INTRODUCTION AND AIM OF THE WORK

Varicocele is a well - established cause of male infertility . The mechanism of fertility impairment remains unknown . Various hypotheses have been put forward to explain the cause of infertility in men with varicocele *(Dhabuwala et al., 1992)* .

Kormano et al., 1970 defined varicocele as elongation, dilatation and tortuousity of the veins draining the testis and its surroundings (pampinoform plexus and / or cremasteric plexus and / or vasal plexus), resulting from reflux of venous blood along the internal spermatic vein .

Inspite of the extensive research done in this field, varicocele remains a controversial and actively debated subject. Its aetiology is still rather obscure, with several assumptions which only contribute more to disagreement . Varicocele has been implicated as a cause of male infertility on the basis of three observations :

1- The incidence of a varicocele in infertile male populations has been noted to be higher than that in general population .

2- In some subjects, the presence of a varicocele is associated with abnormalities in the seminal fluid and testicular histology .

3- Varicocelectomy has been noted to result in improvement in semen quality in 50 to 80% of cases and pregnancy rates of about 50% have been reported *(Rodriguez-Rigau, et al., 1978)* .

The incidence of varicocele in general population has been reported to be 10-15% *(Klarke, 1966)*, 22.6% *(Uehling, 1968)*; 10% *(Johnson et al., 1970)*; 16.2% *(Oster, 1971)*; 23.7% *(Rodriguez- Rigau, 1978)*. *Dubin and Amelar, 1975* in their study found that 85.5% had left sided varicocele, 14% had bilateral varicocele and 0.5% had right sided varicocele. *Greenberg et al., 1978* found that varicocele was present on the left side in 78%, bilateral in 20% and occurred on the right side in only 2% of cases. *Yarbrough et al., 1989* stated that varicocele is present in about 15% of the general population. Varicocele reportedly are found in up to 39% of all infertile men ad are the most common correctable cause of male infertility. The incidence of varicocele among adults varies greatly in different reports. This variation may be due to real differences in different populations or may be caused by the varying degree of thoroughness and the criteria used to diagnose among different investigators *(Wutz, 1982)*.

Varicocele appears to be within limits age-dependent. According to most investigators, varicocele is rare seen before puberty *(Hienz et al., 1980)*. There are differences in varicocele incidence in men from different races. In Brazil, anatomical study of the left testicular vein in both black and white men led to a conclusion that there is a lower incidence of varicocele in black men because of adequate number and efficacy of valves found in their testicular veins *(de Castro, 1982)*.

The incidence of varicocele is greater in cigarette smokers than in non-smokers. Male cigarette smokers have also been reported to have low sperm counts, decreased motility and increased percentage of abnormal

spermatozoa. The greater incidence of varicocele in cigarette smokers may, in part, explain the semen abnormalities found in cigarette smokers ***(Klaiber et al., 1980).***

Surgery of varicocele dates back to the first century A.D; ***Hotchkiss, 1970***, reports on Celsus, who seems to have performed the first documented ligation and cauterization of a varicocele. In ***1541, Ambroise Paré*** described a condition of " compact group of vessels in the scrotum filled with melanocholic blood". If one interprets "melanocholic" as " quiet, slow" then one might assume that Pare was aware of blood stasis in varicocele veins. For centuries, varicocele was treated solely in order to relieve the dragging weight and pain. In ***1833, Bumstead and Taylor*** described several of the approaches that were used for treatment and palliation. Rather popular was a complicated suspensory for the testes which exerted pressure on the varicocele and had to be attached to an abdominal belt. The surgical method described by those authors, the so-called Woods operation centered on the scrotal contents and consisted of passing wire loops under tension around the vessels in the scrotum and leaving them in place until they eventually cut themselves out. Obviously, abscess formation and ulceration of the scrotal skin was the rule. Later, this procedure was modified by introducing a spring steel clamp to apply tension and removing the wires before they cut themselves out of the scrotum. Another surgical tool was the so-called Andrew's varicocele clamp ***(Herman, 1975)***. This instrument was used to remove the dilated vessels together with the scrotal skin which covered them. Later, the classical

operation for varicocele was introduced involving the division, ligation and excision of the pampiniform plexus, or part of it, by the inguinal or scrotal route. The high recidivation rate, severance of endarteries, and postoperative infections promoted ***Ivanissevich and Gregokini, in 1918*** to introduce their technique and its modification by ***Ivanissevich (1960)*** The technique consisted of division of the spermatic veins at the internal inguinal ring in the retroperitonel space through a muscle splitting incision.

In ***1949, Palomo*** presented his technique of high ligation of both spermatic vein and artery. However, ***Baumgartel et al., 1971*** reported degenerative changes in the testes of rabbits following this procedures.

In ***1956, Ribeiro*** proposed a " tunneling operation", burying the separated pampiniform plexus in a tunnel constructed from the external oblique aponeurosis. Physical effort then causes compression of the plexus.

Microsurgical techniques were applied to the treatment of varicocele by ***Ishigami et al., 1970*** in an attempt to preserve the venous circulation through the spermatic vein after its high ligation and division. Anastomoses were performed between the saphenous vein and either the distal part of the severed spermatic vein or the pampiniform plexus.

Shafik, 1972 believed that varicocele formation is basically due to inefficient fasciomuscular pump and had proposed a plication operation of the fasciomuscular tube of the spermatic cord, regardless whether the affected plexus is dilated due to insufficiency of the spermatic vein or the cremasteric vein.

Recently, ***Mehan et al., 1991,*** performed laparoscopic varicocelectomy with no major or significant operative or postoperative complications.

The aim of this work is to determine the effect of the high ligation approach (Palomo operation) and the inguinal approach on the seminal parameters, sperm fertilizing capacity and conception rate on the subfertile men with varicocele.