

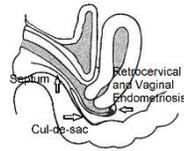
Martin, Dan C., Batt, Ronald E. Retrocervical, rectovaginal pouch, and rectovaginal septum endometriosis. *J Am Assoc Gynecol Laparosc* 2001, 8(1):12–17

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## Notes updated 10/25/18

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 is behind the lower one-third of the vagina between the perineal body and the base of the RV pouch. In the Adamyán 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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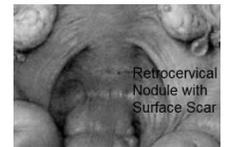
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anatomically incorrect term, endometriosis of the rectovaginal septum. This would classify the anatomic location of the adenomyomas illustrated in the publications of Cullen (1917, 1919; 1920) and the anatomic location of DIE described by Vercellini et al.(2000) and Chapron et al. (2002) as retrocervical.

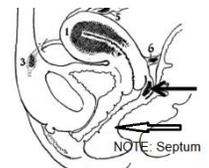
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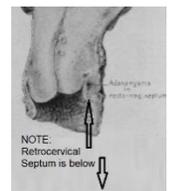
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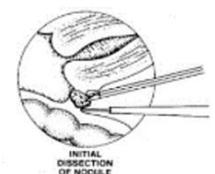
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Kuhn RJP, Hollyock VE. Observations on the anatomy of the rectovaginal pouch and septum. *Obstet Gynecol* 1982; 59:445-447. The pouch of Douglas (posterior cul-de-sac) extends to the middle third of the vagina in 93% of women.

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Semm's technique of using laparoscopy to observe vaginal excision of retrocervical endometriosis (1984,1987). Martin's technique changed from laparoscopic dissection to complete resectioCn with laparoscopic colpotomy. However, the repair was vaginal in this group with laparoscopic suturing subsequently used.

[www.danmartinmd.com/files/1988\\_colpotomy.pdf](http://www.danmartinmd.com/files/1988_colpotomy.pdf)

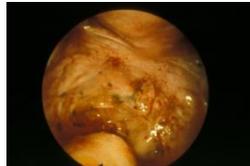
Martin DC. Laparoscopic Appearance of Endometriosis ©1988, ©1989, ©2018

[www.danmartinmd.com/files/lae1988r18.2.pdf](http://www.danmartinmd.com/files/lae1988r18.2.pdf)

Martin DC. et al. Laparoscopic Appearance of Endometriosis, Color Atlas ©1990, ©1991, ©2007, ©2017

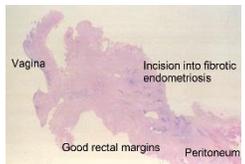
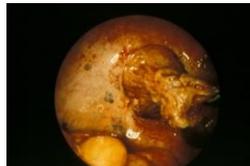
<http://www.danmartinmd.com/files/coloratlas1990.pdf>

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 back stop for CO<sub>2</sub> 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.

Semm 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.

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1 Retrocervical, Rectovaginal Pouch and Rectovaginal Septum Endometriosis

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15  
16 INTRODUCTION

17 The paper by Anaf, et al(1) in this issue has a title using a global area, the rectovaginal (RV) pouch of Douglas,  
18 rather than the specific retrocervical location as the site of endometriosis. Although this is an anatomically  
19 correct title, it can suggest both rectal and vaginal involvement with endometriosis. In that paper, the authors  
20 clarify that nodules were removed only from the vaginal portion of the RV pouch and not from the rectum itself.

21 The use of the global term can create confusion similar to that noted in 1917 and 1989 articles that described  
22 rectovaginal septum (RV septum) involvement where this was not present. The 1917 article has illustrations  
23 and the 1989 article an MRI of retrocervical RV pouch endometriosis with minimal or no involvement of the  
24 RV septum.(2, 3) The illustrations and MRI also suggest lengthening of the RV septum due to RV pouch  
25 contraction. Lengthening of the RV septum has also been associated with pregnancy.(4)

