

Management of Ectopic Pregnancy Through a Posterior Colpotomy: Two Cases

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Abstract

Background: Prior to the availability of modern laparoscopic surgical techniques and equipment, ectopic pregnancy was managed predominately by laparotomy. An alternative surgical approach, by posterior colpotomy, was advocated as a diagnostic and a therapeutic approach that often avoided laparotomy.

Cases: We report two recent cases in which ectopic pregnancies were managed by posterior colpotomy to avoid any scars on the abdomen. One case involved a salpingectomy and the other a salpingostomy.

Conclusion: Posterior colpotomy is a safe, cost-effective, and time efficient method of managing ectopic pregnancy.

Résumé

Contexte : Avant la venue des techniques et du matériel modernes en ce qui concerne la chirurgie laparoscopique, la grossesse ectopique était principalement prise en charge au moyen de la laparotomie. Une autre approche chirurgicale, soit la colpotomie postérieure, a été préconisée à titre d'approche diagnostique et thérapeutique permettant souvent d'éviter la laparotomie.

Cas : Nous signalons deux cas récents dans le cadre desquels des grossesses ectopiques ont été prises en charge au moyen d'une colpotomie postérieure afin d'éviter la scarification de l'abdomen. Un de ces cas mettait en jeu une salpingectomie et l'autre, une salpingostomie.

Conclusion : La colpotomie postérieure est une méthode sûre, rentable et moins chronophage pour ce qui est de la prise en charge de la grossesse ectopique.

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INTRODUCTION

Prior to the advent of modern laparoscopic equipment and surgical techniques, ectopic pregnancy was traditionally managed by a laparotomy approach. Although laparotomy was practised by most surgeons, an alternative approach using vaginal colpotomy had been reported.^{1–3} Arguments offered in favor of colpotomy included the fol-

lowing: (1) colpotomy can be used as a diagnostic tool, avoiding unnecessary laparotomy; (2) colpotomy allows the surgeon to easily access and visualize the pelvic adnexa; (3) definitive treatment of an ectopic pregnancy is possible in a significant number of cases; (4) operating time is generally shorter than with laparotomy; and (5) morbidity rates are acceptably low.

With the advent of more advanced laparoscopic surgery, management of ectopic pregnancies exclusively by laparoscopy has been advocated and widely adopted, with the result that colpotomy has gone out of fashion.⁴ Despite the minimally invasive nature of laparoscopic surgery, a number of small abdominal incisions are still required and operating time is similar to laparotomy.⁵ It could be argued that management of ectopic pregnancy by colpotomy represents the least invasive of all surgical management options. Colpotomy shares the advantage of laparoscopy in avoiding laparotomy, and it has the additional advantages of shorter operating time and a better cosmetic result for the patient.

THE CASES

Case 1

This 38-year-old multigravid woman presented with a five-week history of vaginal bleeding associated with recent onset of abdominal pain. Her initial serum β -hCG level was 28 163 IU/L. Pelvic ultrasound showed a gestational sac in the right adnexa with a fetal pole present. The gynaecologist on call recommended a laparoscopic approach, but the patient was very reluctant to have any incisions made in her abdomen. She was initially told that there was no other alternative, and that laparoscopy represented the least invasive of options. The option of colpotomy was then raised, and the patient agreed to undergo the procedure.

Under general anaesthesia, the patient was prepped and draped in the dorsal lithotomy position. The patient was given an intravenous dose of 1gm cefazolin. The operating table was elevated so that the surgeons could operate in a standing position. A weighted speculum was placed on the

