

# Total laparoscopic hysterectomy with obliterated anterior cul-de-sac

## Totale laparoskopische Hysterektomie bei obliteriertem vorderen Douglassack

### Abstract

Endometriosis may in severe cases lead to obliteration of the anterior and/or posterior cul-de-sacs in the female pelvis. The anterior cul-de-sac is generally less commonly affected. This type of cases usually presents a challenge for the operating surgeon, whether via open route or through laparoscopy. In this paper, we present an illustrative case and explain our technique for dealing with a scarred and totally obliterated anterior cul-de-sac because of endometriosis during total laparoscopic hysterectomy.

**Keywords:** endometriosis, anterior cul-de-sac, adhesions, scarring

### Zusammenfassung

Endometriose kann bei schwerem Verlauf den vorderen und hinteren Douglassack im weiblichen Becken verschließen. Der vordere Douglassack (Excavatio vesicouterina) ist im Allgemeinen weniger betroffen. Diese Art des Verlaufs ist in der Regel eine Herausforderung für den gynäkologischen Operateur, sei es über direkten Zugang oder durch Laparoskopie. Diese Publikation beschreibt einen typischen Fall von vernarbtem und obliteriertem vorderen Douglassack auf der Basis einer Endometriose und erklärt die Operationstechnik unter Einsatz einer totalen laparoskopischen Hysterektomie.

**Schlüsselwörter:** Endometriose, vorderer Douglassack, Adhäsionen, Vernarbung

### Introduction

Endometriosis affects approximately 1 in 10 women during their reproductive years with an average diagnostic delay of 9 years [1] and an estimated cost to the American healthcare system of approximately \$ 22 billion a year [2]. Endometriosis is the most common indication for operative laparoscopy and is frequently encountered as a secondary finding during laparoscopy [3], [4]. The ovaries, the posterior leaf of the broad ligament, and the posterior cul-de-sac are the most common locations of endometriosis [5]. Less commonly, the anterior cul-de-sac (the area between the bladder and the anterior uterus) is involved [6].

Severe endometriosis usually constitutes a complex treatment challenge. Surgical intervention to release a scarred obliterated anterior cul-de-sac is associated with a significant risk of intraoperative bladder injury [7], [8], [9]. Other reasons for vesicouterine adhesions may be previous cesarean deliveries or anterior uterine wall myomectomy [8], [9], [10], [11].

### Case description

A 42 year-old, gravida 1, para 1, 110 lb, patient has been complaining of a right-sided pelvic pain for one month. On ultrasound she was found to have a septated right ovarian cyst and fluid in the posterior cul-de-sac. CT confirmed these findings with no adenopathy. CA-125 was minimally elevated (28 u/ml). The patient was counseled about her options and decided with the surgeon to proceed with total laparoscopic hysterectomy and salpingo-oophorectomy with possible conversion to laparotomy if indicated by findings.

Upon entry, the patient was found to have an obliterated anterior cul-de-sac with the uterus adherent to the bladder reflection (Figure 1), fibrotic parametrium bilaterally from endometriosis, right endometrioma stuck to the back of the uterus and pelvic sidewall, left ovary stuck to the pelvic sidewall and ureter, and adhesions of the sigmoid colon to the left pelvic sidewall.

