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The rectovaginal (RV) pouch of Douglas (cul-de-sac) is the top of the RV septum. When there is normal anatomy, the RV pouch is behind the upper one-third of the vagina. This contrasts with the RV septum being behind the lower one-third of the vagina between the perineal body and the base of the RV pouch. In the Adamyan classification, stage I retrocervical endometriosis is localized in the anterior wall of the RV pouch between the RV pouch, the cervix, and the posterior vaginal fornix. RV endometriosis is more precisely used for RV pouch.

Clear and generally accepted terminology for study and treatment of endometriosis can improve patient care. Retrocervical endometriosis is a term that describes endometriosis of the RV pouch, retroperitoneal tissue, and posterior vaginal fornix with no rectal involvement. Rectovaginal endometriosis is used for RV pouch involvement of both vagina and rectum and may include the RV septum. Alternative terminology could be based on the classification described or on the area of the RV pouch that is involved.

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Annotated References


Batt RE, Martin DC, Odunsi K. Endometriosis of the retrocervical septum is proposed to replace the anatomically incorrect term endometriosis of the rectovaginal septum. Human Reproduction, 2014, 29(12): 2603–2605. doi:10.1093/humrep/deu279. This is a proposal that the term retrocervical septum be added to the medical lexicon to designate the anatomic location of endometriosis of the septum that separates the vagina and posterior vaginal fornix from the rectovaginal pouch of Douglas. Use of the terms retrocervical septum and endometriosis of the retrocervical septum would correct the century-long misuse of the anatomically incorrect term, endometriosis of the rectovaginal septum. This would classify the anatomic location of the adenomyomas illustrated in the publications of Cullen (1917, 1919; 1920) and the anatomic location of DIE described by Vercellini et al.(2000) and Chapron et al. (2002) as retrocervical.


Chapron C, Liaras E, Fayet P, Hoeffel C, Fauconnier A, Vieira M, Barakat H, Dousset B, Legmann P, Bonnin A, Dubuisson JB. Magnetic resonance imaging and endometriosis: deeply infiltrating endometriosis does not originate from the rectovaginal septum. Gynecol Obstet Invest. 2002;53(4):204-8. The DIE nodules were located above the upper edge of the rectovaginal septum, with the latter appearing fine and regular with no image of any nodule. Our MR imaging results suggest that DIE lesions do not originate from the rectovaginal septum.

Cullen TS. Adenomyoma of the rectovaginal septum. Johns Hosp Bull 1917;321:343-8.Cullen TB. Adenomyoma of the rectovaginal septum. JAMA 1916;67:401-6. Plate LXV. Retrocervical lesion described as “adenomyoma of the rectovaginal septum.” This is retrocervical. The septum is below the depth of the cul-de-sac.

Cullen TS. The distribution of adenomyoma containing uterine mucosa. Am J Obstet Diseases of Women and Children. 1919;180:130-138. p136. This is labeled as retro-vaginal. It is retrocervical. The septum is lower and between the perineal body and the cul-de-sac.

Cullen TS. The distribution of adenomyomas containing uterine mucosa. Archives of Surgery 1920 1:215-283. p227. This is labeled as retro-vaginal. It is retrocervical. The septum is lower and between the perineal body and the cul-de-sac.


Martin DC, Vander Zwagg R. Excisional techniques for endometriosis with the CO2 laser laparoscope. J Reprod Med 1987, 32: 753-758. This is Dan Martin’s 3rd peer-reviewed publication on excisional techniques This covers the development of excisional techniques in 494 endometriosis over five years patients with excision in 13% of patients in 1982 and increase to 100% in 1986. This followed Professor Kurt Semm’s presentation on laparoscopic excision at the Tenth Annual AAGL meeting in Phoenix November 1981. https://www.ncbi.nlm.nih.gov/pubmed/2960809

Martin, Dan C. Laparoscopic and vaginal colpotomy for the excision of infiltrating cul-de-sac endometriosis. J Reprod Med 1988 33:806 This is a report of two phases in the revision of Kurt...
Semm’s technique of using laparoscopy to observe vaginal excision of retrocervical endometriosis (1984,1987). Martin’s technique changed from laparoscopic dissection to complete resection with laparoscopic colpotomy. However, the repair was vaginal in this group with laparoscopic suturing subsequently used.  


