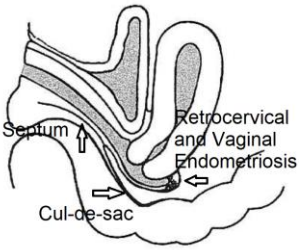
Dan C. Martin. Laparoscopic and vaginal colpotomy for the excision of infiltrating cul-de-sac endometriosis. J Reprod Med 1988, 33:806-808.

PubMed
https://www.ncbi.nlm.nih.gov/pubmed/2973525

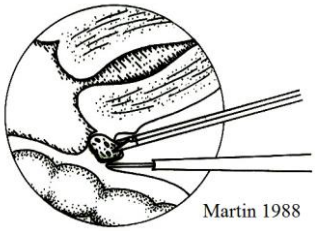
Publishers Site
http://www.reproductivemedicine.com/

Also see www.danmartinmd.com/files/2001_retrocervical.pdf

Summary (10/25/18)



Palpable endometriotic nodules deep in the cul-de-sac and vagina represent the extension of intraperitoneal disease. Of those, Adamyan Stage I lesions do not involve the rectovaginal (RV) rectum. Such nodules had historically been excised using vaginal colpotomy and tracing the endometriosis to the peritoneum. The use of laparoscopy to view the dissection and bowel was reported by Professor Kurt Semm (1984).

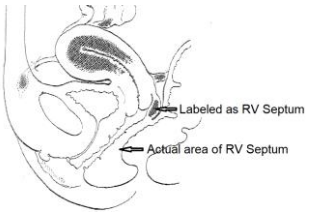


Five laparoscopic cases were reported that occurred during the transition away from Kurt Semm's (1984) technique of using laparoscopy to observe vaginal excision of retrocervical endometriosis. The first two patients had combined laparoscopic and vaginal excision and the last three total laparoscopic excision using the CO_2 laser and vaginal repair. There were another two patients who had rectal involvement and were opened. Bowel and suturing techniques were subsequently reported in the AAGL *Manual of Endoscopy* (1990) and AAGL *Color Atlas of Endoscopy* (1993).

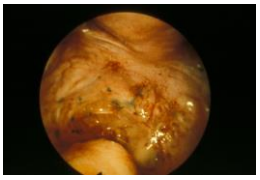
References updated 10/25/18

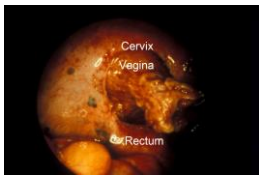
Adamyan L: Additional international perspectives. In Gynecologic and Obstetric Surgery. Edited by DH Nichols. St. Louis, Mosby–Year Book, 1993, pp 1167–1182. She discusses four stages in rectovaginal endometriosis. Stages I is retrocervical with no rectal involvement. Stages II, III, and IV have increasing rectal and vaginal involvement.

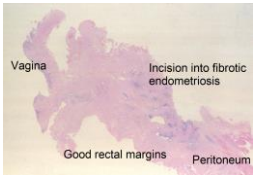
Cullen TS. The distribution of adenomyoma containing uterine mucosa. Am J Obstet Diseases of Women and Children. 1919;180:130-138. p136. The upper arrow is labeled as retro-vaginal (RV), but it is retrocervical endometriosis. The RV septum is lower and between the perineal body and the base of the Pouch of Douglas (cul-de-sac).



Martin DC (ed). Laparoscopic Appearance of Endometriosis, ©1988, ©1989, ©2018
www.danmartinmd.com/files/lae1988r18.2.pdf
Martin DC, Redwine DB, Reich H, Kresch AJ (eds). Laparoscopic Appearance of Endometriosis, Color Atlas, ©1990, ©1991, ©2007, ©2017
http://www.danmartinmd.com/files/coloratlas1990.pdf







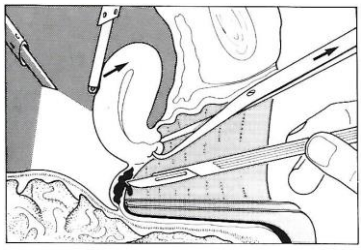
Laparoscopic dissection was performed to the vagina using ring forceps to guide dissection and as a back stop for CO2 laser. The fibrotic was entered on the retrocervical margin. The histological specimen was intact from the peritoneum to the vagina. Note adequate rectal margins but cut into specimen on cervical margin

Martin DC (ed). *Manual of Endoscopy*. Santa Fe Springs, CA: American Association of Gynecologic Laparoscopists, 1990. Early report of suturing techniques.