M. Sami Walid<sup>1</sup>

Richard L. Heaton<sup>2</sup>

1 Medical Center of Central Georgia, Macon, GA, USA

2 Heart of Georgia Women's Center, Warner Robins, GA, USA

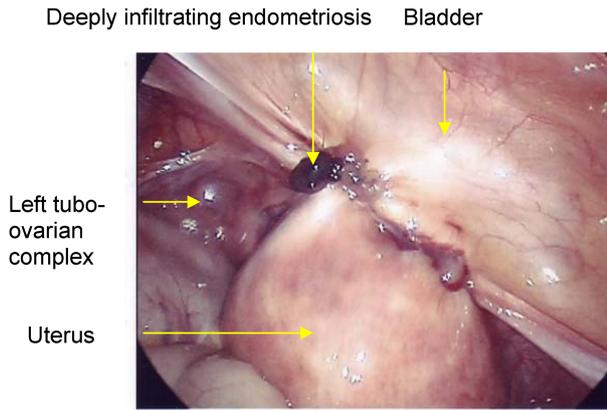


Figure 1: Obliterated anterior cul-de-sac

## The surgical technique

The procedure was begun by lysing the adhesions of the sigmoid to the pelvic sidewall freeing it so that the ureter can be seen on the left. The left ureter was then dissected out past the ovary to the uterine artery. The infundibulopelvic (IP) ligament could then be visualized separately. The IP ligament was coagulated and transected with the harmonic scalpel. The round ligament was coagulated and transected in the same way. The parametrium was extremely fibrotic and dissection resulted in bleeding. Therefore, further dissection was done with the ureter freeing it into the cardinal ligament and locating the uterine artery lateral to the ureter where it was clipped with surgiclips and transected. This controlled the parametrial bleeding with the ureter exposed down near the bladder. Dissection was then continued on the left side anteriorly with the harmonic scalpel freeing the fibrotic parametrium and left ovary to be taken with the uterus and cervix and taking the vessels and cardinal ligament. This allowed entry to the space behind the scarred endometriosis of the bladder to the uterine fundus and dissection was performed using the harmonic scalpel. This stripped the bladder away from the uterus without injury to the bladder using the harmonic ace with the active blade toward the uterus. There was also fibrotic endometriosis attached to the bladder dome. This was excised using the harmonic scalpel and sharp scissors. The lesion was not transmural and did not require repair. Dissection was then taken to the other side. The ureter was exposed at the pelvic brim and dissected down past the ovary's attachment to it using harmonic and sharp dissection to the point where the IP ligament could be taken as a pedicle. The anterior broad ligament peritoneum, the posterior broad ligament peritoneum and the round ligament were taken down with the dissection line designed to remove the fibrotic endometriosis areas with the uterus and attached ovaries. Again, dissection of the extremely fibrotic parametrium resulted in bleeding. Therefore, we followed the ureter to the cardinal ligament and identified the uterine artery lateral to the ureter and it was surgiclipped. Dissection continued with the ureter exposed allowing the parametrium to be taken down with the

harmonic scalpel. The operation continued then as planned without complications or breaks in the technique (Figure 2). Reperitonealization was not possible due to large defects. The operation lasted 147 minutes with an estimated blood loss of 100 cc. The uterus and the cervix weighed 87 grams. Pathologic examination confirmed endometriosis and did not reveal any malignancy.

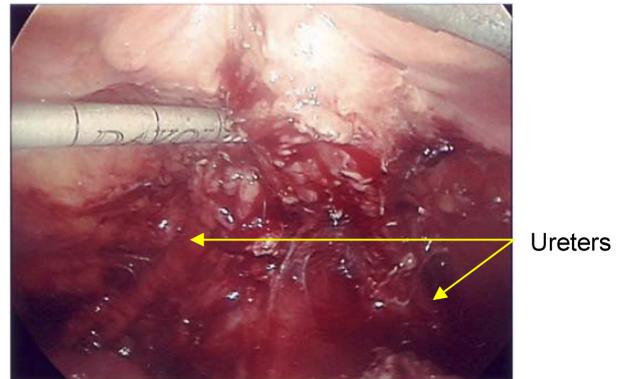


Figure 2: Uterus removed

## Commentary

Our technique is to use traction-countertraction and fully excise either sharply or with harmonic ace dissection all diffusely involved peritoneal surfaces, all deep endometriotic implants wherever they may be, and treatment of endometrioma by either excision or oophorectomy. If the appendix is involved, it is removed laparoscopically. If the bladder is involved, partial cystectomy may be required [6]. If deep infiltrating bowel endometriosis exists and results in minor entry, interrupted silk closure is done with intracorporeal knot tying. If more extensive bowel resection is needed, general surgery is consulted. We bowel-prepare all our operative laparoscopy patients. If a patient gets a bowel preparation before abdominal X-ray studies it makes sense then to bowel-prepare patients before putting energy sources and sharp instruments into their abdomen.

We recommend the technique above that we used many times to deal with scarred vesicouterine reflection. A peritoneal incision is made from round ligament to round ligament using the harmonic ace energy source. Then lateral dissection is done with identification of the uterine vessels (if needed they can be taken at this point); the active blade of the instrument is then inserted laterally under the most lateral scar bands pointing cephalad and rotated in toward the uterus at about a 45 degree angle (which is going to be removed so damage to it is irrelevant and superficial anyway if it were to be left). The active blade is then pulled quickly cephalad cutting quickly through very small increments of the scar band to prevent thermal injury to the bladder. This maneuver is repeated until the scarring is released. This technique allows very rapid reopening of the densely scarred anterior cul-de-sac from any reason. From our experience, bladder entry with this technique is extremely uncommon and when it does

occur has uniformly been well above the trigone and easily repaired laparoscopically.

## Notes

## Conflicts of interest

None declared.

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### Corresponding author:

M. Sami Walid, MD, PhD

Medical Center of Central Georgia, 840 Pine Street, Suite 880 Macon, GA 31201, USA, Tel.: (478) 743-7092 ex 266

[mwalid@yahoo.com](mailto:mwalid@yahoo.com)

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