Laparoscopic appearance of retrocervical and vaginal nodule.

Vaginal appearance of retrocervical and vaginal nodule.

Laparoscopic dissection was performed to vagina using ring forceps to guide dissection and as a backstop for CO₂ laser. Note the cut into fibrotic endometriosis on upper margin.

Full thickness excision histological specimen from peritoneum to vagina. Note adequate rectal margins but cut into specimen on cervical margin.

Samm K (ed). Operationslehre für endoskopische Abdominal-Chirurgie. F.K. Schattauer Verlag, Stuttgart. 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.


Takeuchi agreed with Vercellini (2000) in concluding that these lesions were above the rectovaginal septum. But he disagreed with Martin (2001) and saw no continuity between the rectovaginal septum and the lesion. Endometriosis in the contracting rectovaginal pouch may tear away from the septum and the tissue behind the upper vagina may be tissue other than elongated septum.

INTRODUCTION

The paper by Anaf, et al(1) in this issue has a title using a global area, the rectovaginal (RV) pouch of Douglas, rather than the specific retrocervical location as the site of endometriosis. Although this is an anatomically correct title, it can suggest both rectal and vaginal involvement with endometriosis. In that paper, the authors clarify that nodules were removed only from the vaginal portion of the RV pouch and not from the rectum itself. The use of the global term can create confusion similar to that noted in 1917 and 1989 articles that described rectovaginal septum (RV septum) involvement where this was not present. The 1917 article has illustrations and the 1989 article an MRI of retrocervical RV pouch endometriosis with minimal or no involvement of the RV septum.(2, 3) The illustrations and MRI also suggest lengthening of the RV septum due to RV pouch contraction. Lengthening of the RV septum has also been associated with pregnancy.(4)

The degree of surgical treatment by Anaf et al(1) is like that described for cul-de-sac endometriosis(8) and retrocervical endometriosis.(9-11) Retrocervical may be a more descriptive term when used to describe RV pouch, retroperitoneal and vaginal fornix endometriosis behind or beneath the cervix with no rectal involvement. Rectovaginal is used when there is involvement of both the vaginal and rectal areas of the pouch and may include involvement of the rectovaginal septum. These distinctions are surgically important as treatment of retrocervical endometriosis is less complex than treatment of rectovaginal endometriosis.(12-16)
Definitions and terminology used to describe anatomic distribution of disease can influence preoperative evaluation, informed consent and intraoperative approach. When confusing definitions and terminology are used, surgeons can draw inappropriate conclusions about the degree of difficulty or the degree of ease of a given operation. As an example, infiltrating retrocervical endometriosis extending from the peritoneum to the vagina can be a relatively easy outpatient procedure when the rectum is not involved. On the other hand, rectovaginal endometriosis, particularly with involvement of the RV septum, requires more complex surgery and is associated with a higher rate of complications.

The main anatomic areas of concern regarding retrocervical and rectovaginal endometriosis are the RV pouch, retroperitoneal connective tissue, the posterior vaginal fornix, the rectum, and the RV septum. Vaginal outlet endometriosis related to vaginal trauma during childbirth is not discussed in this paper. Isolated rectal or sigmoid colon endometriosis have additional concerns which are not covered in this paper. In this paper retrocervical includes the anterior RV pouch, the posterior vaginal fornix and the retroperitoneal area between the anterior RV pouch and the posterior vaginal fornix. Rectovaginal is used to include involvement of the rectum, vagina and RV pouch and may include involvement of the rectovaginal septum. Determining true rectovaginal septum involvement may not be possible in many or most patients.

A second terminology set is the Adamyan classification (described later). A third terminology set could use the terms anterior RV pouch for those areas not involving the rectum, posterior RV pouch for the rectum and rectovaginal RV pouch for involvement of both the rectum and vagina. A consensus poll might be useful in determining a terminology that is acceptable to a majority of gynecologic surgeons.

