

Title: IMPACT OF SUBINGUINAL MICROSCOPIC VARICOCELECTOMY ON MALE INFERTILITY: SEMINAL PARAMETERS, SERUM TESTOSTERONE, AND PREGNANCY RATE - A RETROSPECTIVE COHORT IN A UNIVERSITY HOSPITAL IN RIO DE JANEIRO.

Introduction and Objective:

Varicocele is the most common identifiable cause of male infertility, and varicocelectomy is the most commonly performed surgery for its treatment. This condition has an impact on infertility cases and sperm quality. Microscopic varicocelectomy is the gold standard treatment for varicocele because it allows preservation of the testicular artery and lymphatic vessels, ligament of the spermatic veins, and a significant reduction in complications. This retrospective cohort aims to evaluate the effects of microscopic varicocelectomy on seminal parameters, serum testosterone, and pregnancy rate in the context of male infertility in 39 patients operated on at a university hospital in Rio de Janeiro.

Method:

This study is a retrospective cohort conducted between January 2016 and February 2023, based on 39 men who underwent subinguinal microscopic varicocele repair in the context of conjugal infertility. Pre- and post-operative analyses of seminal parameters were based on the criteria of the World Health Organization from 2010. Post-operative semen analysis and serum testosterone were performed 3 to 6 months after varicocelectomy. The pregnancy rate was observed through interviews until February 28, 2023.

Results:

Subinguinal microscopic varicocelectomy is associated with a significant increase in testosterone levels and an improvement in semen parameters, all with statistical significance. Testosterone showed an average increase of 84.2 ( $\pm 14.7$ ) ng/dL. The pregnancy rate also increased significantly, with 51.3% of couples achieving pregnancy at the time of this study.

Variável	n	pré-cirurgia	pós-cirurgia	delta (pós-pré)	p valor
Testosterona (ng/dl)	39	356 $\pm$ 121	440 $\pm$ 117	84,2 $\pm$ 14,7	< 0,0001
Motilidade A (%)	39	3 (0 - 9)	11 (5 - 18)	5 (2 - 10)	< 0,0001
Motilidade B (%)	39	8 (0 - 15)	17 (10 - 24)	8 (0 - 12)	< 0,0001
Motilidade A+B (%)	39	11 (0 - 22)	32 (14 - 41)	13 (3 - 20)	< 0,0001
Concentração (x1000,000 mL)	39	6 (2 - 13)	15 (6 - 22)	6 (1,9 - 12)	< 0,0001
Azoospermia	39	8 (20,5%)	3 (7,7%)		0,025

Os dados de testosterona pré e pós-cirurgia foram expressos pela média  $\pm$  DP e o respectivo delta pela média  $\pm$  EP e comparado pelo teste *t* de Student para amostras pareadas. As variáveis de espermograma, com distribuição não-normal, foram expressas pela mediana e intervalo interquartilico (Q1 - Q3) e comparadas pelo teste dos postos sinalizados de Wilcoxon. A variação na proporção de azoospermia foi analisada pelo teste de McNemar.

Conclusion:

In this cohort, infertile men with clinical varicocele who underwent subinguinal microscopic varicocelectomy showed a significant increase in testosterone levels, improvement in semen

parameters, and a significant reduction in the proportion of azoospermia. Additionally, there was an increase in the occurrence of pregnancy in couples with conjugal infertility.