26 The degree of surgical treatment by Anaf et al(1) is like that described for cul-de-sac endometriosis(8) and  
27 retrocervical endometriosis.(9-11) Retrocervical may be a more descriptive term when used to describe RV  
28 pouch, retroperitoneal and vaginal fornix endometriosis behind or beneath the cervix with no rectal  
29 involvement. Rectovaginal is used when there is involvement of both the vaginal and rectal areas of the pouch  
30 and may include involvement of the rectovaginal septum. These distinctions are surgically important as  
31 treatment of retrocervical endometriosis is less complex than treatment of rectovaginal endometriosis.(12-16)

## 33 DEFINITION

34 Definitions and terminology used to describe anatomic distribution of disease can influence preoperative  
35 evaluation, informed consent and intraoperative approach. When confusing definitions and terminology are  
36 used, surgeons can draw inappropriate conclusions about the degree of difficulty or the degree of ease of a  
37 given operation. As an example, infiltrating retrocervical endometriosis extending from the peritoneum to the  
38 vagina can be a relatively easy outpatient procedure when the rectum is not involved.<sup>8</sup> On the other hand,  
39 rectovaginal endometriosis, particularly with involvement of the RV septum, requires more complex surgery  
40 and is associated with a higher rate of complications.(12-16)

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

49 A second terminology set is the Adamyan classification(9) (described later). A third terminology set could use  
50 the terms anterior RV pouch for those areas not involving the rectum, posterior RV pouch for the rectum and  
51 rectovaginal RV pouch for involvement of both the rectum and vagina. A consensus poll might be useful in  
52 determining a terminology that is acceptable to a majority of gynecologic surgeons.

53 The depth of the RV pouch extends to the middle one third of the vagina in 93% of women.(4, 17) The RV  
54 pouch has an average depth of 5.3 cm in nulliparous women and 5.4 cm in multiparous women. The RV  
55 septum is 2.1 cm in nulliparous women and 3.3 cm in multiparous women with otherwise normal anatomy.(4)  
56 The RV pouch can descend 11% to 89% of the length of the vagina.(18) We use the depth of the RV pouch  
57 when performing culdocentesis or colpotomy. The RV septum begins at the depth of the RV pouch and  
58 extending to the urogenital diaphragm at the top of the perineal body. (Figure 1) According to some data, the  
59 upper one third to one half of the original length would be involved before the RV septum is reached; however,  
60 this is based on measurements with normal anatomy. The shortening of the RV pouch which was noted by  
61 others,(6) may be related to displacement by bulk endometriosis or to contraction by scarring.

62 Contraction of the RV pouch is suggested by illustrations and MRI in articles cited above.(2,3) Figure 1 in  
63 the first article is of retrocervical endometriosis with no rectal or septal involvement. Figure 13 in that  
64 article and the MRI also suggest lengthening of the RV septum to a retrocervical position due to RV pouch  
65 contraction when compared with Kuhn's data.(2-4,18)

66 The patients of one author (DCM) also appear to have lengthening of the RV septum consistent with  
67 contraction of the RV pouch. In two patients with rectovaginal endometriosis with complete RV pouch  
68 obliteration, the distances from the vulva to the nodule were 8 cm and 10 cm. In two patients with intact  
69 RV pouches, the distances to the base of the RV pouch were 6 and 6.5 cm. The measurements in these four  
70 patients are agreement with Kuhn's data,(4) Cullen's illustrations(2) and Chen's MRI(3) and suggest  
71 lengthening of the RV septum of 2 to 4 cm due to contraction of the RV pouch with rectovaginal  
72 endometriosis. However, this adds a problem since Kuhn's data does not determine the level of the  
73 junction of the RV pouch and the upper RV septum if the RV septum is lengthened due to contraction. A  
74 different and possible new approach is needed to determine the level of the junction.

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

79 Involvement of the true RV septum appears related to extension from RV pouch endometriosis.

80 The Adamyan classification(9) (Figure 2) is useful in studying this area. The posterior fornix and/or  
81 retrocervical areas are always involved in this classification, This agrees with my experience. Stage I and II  
82 can involve the retrocervical area and vaginal fornix, whereas stages III and IV involve varying degrees of the  
83 anterior rectal wall.