The depth of the RV pouch extends to the middle one third of the vagina in 93% of women. The RV pouch has an average depth of 5.3 cm in nulliparous women and 5.4 cm in multiparous women. The RV septum is 2.1 cm in nulliparous women and 3.3 cm in multiparous women with otherwise normal anatomy.

The RV pouch can descend 11% to 89% of the length of the vagina. We use the depth of the RV pouch when performing culdocentesis or colpotomy. The RV septum begins at the depth of the RV pouch and extending to the urogenital diaphragm at the top of the perineal body. According to some data, the upper one third to one half of the original length would be involved before the RV septum is reached; however, this is based on measurements with normal anatomy. The shortening of the RV pouch which was noted by others may be related to displacement by bulk endometriosis or to contraction by scarring.

Contraction of the RV pouch is suggested by illustrations and MRI in articles cited above. Figure 1 in the first article is of retrocervical endometriosis with no rectal or septal involvement. Figure 13 in that article and the MRI also suggest lengthening of the RV septum to a retrocervical position due to RV pouch contraction when compared with Kuhn’s data.
The patients of one author (DCM) also appear to have lengthening of the RV septum consistent with contraction of the RV pouch. In two patients with rectovaginal endometriosis with complete RV pouch obliteration, the distances from the vulva to the nodule were 8 cm and 10 cm. In two patients with intact RV pouches, the distances to the base of the RV pouch were 6 and 6.5 cm. The measurements in these four patients are agreement with Kuhn’s data,(4) Cullen’s illustrations(2) and Chen’s MRI(3) and suggest lengthening of the RV septum of 2 to 4 cm due to contraction of the RV pouch with rectovaginal endometriosis. However, this adds a problem since Kuhn’s data does not determine the level of the junction of the RV pouch and the upper RV septum if the RV septum is lengthened due to contraction. A different and possible new approach is needed to determine the level of the junction.

One group suggested that rectovaginal endometriosis is associated with RV pouch obliteration.(6) Isolated endometriosis within the RV septum was not found in his study or in my practice. The retrocervical area has been involved in all patients with RV septum endometriosis who I have examined in this fashion. This is in agreement with articles by Koninckx and Martin(19) and with the Adamyan Classification.(9)

Involvement of the true RV septum appears related to extension from RV pouch endometriosis. The Adamyan classification(9) (Figure 2) is useful in studying this area. The posterior fornix and/or retrocervical areas are always involved in this classification. This agrees with my experience. Stage I and II can involve the retrocervical area and vaginal fornix, whereas stages III and IV involve varying degrees of the anterior rectal wall.

This paper’s discussion limits the term “retrocervical” to Stages I and II of the Adamyan classification. The term “rectovaginal” is used for Adamyan Stages III and IV. This distinction can be surgically important. As long as the RV pouch is intact and the involvement is limited to the retrocervix area or vaginal fornix, then outpatient surgery using either a vaginal or laparoscopic approach is reasonable in many patients.(8, 10, 11) These distinctions are not made in the AFS Classification system unless one knows more than can be seen at standard laparoscopy. When the RV pouch is completely obliterated, the peritoneum can appear to be normal with no evidence of peritoneal involvement. This is stage 4 in the Adamyan classification,(9) but Stage 0, Score 0 in the 1979 AFS classification(20) if peritoneal involvement is not noted. On the other hand, the revised AFS classification(21) has a stage for complete RV pouch obliteration and would score this as Stage 4, Score 40. A combination of a rectal probe for rectal identification and a vaginal probe for vaginal fornix identification is needed to make this distinction. If there is only involvement of the retrocervical and vaginal component of the RV pouch, the vaginal probe may be seen through the soft component of uninvolved vagina.

OCCURRENCE
Superficial endometriosis is very common and may occur in up to 100% of women at sometime in their life. On the other hand, deep endometriosis and rectovaginal endometriosis are uncommon but more likely to be progressive. Deep endometriosis is expected to occur in from 1 in 170 to 1 in 3,800 women. Deep endometriosis can involve any area in the pelvis and not only those in the rectovaginal area. Rectovaginal endometriosis is only a small percentage of those women who have deep endometriosis. In an unpublished, retrospective analysis of my patients with deep endometriosis, one in six had rectovaginal involvement. Thus, the projected occurrence of rectovaginal endometriosis is 1 in 1,000 to 1 in 23,000 women.