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posterior vaginal wall and a tenaculum was used to grasp the posterior lip of the cervix. With the cervix directed cephalad, the posterior fornix was easily visualized. Two hemostats were used to tent the vaginal epithelium over the pouch of Douglas. A vertical incision was made between the hemostats, entering the pouch of Douglas uneventfully; 100 mL of blood drained through the incision. The incision was then extended laterally on both sides. A Heaney retractor was placed anteriorly, and an abdominal pack was inserted to push the bowel cephalad. A Babcock forcep was used to grasp the right ovarian ligament, pulling the right uterine cornu into view. This exposed the right fallopian tube, revealing an ectopic pregnancy that involved almost the entire tube. A curved hysterectomy clamp was placed across the proximal end of the tube, which was then cut, sutured, and ligated. The mesosalpinx was cut and suture-ligated sequentially to remove the ectopic pregnancy. The fallopian tube was sent for pathologic examination, and the ovary on the right side was noted to be normal. The patient had requested that a tubal ligation be performed on the left side, so distal salpingectomy was performed. The vaginal cuff and peritoneum were then closed together using interrupted absorbable suture.

There were no postoperative complications, and the patient was discharged on the following day. The pathology report confirmed an ectopic pregnancy.

The patient was seen again at six weeks after surgery. The colpotomy incision was healed without incident. The patient had resumed intercourse and had no subsequent problems related to the surgery.

Case 2

This 22-year-old multigravid woman presented with abdominal pain and cramping. By menstrual dates she was approximately five weeks pregnant and had had vaginal bleeding for seven days. Serum β -hCG levels done on consecutive days were 735 IU/L and 505 IU/L. Pelvic ultrasound showed an empty uterus, a small amount of free fluid in the pelvis, and an echogenic oval focus measuring 2 cm \times 0.5 cm in the right adnexa. The patient was presented with the option of undergoing either laparoscopic surgery or colpotomy to remove the ectopic pregnancy. She opted for colpotomy. Medical management was not offered because of concerns about the patient's ability to comply with the protocol.

The patient was prepped and draped under general anaesthesia, as in the first case. A ring forcep was used to grasp the right ovarian ligament to expose the uterus and tube. A 2 cm \times 1 cm ectopic pregnancy was visualized in the ampulla of the right fallopian tube. The right ovary and left fallopian tube were normal. A solution of 10 units of

vasopressin in 30 mL of normal saline was injected into the mesosalpinx and the tube itself. Needle point electrocautery was used to incise the tube, and the ectopic pregnancy was removed. The colpotomy incision was closed with interrupted absorbable sutures.

The patient had an uneventful recovery and was discharged on the day after surgery. Histological assessment confirmed ectopic pregnancy.

DISCUSSION

The incidence of ectopic pregnancy has increased significantly in the last few decades from a rate of 4.5/1000 pregnancies in 1970 to an estimated rate of 19.7/1000 pregnancies in 1992.^{6,7} Ectopic pregnancy remains an important diagnostic and therapeutic challenge. Prior to the availability of modern laparoscopic techniques and equipment, ectopic pregnancy was managed almost exclusively by laparotomy.^{1,2} In the last decade, less invasive surgical options and medical management of ectopic pregnancy have expanded the range of treatment options available to women.⁴ Despite these options, up to 90% of women with ectopic pregnancy and serum β -hCG levels over 2000 IU/L will require operative intervention.⁸ Laparoscopic treatment of ectopic pregnancy has been shown in randomized trials to be associated with lower costs, shorter hospital stay, shorter operating time, reduced blood loss, reduced requirements for analgesia, and faster recovery.⁵ Despite these advantages, laparoscopic surgery nevertheless involves abdominal incisions, and duration of anaesthesia that is similar to laparotomy.

Management of ectopic pregnancy by colpotomy was practised at a time when the most common management option for ectopic pregnancy was laparotomy. Before the era of diagnostic ultrasound and serum β -hCG assays, erroneous diagnoses of ectopic pregnancy and subsequent unnecessary laparotomy were much more common. The authors who advocated colpotomy in the era of laparotomy argued that it had a number of advantages over laparotomy.¹⁻³ Colpotomy could be used as a minimally invasive diagnostic tool that allowed good access to and visualization of the adnexa to confirm the diagnosis of ectopic pregnancy. This approach also offered the opportunity for definitive treatment of the ectopic pregnancy.

