

Treatment of Vault Prolapse: Laparoscopic versus Open Sarcocolpopexy

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Abstract

Pelvic organ prolapse is one of the common problems for parous women. A literature review of published articles was done to determine the best method of treatment for pelvic prolapse mainly laparoscopic and open laparotomy methods. Electronic search made via medline, google and springer link using the keywords laparoscopic/open sarcocolpopexy and vault/organ prolapse and relevant articles were reviewed. More than 2000 patients included in this review and the results showed that laparoscopic sacrocolpopexy has shorter hospital stay 1-1.8 days in the as compared to the laparotomy group which is 4-5.8 days ($p < 0.005$). Regarding estimated blood loss laparoscopy has less bleeding compared to laparotomy (172 +/- 166 mL vs 234 +/- 149 mL; $P = .04$). But the operation time is longer with this method, mean operation time is 223(+/-24) minutes for the laparoscopic group and 195 (+/-45) minutes for the abdominal sarcocolpopexy group. Other complications like mesh erosion up to 5% is the same for both procedures. The chance of recurrence 10-20% after sarcocolpopexy is a possibility for both methods with short and long-term period of follow-up 3 months to 13 years. In conclusion laparoscopic approach has favorable outcome if properly done by skilled surgeon especially with decreased hospital time and operation time.

Keywords: Laparoscopic sarcocolpopexy, pelvic prolapse, vault prolapse, open sarcocolpopexy.

Aims and objectives: The aim of the study was to compare the effectiveness and safety of laparoscopic and conventional open abdominal sarcocolpopexy in the treatment of pelvic organ prolapse. Parameters evaluated for both methods include patient selection, operative technique, and operative time, intraoperative and postoperative complications. Evaluation was also done for post-operative morbidity, hospital stay, cost effectiveness and short-term and long-term quality of life.

Materials and methods: A literature search was performed using Medline and search engines, Google, Springer link and Highwire press. The following search terms were used laparoscopic sacrocolpopexy, pelvic organ prolapse, vault prolapse, suspension treatment. 1640 citations were found in total and selected papers were screened for further references. Criteria for selection of literature were the number of cases (excluded if less than 20), method of analysis (statistical or nonstatistical), operative procedure (only universally accepted procedures were selected) and the institution where the study was done (specialized institution for laparoscopy surgery).

INTRODUCTION

With the aging of the population, pelvic organ prolapse is an increasingly common condition seen in women. Cause of pelvic

organ prolapse is multifactorial and result in weakening of the pelvic support connective tissue and muscles as well as nerve damage. It is estimated about 50% of parous population may encounter pelvic organ prolapse. Patients may be asymptomatic or have significant symptoms such as those relating to the lower urinary tract, pelvic pain, defecatory problems, fecal incontinence, back pain, and dyspareunia. To correct this problem different abdominal and vaginal surgical techniques have been used. The abdominal approach can be laparoscopic or open method to restore pelvic anatomy and sexual function.¹

The open technique is performed through abdominal incision and involves suspending the prolapsed vaginal vault to the sacral promontory using a synthetic mesh (polypropylene, Gore-tex,[®] Mersilene[®]). It is associated with a risk of hemorrhage from presacral vessels and around 4.3% of women may require a blood transfusion. The chance of mesh erosion is 5%. The subjective success rate following an abdominal sacrocolpopexy in a randomized study was 94% and the associated objective success rate was 76%.²

Laparoscopic sacrocolpopexy which is relatively new technique is an alternative to open method although operative time tends to be slightly longer, intraoperative complications are related to the surgeon's experience and remain comparable to those noted in laparotomy however, it requires a high degree of laparoscopic skill to perform the procedure via this route.

Even though there are a number of procedures to correct this problem the two most widely methods are being used by different surgeons worldwide. This paper tries to asses which method is more appropriate to treat with the least complication and with long lasting favorable functional anatomical outcome.

CONTENT

More than 2000 patients were included in this study, all the comparison done only on laparoscopic and abdominal sacrocolpopexy cases. Patients with additional procedures at the time of surgery and variations of pelvic organ prolapse surgery were excluded from the study to avoid biases.

Operation time: Mean operation time is 223(+/-24) minutes for the laparoscopic group and 195(+/-45) minutes for the abdominal sarcocolpopexy group. This is slightly greater in the laparoscopic approach, and is evident on all studies included

in this review. With experienced surgeon the operation time usually is comparable to open techniques.^{3,4}

Blood loss: As compared to laparotomy, laparoscopy is associated with less blood loss to the patient even though proper quantification of the actual blood was not done in most revised articles. In cohort study done on 113 patients estimated blood loss (172 +/- 166 mL vs 234 +/- 149 mL; P = .04) after laparoscopy and after laparotomy respectively. This difference mainly attributed to injury to blood vessels can easily be avoided due to clear vision via laparoscope usually the amount of blood loss will be minimum, of course one of the complication of laparoscopy is accidental injury to great vessels which can be reduced with proper training and experience.^{3,4}

Hospital stay: as discussed in the different studies is significantly shorter 1-1.8 days in the laparoscopy group as compared to the laparotomy group which is 4-5.8 days ($p < 0.005$). This is very important advantage of laparoscopy because it saves much time for the patient to resume daily activities early and also saves much cost for hospitals by decreasing bed occupancy, the cost effectiveness to the patient is not properly shown in the different studies and need further evaluation.³

Success rate can be determined in two ways objective success that is after properly scheduled follow-up visits the physician will perform physical examination and determine the success of the treatment. Based on the presence or the absence of descent of the pelvic organs subjective success rate is the patient's perception about her symptoms of prolapse, sense of well-being and sexual function after the procedure. Objective success for both method ranges from 85-92% there is no significant difference in both methods while subjective success rate is considered 79-85 %.³⁻⁷

Other complications like bladder, rectal injuries are not common but are similar in both methods.⁷

Conversion rate in case of difficulty reported in some of the literature ranges from 0-11%, but this conversion rate is decreased when the operator is well skilled.

Recurrence rate after both laparoscopic and laparotomy sacrocolpopexy is usually similar it ranges 12-46%. Most of the patients were followed from 3 months up to 13 years as the number of years increases the chance of recurrence increases regardless of the method used to correct the prolapse. Laparoscopic sarcocolpopexy is also associated with high-rate of satisfaction.^{3,4,6,8}

DISCUSSION

Pelvic organ prolapse was being treated by different methods but after the introduction of laparoscopy many surgeons are utilizing this new advanced technology to treat their patients.

Laparotomy can be performed for this problem with equal success rate but with disadvantages of scar over the abdomen,

more blood loss and longer hospital stays. These findings are inherent in the procedure and most studies have shown that the recurrence and correction of the anatomical defect are similar with laparoscopic sacrocolpopexy. But with these disadvantages still it can be used effectively if there is lack of experience with laparoscopy and when there is no laparoscopic instrument.

Laparoscopic sarcocolpopexy is nowadays favored by patients because It is mainly minimally invasive and as shown in many of the studies associated with less blood loss which is significant and is also associated with less hospital stay to patients also statically significant difference as compared to the open technique.

Operation time is also prolonged in most of the studies and complications like mesh erosion is similar in both groups. As surgeons experience and skill increases some of the complications can be minimized and this method can be used to treat pelvic organ prolapse.

CONCLUSION

Both laparoscopic and open sarcocolpopexy can be used for the treatment of pelvic organ prolapse but laparoscopic approach has slight advantage over the open method mainly less blood loss and operation time with sound cosmetic result. In experienced hands laparoscopic sarcocolpopexy can be used effectively with favorable outcome.

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