Martin DC. Operative laparoscopy pictures. In Levy BS, Phillips JM (eds): *Color Atlas of Endometriosis*. Santa Fe Springs, CA: American Association of Gynecologic Laparoscopists, 1993. Images 2, 3 and 4 are of a planned laparoscopic bowel dissection with laparoscopic repair in 1989.

Martin DC., Batt RE. Retrocervical, rectovaginal pouch, and rectovaginal septum endometriosis. J Am Assoc Gynecol Laparosc 2001, 8(1):12–17. Editorial on the anatomy of the pelvis including the rectovaginal (RV) pouch of Douglas (cul-de-sac), the RV septum, and retrocervical endometriosis is at
www.danmartinmd.com/files/2001_retrocervical.pdf

Semm K (ed). Operationslehre für endoskopische Abdominal-Chirurgie. F.K. Schattauer Verlag, Stuttgard. 1984, p 146. (German) Semm's technique of using laparoscopy to observe vaginal excision of retrocervical endometriosis. The book is also his second publication on laparoscopic excision. The first was in his 1980 slide set. The 1984 version was subsequently translated into English as Semm K (ed). Operative Manual for Endoscopic Abdominal Surgery: Operative Pelviscopy - Operative Laparoscopy. Friedrich ER translator. Yearbook Medical Publishers, Mosby, Incorporated, Chicago, 1987. p161.


Semm 1984 Abb. 266

Author's Draft

Laparoscopic and Vaginal Colpotomy for Excision of Infiltrating Cul-de-sac Endometriosis

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ABSTRACT

Palpable nodules in the deep cul-de-sac and vagina represented extension of intraperitoneal disease to the vagina. Although these were previously excised using a vaginal colpotomy and tracing the endometriosis to the peritoneum, the dissection of these lesions under laparoscopic visualization has aided in recognition and removal. Of seven patients who have been approached with the plans of a combined laparoscopic and vaginal excision, five had this procedure completed. The other two patients required laparotomy due to bowel muscularis involvement.

INTRODUCTION

Deep infiltrating endometriosis is frequently hard to dissect due to irregular infiltration and indistinct planes. However, medical therapy and pregnancy may cause a short-term regression of endometriosis, but disease usually recurs.1 This has been further complicated by suturing techniques which interfered with the palpation of the lesions, and by bleeding which stains the tissue. However, using a combination of carbon dioxide laser (CO2)2 and Kleppinger3 bipolar forceps at laparoscopy, these lesions have been dissected to and through the vagina. With these techniques, the lesion has been visualized throughout. The different appearance of fibrotic endometriosis, loose connective tissue and healthy fat became recognizable with experience.

MATERIALS AND METHODS

Patients

The study population consisted of seven patients undergoing surgery for endometriosis associated with pelvic pain from November 1986 to September 1987. Three patients had persistent or recurrence of disease following six to nine months of Danocrine and three patients had previous term pregnancies. On physical exam, these nodules appeared to involve the cul-de-sac with extension to the level of the vagina. The rectum and low sigmoid colon appeared to be free of disease. Sonography was used in all patients. Surgical consultation was obtained in all cases before proceeding and all patients understood that laparotomy with bowel resection and repair might be necessary. All patients were bowel prepped. Currently all patients are encouraged to do self-blood banking.

Equipment

A 100-watt Sharplan 1100 CO2 laser was attached to a second puncture laser attachment. The open-ended laser probe was used to dissect the lesion under direct visualization. Laparoscopic grasping forceps were inserted through a 10 mm Wolf operating scope. Bleeding was controlled with Kleppinger bipolar forceps.