Bradbury described the management of 75 patients with a suspected tubal pregnancy.¹ In 17 cases the diagnosis of ectopic pregnancy was ruled out by dilatation and curettage. Of the remaining 58 cases, 42 underwent laparotomy and 16 had a colpotomy. In all 16 cases managed by colpotomy it was possible to remove the involved tube without resorting to laparotomy. There were no intraoperative or postoperative complications, and the average hospital stay was

three days for the colpotomy group and six days for the laparotomy group.

Cherney et al. described 54 patients with ectopic pregnancy managed by colpotomy.² The age range of this group was 16 to 44 years. Seven patients were primigravid, 45 patients had unilateral salpingectomy, two patients had bilateral salpingectomy, and six patients had a vaginal hysterectomy with salpingectomy. The duration of anaesthesia was less than two hours in 87% of the patients. Postoperative morbidity was limited to febrile morbidity, mild urinary tract infections, and minor wound infections. Total hospital stay was six days or less for more than half of the patients.

Culten et al. described 29 women with ectopic pregnancy who were managed by colpotomy.³ The selection of patients for colpotomy was left to the discretion of the attending physician. The average age of the patients was 27 years, and average parity was two. At the time of surgery, three pregnancies were unruptured, 14 had ruptured with an estimated blood loss of less than 500 mL, and the remaining 12 had ruptured with blood loss in excess of 500 mL. Five of the last 12 patients were in shock at the time of admission to hospital. Surgery included 16 salpingectomies, three salpingectomies with a cornual resection, nine salpingo-oophorectomies, and one salpingectomy with vaginal hysterectomy. The operating time was approximately 30 to 40 minutes in the majority of the 27 cases requiring only colpotomy. The shortest operating time was 20 minutes. Morbidity consisted of urinary tract infections, a wound infection, and pelvic cellulitis. Sixty-eight percent of the patients were hospitalized for two to four days after the operation. Subsequently, eight patients were known to have become pregnant, and four of these completed a normal pregnancy and delivery.

Is there a reason to reconsider using colpotomy in the management of ectopic pregnancy in this modern era of laparoscopic surgery? Laparoscopic surgery has clear advantages over laparotomy for both the patient and the health care system. Advantages for the patient include no abdominal incision, reduced blood loss, reduced pain, shorter hospital stay, and faster recovery to normal functioning. The main advantage to the health care system is reduced costs as a result of shorter hospital stay.⁵ Colpotomy shares all of the advantages of laparoscopic surgery over laparotomy and has two additional advantages: shorter operating time and a better cosmetic result. In a recent Cochrane review of modes of hysterectomy, vaginal hysterectomy was shown to be superior from several perspectives to both laparoscopic hysterectomy and abdominal hysterectomy.⁹ Both vaginal hysterectomy and laparoscopic hysterectomy permitted shorter hospital stay and faster return to normal activity than abdominal hysterectomy. The advantage of vaginal

hysterectomy over laparoscopic hysterectomy was a shorter mean operating time. Management of ectopic pregnancy by colpotomy shares all of the above-mentioned advantages of vaginal hysterectomy over other alternatives. One of our patients stipulated that she wished to avoid having any incision in her abdomen. Colpotomy allows the surgeon to remove the ectopic pregnancy without any visible incisions, providing a more satisfactory cosmetic outcome for the patient. Visualization of the adenexa by colpotomy is excellent, and surgical access is very good. Any blood that has collected in the peritoneal cavity is easily removed, because the pouch of Douglas is the most dependent portion of the cavity. It is possible, as was demonstrated in one of our cases, to remove the ectopic pregnancy conservatively by salpingostomy. Postoperative recovery is fast, and it is our impression that there is less pain than is associated with laparoscopic surgery.

Previous reports of experience with the management of ectopic pregnancy by colpotomy clearly indicated that this method is safe, fast and effective.¹⁻³ Perhaps it is time, in the light of our acknowledgement that a strictly vaginal approach for hysterectomy is superior to any other, to reconsider the role of colpotomy in the management of ectopic pregnancy. As with hysterectomy, a randomized prospective study comparing colpotomy with laparoscopy in the management of ectopic pregnancy is indicated.

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