

## Relationship between the number of veins ligated in a varicocelectomy with testicular volume, hormonal levels and semen parameters outcome

Fábio Firmbach Pasqualotto,<sup>1,3</sup> Antônio Marmo Lucon,<sup>2</sup> Plínio Moreira de Góes,<sup>2</sup> Bernardo Passos Sobreiro,<sup>2</sup> Jorge Hallak,<sup>2</sup> Eleonora Bedin Pasqualotto,<sup>1</sup> and Sami Arap<sup>2</sup>

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**Purpose:** Correlate semen analysis, hormones, and testicular volume with the number of veins ligated.

**Methods:** Patients were divided into three groups: Group 1 ( $\leq 5$  veins), Group 2 (6–10 veins), and Group 3 ( $> 10$  veins). We evaluated testicular volume, hormonal levels, sperm concentration, and motility before and after the surgical procedure.

**Results:** In Group 1, even though there was an improvement in both testicular volume and sperm concentration; testosterone levels and sperm motility did not improve with surgery. In Group 2, no changes were detected in the both testicular volumes, in sperm concentration, motility, and testosterone levels. In Group 3, an improvement was seen in the right testicle volume, testosterone levels, and sperm concentration. Follicle-stimulating hormone levels decreased following the surgical procedure in all groups.

**Conclusion:** Patients with more than 10 ligated veins have better chances to improve sperm concentration. FSH levels decreased in all groups of patients.

**KEY WORDS:** Hormone; semen; spermatozoa; testicle; veins.

### INTRODUCTION

A clinical varicocele is observed in 10–20% of the general population, in 35–40% of men with primary infertility and in up to 80% of men with secondary infertility (1–4). The effects of the varicocele vary but may often result in a generalized impairment of sperm production, characterized by abnormal semen quality, ranging from oligospermia to complete azoospermia (5). A few reports have independently found that varicocele repair in men with azoospermia and severe oligoasthenoazoospermia resulted in

the induction or enhancement of spermatogenesis in 40–60% of the patients, thus demonstrating the benefit of performing a varicocele repair in men with azoospermia (5–9).

The exact mechanism by which an incidental varicocele becomes pathological remains unclear. Varicoceles may produce a gradual temporal loss of normal spermatogenesis over time as a result of raised intratesticular temperatures and subsequent progressive germ cell injury or loss (10,11). Recently, studies have demonstrated the role of oxidative stress in men with varicocele and infertility (11–13).

Many reports have correlated hormonal levels, testicular volume, specific biochemical parameters, and preoperative clinical grade with the improvement following a varicocele surgical repair (14–16). In addition, even though studies have shown that semen parameters are poorer preoperatively in men with large varicoceles and their response to operations

<sup>1</sup> University of Caxias do Sul, Brazil.

<sup>2</sup> University of São Paulo, Brazil.

<sup>3</sup> To whom correspondence should be addressed at Divisão de Clínica Urológica, Hospital das Clínicas da Faculdade de Medicina da Universidade de São Paulo, and Centro de Ciências Biológicas e da Saúde, Universidade de Caxias do Sul, RS, Brasil; e-mail: fabio@conception-rs.com.br and pasquaf@hotmail.com.