Technique

For the first two patients, the peritoneal portion of the lesion was resected with the laparoscope and then a vaginal colpotomy was performed for dissection of the lower portion of the specimen. For the last three patients, the incision was carried to the vagina and the colpotomy performed laparoscopically. The vaginal portion was developed with a ring forceps in the vagina. The ring forceps was used both for identification of the vagina and as a backstop for the laser. An attempt was made to complete the 360¡ dissection almost through the vagina before going through at any one point. Once one point in the vagina had been opened, the pneumo-peritoneum was lost, and the remainder of the dissection was done vaginally. A rectal probe was used when identification of the rectum or low sigmoid was needed. The lesion was then pulled through the vagina and the vagina closed with interrupted sutures placed through a vaginal approach.

RESULTS

Seven patients were preoperatively prepared for combined laparoscopic and vaginal excision of endometriosis. On histologic examination all seven cases had fibrotic endometriosis extending from the peritoneum to the vagina.

Two of these patients were noted to have deep sigmoid colon lesions with contraction and distortion of the sigmoid colon after initial laparoscopic dissection. These two patients were opened, and a focal colon excision and repair performed. The vaginal portion was then resected from an intra-abdominal approach.

Five patients underwent a successful vaginal and laparoscopic excision of their cul-de-sac endometriosis. The first two of these had a major component of the dissection performed through the vaginal colpotomy. The last three patients had the dissection carried to and through the vagina with the laparoscopic laser (laparoscopic colpotomy). (Figure 1) All five patients completed in this fashion were performed as outpatients and went home on the day of surgery. There were no complications related to either laparoscopy, colpotomy, or laparotomy.

The operating time varied from one hour and forty minutes to three hours and fifteen minutes for procedures completed as a laparoscopic and vaginal excision. The mean operating time was two hours and twenty minutes and the average operating time was two hours and twenty-five minutes. When laparotomy was needed, these two cases lasted two hours and forty minutes and five hours and fifteen minutes. The longest operation was in a patient where the deep bowel involvement was not recognized until several layers of adhesions and endometriosis had been resected through the laparoscope. All patients were admitted to the outpatient unit. The two patients with laparotomies were admitted to the inpatient unit postoperatively. The indications in three patients were pain and preservation of fertility. The remaining four patients had pain and infertility as indications. Six of the seven patients had previous Danocrine therapy or term pregnancies.

DISCUSSION

The excision of deep infiltrating endometriosis has generally been performed at laparotomy.4,5 This has been a difficult operation to perform at laparotomy or colpotomy when extending from the peritoneum, through the cul-de-sac and to the vagina. At laparotomy, deep dissection was needed and at colpotomy the uterus interfered with visualization. Palpation of lesions was needed for excision6 and sutures distorted the tissue and made palpatation difficult. Oozing from the bleeders colored the tissue and made recognition of the healthy subcutaneous and fat tissue difficult. Bipolar

coagulation has helped control bleeding and tissue distortion at laparotomy, colpotomy and laparoscopy. Preoperative care for this type of surgery is more intensive than other laparotomies and focuses on preparation for bowel dissection.7

Laparoscopic laser techniques of excision8 have required significant time and effort to develope. The first case in this series was the author's 509th laser laparoscopy. With experience, there is an increased ability to visualize a lesion throughout the dissection. The laser increased hemostasis and this also aided in maintaining distinct tissue recognition. Fibrotic endometriosis has whiter color and firmer texture than yellow, soft fat.9 Loose connective tissue is easily dissected with a blunt probe. The recognition of these differences in tissue types has become easier with experience.

CONCLUSION

Combined laparoscopic and vaginal excision of persistent or recurrent infiltrating cul-de-sac endometriosis has avoided laparotomy in a small select group of patients. With experience, the major portion of the surgery is performed laparoscopically with the CO2 laser. This is technically more controllable than a vaginal colpotomy approach. This has required careful preoperative exams, preoperative care, surgical consultation, informed consent and surgical experience.

Acknowledgments

Dr. Richard Hollis, Dr. Harry Reich and Dr. Gordon Davis were instrumental in the development of these techniques.

Figures

Figure 1.

The nodule is carefully palpated before proceeding. The CO2 laser is used to dissect around the lesion to and through the vaginal epithelium. The lesion is then removed and the defect sutured.

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