TREATMENT

Retrocervical and retroperitoneal endometriosis near the vaginal fornix are distinguished from rectovaginal endometriosis. Retrocervical and retroperitoneal endometriosis near the vaginal fornix can be resected through a colpotomy. This colpotomy can be done either vaginally or laparoscopically. The vaginal approach requires laparoscopic confirmation of the integrity of the RV pouch. Laparoscopy does not necessarily need to be repeated at the time of colpotomy if it was previously performed. Recognition of retrocervical, posterior vaginal and rectovaginal endometriosis at laparoscopy requires the use of intraoperative rectovaginal exam, vaginal probe and rectal probe. Retrocervical and posterior vaginal fornix endometriosis with an intact RV pouch are approached with an initial incision is made through the healthy part of the vagina between the endometriosis and the beginning of the RV septum. After opening the space, the retrocervical or vaginal endometriosis is resected intact. The incision is sutured laparoscopically or vaginally. Palpation of the infiltrating nodule may be the most reliable method of recognition. These nodules can be retroperitoneal and noted only on palpation.

A combined laparoscopic and vaginal approach to true rectovaginal endometriosis has been useful at a limited number of centers where there is an emphasis on extensive laparoscopic and vaginal surgery. Limiting this extensive surgery to select centers is reasonable as most gynecologists will see only a few cases of deep rectal endometriosis in their careers. True rectovaginal endometriosis requires deeper surgery and may have significant complications as covered in the section on complications. Although some surgeons have used total abdominal hysterectomy with bilateral salpingo-ophorectomy (TAH-BSO) to avoid bowel surgery for rectovaginal or bowel endometriosis, this does not cure all patients. Since the majority of bowel endometriotic lesions can be resected with little more morbidity than a hysterectomy, it would appear more reasonable to do bowel resection at the time of hysterectomy in many patients. This is a
controversial issue and many authors avoid bowel surgery at the time of the hysterectomy.(12) Informed consent is needed to determine a patient’s goal.

Of note, rectovaginal endometriosis that is left after TAH-BSO can be symptomatic even without estrogen replacement.(12) Only 9% of O’Connor’s patients and 19% of Redwine’s patients with deep endometriosis after hysterectomy were on estrogen replacement before referral.(28, 29) Although partial resection can give pain relief, all (100%) of my patients who had partial resection at laparoscopy had subsequent laparotomy for persistent bowel endometriosis.(30) Neither partial resection(26, 30) nor hysterectomy(28) is a cure for endometriosis in all patients. Due to the slow growth of endometriosis these lesions may take four to twenty years to become symptomatic. (31-34) Follow-up studies for this possibility need to be over several years.

COMPLICATIONS

Incomplete resection can be a complication(26, 35) or this can be planned.(12) I have reported persistent disease that required laparotomy in five patients after superficial laparoscopic resection of deep bowel endometriosis. Two patients underwent immediate laparotomy and three patients underwent delayed laparotomy.(26, 30) Although perforation can occur with deep or with superficial endometriosis, there is an increased risk of bowel damage with distorted anatomy. The bowel can be displaced to one side by contraction of the involved area. Desiccation of healthy tissue with electrosurgery, laser or thermal instruments can cause bowel damage.(36) Deep endometriosis requires more extensive surgery and has increased complications. In 222 patients with deep endometriosis, bowel was resected in 6.3% and the posterior fornix in 13.6%. Complications included 7 (3.1%) bowel perforations with peritonitis, 4 (1.8%) uterine artery bleeds and 4 (1.8%) postoperative fevers. Preoperative suppression with GnRH analogs decreased the size of large lesions and decreased the rate of complications.(35)

Two of one author’s (DCM) patients had delayed rectovaginal fistulas. These occurred 14 days postoperatively. Each of these happened in patients where a rectosigmoid resection with anastomosis was performed at 3 to 4 cm from the anus and hymeneal ring. In each of these patients, the RV pouch was obliterated and two thirds or more of the RV septum had been infiltrated. Endometriosis could be seen in the vagina without a speculum. Both of my patients had spontaneous closure after diverting colostomy. In Possover’s study,(16) 2 of 33 patients with anastomosis at 3 to 7 cm from the linea dentata had dehiscence of anastomosis site which healed spontaneously with no colostomy.