84 This paper's discussion limits the term "retrocervical" to Stages I and II of the Adamyan classification. The  
85 term "rectovaginal" is used for Adamyan Stages III and IV. This distinction can be surgically important. As  
86 long as the RV pouch is intact and the involvement is limited to the retrocervix area or vaginal fornix, then  
87 outpatient surgery using either a vaginal or laparoscopic approach is reasonable in many patients.(8, 10, 11)  
88 These distinctions are not made in the AFS Classification system unless one knows more than can be seen at  
89 standard laparoscopy. When the RV pouch is completely obliterated, the peritoneum can appear to be normal  
90 with no evidence of peritoneal involvement. This is stage 4 in the Adamyan classification,(9) but Stage 0, Score  
91 0 in the 1979 AFS classification(20) if peritoneal involvement is not noted. On the other hand, the revised AFS  
92 classification(21) has a stage for complete RV pouch obliteration and would score this as Stage 4, Score 40. A  
93 combination of a rectal probe for rectal identification and a vaginal probe for vaginal fornix identification is  
94 needed to make this distinction. If there is only involvement of the retrocervical and vaginal component of the  
95 RV pouch, the vaginal probe may be seen through the soft component of uninvolved vagina.

96  
97 OCCURRENCE

98 Superficial endometriosis is very common and may occur in up to 100% of women at sometime in their life.(22)  
99 For many women, superficial endometriosis may be a self-limited disease.(23-25) On the other hand, deep  
100 endometriosis and rectovaginal endometriosis are uncommon but more likely to be progressive.  
101 Deep endometriosis is expected to occur in from 1 in 170 in 1 in 3,800 women.(19, 25, 26) Deep endometriosis  
102 can involve any area in the pelvis and not only those in the rectovaginal area. Rectovaginal endometriosis is  
103 only a small percentage of those women who have deep endometriosis. In an unpublished, retrospective  
104 analysis of my patients with deep endometriosis, one in six had rectovaginal involvement. Thus, the projected  
105 occurrence of rectovaginal endometriosis is 1 in 1,000 to 1 in 23,000 women.  
106

## 107 TREATMENT

108 Retrocervical and retroperitoneal endometriosis near the vaginal fornix(8-11) are distinguished from  
109 rectovaginal endometriosis.(6, 9, 16, 19) Retrocervical and retroperitoneal endometriosis near the vaginal  
110 fornix can be resected through a colpotomy. This colpotomy can be done either vaginally(3, 11, 12) or  
111 laparoscopically.(8) The vaginal approach requires laparoscopic confirmation of the integrity of the RV  
112 pouch. Laparoscopy does not necessarily need to be repeated at the time of colpotomy if it was previously  
113 performed. Recognition of retrocervical, posterior vaginal and rectovaginal endometriosis at laparoscopy  
114 requires the use of intraoperative rectovaginal exam, vaginal probe and rectal probe.(8, 16)  
115 Retrocervical and posterior vaginal fornix endometriosis with an intact RV pouch are approached with an  
116 initial incision is made through the healthy part of the vagina between the endometriosis and the  
117 beginning of the RV septum. After opening the space, the retrocervical or vaginal endometriosis is resected  
118 intact. The incision is sutured laparoscopically or vaginally. Palpation of the infiltrating nodule may be the  
119 most reliable method of recognition.(16) These nodules can be retroperitoneal and noted only on  
120 palpation.(7, 27)

121 A combined laparoscopic and vaginal approach to true rectovaginal endometriosis(13-16) has been useful at a  
122 limited number of centers where there is an emphasis on extensive laparoscopic and vaginal surgery. Limiting  
123 this extensive surgery to select centers is reasonable as most gynecologists will see only a few cases of deep  
124 rectal endometriosis in their careers.(12, 25) True rectovaginal endometriosis requires deeper surgery and may  
125 have significant complications as covered in the section on complications.

126 Although some surgeons have used total abdominal hysterectomy with bilateral salpingo-oophorectomy (TAH-  
127 BSO) to avoid bowel surgery for rectovaginal or bowel endometriosis, this does not cure all patients.(28) Since  
128 the majority of bowel endometriotic lesions can be resected with little more morbidity than a hysterectomy, it  
129 would appear more reasonable to do bowel resection at the time of hysterectomy in many patients. This is a

130 controversial issue and many authors avoid bowel surgery at the time of the hysterectomy.(12) Informed  
131 consent is needed to determine a patient's goal.

