

Laparoscopic versus Various Types of Open Ligation of Testicular Veins for Treatment of Varicocele

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Abstract

Varicocele therapy is controversial issue with no single approach adopted as the best therapeutic option. Patient were divided into groups which received 2 different modalities of treatment [namely high ligation of testicular veins, Paloma operation and subinguinal microscopic varicocelectomy [SMV] and compare them with laparoscopic varicocele ligation [LVL]. Group 1 [164 patients] treated with LVL. Group 2 [101 patients] treated with open method [65 patients with paloma and 36 patients with SMV]. Group 1 showed less recurrent rate [4%] vs. [8%] for group 2. Less hospital stay for group 1 [1.3 days] vs. [3.5 days] for group 2. Return to normal activity was shorter in group 1 [4.5 days] vs. [9 days] in group 2. More costeffective for group 1 patients than group 2.

Keywords: Laparoscopy, varicocele, paloma high ligation, LVL (laparoscopic varicocele ligation), SMV (subinguinal microscopic varicocelectomy).

Aims and objectives: The aim of this study was to compare the effectiveness and safety of laparoscopic and conventional methods (open technique) in the treatment of varicocele. The following parameters were evaluated for both laparoscopic and open procedures.

1. Operative technique
2. Patient selection
3. Operating time
4. Postoperative complications including recurrences
5. Hospital stay
6. Cost-effectiveness.

Material and methods: A literature search was performed using medline and other search engines, the following search terms were used [laparoscopic versus open methods in treatment of varicocele]. Criteria for selection of the literature were no. of cases, methods of analysis operative time and institution where the study was done.

INTRODUCTION

The prevalence of varicocele in adolescence is equivalent to that of general male population [average of 15%] where as before puberty varicocele is rare.^{1,2} The incidence of varicocele in male patient with infertility is approximately 40%.^{3,4} Varicocele can negatively and progressively affect testicular growth, histology, function resulting in progressive decline in fertility.⁵ 50-60% of male patients treated for varicocele show improvement in semen quality.³ In the last few years varicocelectomy has been performed by laparoscopy.⁶

PATIENTS AND METHODS

The study included [256] patients divided into 2 groups. Group 1 [164 patients] referred to general and pediatric surgery department for LVL. Group 2 [101 patients] referred to urology department for SMV and paloma operation. The age of the patients in group 2 ranges between 8-24 years [average of 24.4 years.]. Those in group 1 were between 8-39 years [average 21.3 years]. The majority of school aged patients were asymptomatic and disease discovered during routine medical examination. While testicular pain and/or swelling were the main complaints among patient aged 15-25 years, subfertility was the major presentation among those above 25 years age. The diagnosis of varicocele was established mainly by clinical examination with patient in upright position. The disease was graded according to criteria published by Lion et al. In majority of patients, the varicocele was grade 2 or 3.

- 62 patients in group 1 had left sided varicocele.
- 109 patients in group 2 had left sided varicocele.
- Bilateral varicocele was present in 3 patients group 2.
- Bilateral varicocele was present in 19 patients group 1.

Doppler U/S was done in all patients to confirm diagnosis and to evaluate testicular size pre and postoperatively. Seminal fluid analysis was performed preoperatively for male infertility cases and repeat it postoperatively every 6 months for 18-24 months.

RESULTS

- In group 2 average operative times was
 - 38 minutes for unilateral cases.
 - 70 minutes for bilateral cases.
- In group 1 average operative time was
 - 58 minutes for unilateral cases.
 - 75 minutes for bilateral cases.
- In group 2:
 - 65 patients had paloma operation of which 9 patients had recurrence [13.8%].
 - 36 patients had SMV operation of which 4 patients had recurrence [11%].

- In group 1:
 - 164 patients had LVL of which 6 patients developed recurrence [3.8%].
- Also in group 1: Retropubic collateral channels were identified in 7% cases during LVL.
 - Lateral collateral channels were identified in 17% cases during LVL.
 - All collaterals were interrupted by clipping or diathermy. Testicular artery was detected in 94% cases in group 18%]. Repair of right inguinal hernia [5 patients 3%]. 75% cases in group 2.

In group 1: Other procedures were concomitantly performed including right orchidopexy [14 patients 8%]. Repair of right inguinal hernia [5 patients 3%].

In group 1: No intra-abdominal visceral or vascular injuries with LVL. Three patients had pneumoscrotum which resolved spontaneously within 24-48 hours?

One patient in each group developed wound infection.

Scrotal edema developed in 11 patients in group 2 compared to only 3 patients in group 1.

In group 2: All required one or more narcotic injections after surgery.

In group 1: Only 13% required one or more narcotic injections after surgery.

Return to school after LVL was much faster [3-7days group1] compared to [7-14 days group 2].

Ipsilateral hydrocele developed in 3 patients in each group. No testicular atrophy in any case of study regardless whether testicular artery was clipped or not. Improvement in seminal fluid analysis was observed in 43% cases in group 2 compared to 51% cases in group 1.

DISCUSSION

Laparoscopic varicocelectomy has gained lot of attention around the world. However, the role of laparoscopy in varicocele remains controversial. Several controlled trials have been conducted, some in favour of laparoscopy, others not. The goal of this review was to ascertain that if laparoscopic varicocelectomy is superior to conventional, and if so, what are

the benefits and how it could be instituted more widely.⁷ There is also diversity in quality of randomized clinical trials; the main variables in these trials are the following parameters:

1. No. of patients in trial.
2. Withdrawal of cases.
3. Exclusion of cases.
4. Blinding.
5. Publication.
6. Intention to treat analysis.
7. Local practice variation.
8. Prophylactic antibiotic used.
9. Follow-up failure bias.

CONCLUSION

LVL is minimally invasive procedure that is easy to perform with simple instrument, but other procedures like hernia repair can be simultaneously performed. It is the best approach when recurrent disease and obesity are problems. The clear visualization magnification facilitate detection of abnormal collateral channels, one of major reasons for postoperative recurrences. LVL has minimal postoperative morbidity, shorter convalescence and faster return to normal activity.

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