SUGGESTIONS

The following are clinical approaches that appear to have been helpful before and during surgery in my practice.
The first knuckle of my first finger is 2.5 cm from the tip of my finger. The second knuckle is at 5.5 cm and the third at 10.5. On my middle finger, these are at 2.5 cm, 6.0 cm and 11 cm. These are used to determine the distance from the vulva and anus to the lead tip of the infiltrating nodularity.

Colonoscopy and gastroenterology consult are used to evaluate the possibility of diverticular abscess, colon cancer or other bowel mass. Air-contrast barium enema, rectal sonogram, and MRI are considered.

Preoperative suppression with GnRH analogs is considered for large lesions.

Bowel prep is used when bowel resection is anticipated.

Palpation of the rectum, sigmoid, ileum, cecum, appendix and mesoappendix can reveal fibrotic endometriotic nodules that are difficult to see.

The RV pouch is examined to assure that the contour and depth are normal.

If there is unilateral, partial obliteration of the RV pouch, the rectosigmoid colon is examined for displacement and involvement on that side. (not in paper).

A vaginal probe is placed to determine if there is healthy vagina between the limits of a retrocervical lesion and the rectum.

The vaginal probe is placed under direct visualization in order to avoid inadvertent insertion into the rectum.

A rectal probe is placed under direct visualization and is used for better identification of the rectum.

The area of nodules which were palpable preoperatively is palpated after resection to assure that these have been completely removed.

Prolonged electrosurgical, laser and thermal desiccation is avoided.

CONCLUSIONS

Clear and generally accepted terminology for study and treatment of endometriosis can improve patient care. Retrocervical endometriosis is a term used to describe endometriosis of the RV pouch, retroperitoneal tissue and posterior vaginal fornix with no rectal involvement. Rectovaginal endometriosis is used for RV pouch involvement of both the vaginal and rectum and may include the rectovaginal septum. Alternate terminology sets could be based on the Adamyan Classification or on the area of the RV pouch that is involved.

Based on normal anatomy data, the RV septum is expected to be involved when there is infiltration to the middle one-third of the vagina. However, since contraction of the RV pouch may be a major component of rectovaginal endometriosis, the RV septum may be lengthened and at a higher site behind the vagina. Thus the RV septum might be involved at higher levels behind the vagina than suggested by data on normal anatomy.
Retrocervical endometriosis is more common than rectovaginal endometriosis. Nodules in the posterior vaginal fornix are retrocervical but may have rectovaginal involvement. These nodules can be retroperitoneal and not seen at laparoscopy. Involvement of the RV septum is rare. Since all of these areas are associated with the RV pouch, terminology is needed that clarifies the specific area involved.

At surgery recognition of retrocervical endometriosis requires rectovaginal examination, a probe in the vaginal fornix and a probe in the rectum. Retrocervical endometriosis is suggested when the posterior fornix can be expanded with the vaginal probe and there is no evidence of rectal involvement.

Recognizing differences between retrocervical, rectovaginal, rectal and sigmoid endometriosis is important in determining the surgical approach. Gynecologists with an interest in vaginal and laparoscopic surgery are capable of resecting retrocervical and posterior vaginal fornix endometriosis using a vaginal or laparoscopic colpotomy approach. More extensive endometriosis with rectal involvement will be performed laparoscopically in very few centers.

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REFERENCES


FIGURES

Figure 1. The rectovaginal septum extends from the base of the rectovaginal pouch of Douglas to the urogenital diaphragm at the top of the perineal body.

Figure 2. In the Adamyan classification (9) stage I retrocervical endometriosis is localized in the rectovaginal pouch behind the cervix at and in the top of the connective tissue between the rectovaginal pouch and the posterior vaginal fornix. Stage II has extension to the vagina and cervical stroma. Stage III involves the rectal serosa. Stage IV has complete rectovaginal pouch obliteration and rectal wall invasion.