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

#### 139 140 COMPLICATIONS

141 Incomplete resection can be a complication(26, 35) or this can be planned.(12) I have reported persistent  
142 disease that required laparotomy in five patients after superficial laparoscopic resection of deep bowel  
143 endometriosis. Two patients underwent immediate laparotomy and three patients underwent delayed  
144 laparotomy.(26, 30)

145 Although perforation can occur with deep or with superficial endometriosis, there is an increased risk of bowel  
146 damage with distorted anatomy. The bowel can be displaced to one side by contraction of the involved area.  
147 Desiccation of healthy tissue with electrosurgery, laser or thermal instruments can cause bowel damage.(36)  
148 Deep endometriosis requires more extensive surgery and has increased complications. In 222 patients with  
149 deep endometriosis, bowel was resected in 6.3% and the posterior fornix in 13.6%. Complications included 7  
150 (3.1%) bowel perforations with peritonitis, 4 (1.8%) uterine artery bleeds and 4 (1.8%) postoperative fevers.  
151 Preoperative suppression with GnRH analogs decreased the size of large lesions and decreased the rate of  
152 complications.(35)

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

#### 160 161 SUGGESTIONS

162  
163 The following are clinical approaches that appear to have been helpful before and during surgery in my practice.

- 164 • 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  
165 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  
166 determine the distance from the vulva and anus to the lead tip of the infiltrating nodularity.
- 167 • Colonoscopy and gastroenterology consult are used to evaluate the possibility of diverticular abscess, colon  
168 cancer or other bowel mass. Air-contrast barium enema, rectal sonogram, and MRI are considered.
- 169 • Preoperative suppression with GnRH analogs is considered for large lesions.
- 170 • Bowel prep is used when bowel resection is anticipated.
- 171 • Palpation of the rectum, sigmoid, ileum, cecum, appendix and mesoappendix can reveal fibrotic  
172 endometriotic nodules that are difficult to see.
- 173 • The RV pouch is examined to assure that the contour and depth are normal.
- 174 • *If there is unilateral, partial obliteration of the RV pouch, the rectosigmoid colon is examined for*  
175 *displacement and involvement on that side. (not in paper).*
- 176 • A vaginal probe is placed to determine if there is healthy vagina between the limits of a retrocervical lesion  
177 and the rectum.
- 178 • The vaginal probe is placed under direct visualization in order to avoid inadvertent insertion into the rectum.
- 179 • A rectal probe is placed under direct visualization and is used for better identification of the rectum.
- 180 • The area of nodules which were palpable preoperatively is palpated after resection to assure that these have  
181 been completely removed.
- 182 • Prolonged electrosurgical, laser and thermal desiccation is avoided.

## 183 184 CONCLUSIONS

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

191 Based on normal anatomy data, the RV septum is expected to be involved when there is infiltration to the  
192 middle one-third of the vagina. However, since contraction of the RV pouch may be a major component of  
193 rectovaginal endometriosis, the RV septum may be lengthened and at a higher site behind the vagina. Thus  
194 the RV septum might be involved at higher levels behind the vagina than suggested by data on normal  
195 anatomy.

196 Retrocervical endometriosis is more common than rectovaginal endometriosis. Nodules in the posterior  
197 vaginal fornix are retrocervical but may have rectovaginal involvement. These nodules can be  
198 retroperitoneal and not seen at laparoscopy. Involvement of the RV septum is rare. Since all of these areas  
199 are associated with the RV pouch, terminology is needed that clarifies the specific area involved.

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

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

## 208 209 ACKNOWLEDGMENTS

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211 manuscript.

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## 284

## 285 FIGURES

## 286

287 Figure 1. The rectovaginal septum extends from the base of the rectovaginal pouch of Douglas to the urogenital

288 diaphragm at the top of the perineal body.

289

290 Figure 2. In the Adamyán classification (9) stage I retrocervical endometriosis is localized in the rectovaginal

291 pouch behind the cervix at and in the top of the connective tissue between the rectovaginal pouch and the

292 posterior vaginal fornix. Stage II has extension to the vagina and cervical stroma. Stage III involves the rectal

293 serosa. Stage IV has complete rectovaginal pouch obliteration and rectal wall invasion.