultrasounds scan done following surgery revealed no varicoceles.

The patients were followed up at 2 weeks after surgery, 3 months and 6 months after surgery, there were no recorded post- operative complications or recurrence during the follow up period. Histology of the specimen sent for histological evaluation following surgery was confirmatory for varicoceles.

## DISCUSSION

The mean age of occurrence of varicocele from this study was 29.7 years which was similar to what was reported by Jeje et al , from their study they reported a mean age of 35 years<sup>13</sup> same as the age that was reported by Sadiq et al.<sup>14</sup> Osifo et al in Benin reported a mean age of 37 years.<sup>8</sup> This buttressed the fact that varicocele commonly occurs amongst young males. Scrotal pain and swelling were the commonest presentations from this study while very few patients presented with infertility, this was in contrast to what was reported by some authors where

infertility was the commonest presentation while very few patients presented with scrotal pain and swelling.<sup>6, 15</sup> Bilateral varicocele accounted for 82.6% of cases, similar to 78% reported by Ibrahim et al<sup>7</sup> but in contrast to the 40% of cases reported by Sadiq et al.<sup>14</sup>

Oligoasthenoteratospermia was seen in 39.1% of cases following seminal fluid analysis, this was similar to what was reported by Sadiq et al which was 44%<sup>14</sup> and 32% reported by Ibrahim et al<sup>7</sup>. Osifo et al reported 75% of cases with OAT.<sup>8</sup> These findings are in keeping with the well known fact that the commonest abnormality seen in seminal fluid analysis of patients with varicocele is OAT. Doppler ultrasound scan of the scrotum confirmed varicocele in all the patients treated for varicocele in this study, so all the patients were diagnosed for varicocele both clinically and radiologically before surgery.

Studies have shown that the gold standard approach for the treatment of varicocele is inguinal or sub-inguinal microsurgical varicocelectomy as these approaches have the least complications and failure rates of 1%.<sup>6</sup> All our patients had inguinal varicocelectomy with no complications recorded during the follow up period, there were complete resolution of symptoms in those that were symptomatic, seminal fluid analysis improved in patients that presented with abnormal seminal fluid analysis before surgery with 100% pregnancy rates following surgery in patients that presented with male factor infertility from varicocele.

### **CONCLUSION**

Open inguinal varicocelectomy is an effective surgical treatment option for varicocele that met indication for surgical treatment. It has excellent post operative outcomes with minimal complication rates when done by expert hands and can lead to pregnancy in patients that presented with male factor infertility secondary to varicocele.

### **COMPETING INTERESTS DISCLAIMER:**

Authors have declared that no competing interests exist. The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

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Symptom	Number of Patients	Percentage (%)
Scrotal pain	17	73.9
No Scrotal pain	6	26.1
<b>Total</b>	<b>23</b>	<b>100.0</b>

**Table 1: Scrotal pain presentation amongst the varicocele patients treated**

Infertility	Number of Patients	Percentage (%)
Yes- Primary	1	4.35
Yes-Secondary	1	4.35
Nil	21	91.3
<b>Total</b>	<b>23</b>	<b>100.0</b>

**Table 2: Infertility presentation amongst the varicocele patients treated**

Physical Examination	Number of Patients	Percentage (%)
Unilateral disease- left	4	17.4
Unilateral disease - Right	0	0
Bilateral disease	19	82.6
<b>Total</b>	<b>23</b>	<b>100.0</b>

**Table 3: Physical examination findings amongst the varicocele patients treated**

Seminal fluid analysis	Number of patients	Percentage (%)
Oligoasthenoteratospermia	9	39.1
Normal	14	60.9
<b>Total</b>	<b>23</b>	<b>100.0</b>

**Table 4: Seminal fluid analysis result amongst varicocele patients treated**