



Culdotomy and Adnexial Gynecologic Surgery.

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ABSTRACT

OBJECTIVE: To evaluate and report the advantages of the culdotomy (colpotomy) approach in a subset of gynecologic adnexal surgeries.

METHODS: Culdotomy was performed in 62 cases:

1. Tubal sterilization in 29 cases
2. Cystectomy in 24 cases (11 cases of ovarian cystectomy and 8 cases of paraovarian cystectomy)
3. Tubectomy in extrauterine pregnancy (9)(5 ruptured, 4 intact)
4. Transvaginal myomectomy in 4 cases (A)

Preoperative characteristics, including patient age, weight/BMI, and parity were recorded along with the operative time for culdotomy and adnexal surgery.

RESULTS: The average patient age was 32. Average weight was 63 kg with 8 cases of obesity. The average parity was 1.9. The average operative time was 2 min 10 sec for culdotomy and 23 min for adnexal surgery. Mean blood loss was 85 ml. There were no intra and postoperative complications.

CONCLUSION: Culdotomy is a simple, safe and effective technique for adnexal surgery in selected cases.

KEYWORDS

Culdotomy, transvaginal approach surgery, transvaginal tubectomy cystectomy

INTRODUCTION: Culdotomy utilizes a horizontal cut of the posterior vaginal fornix at the level of the cul-de-sac (pouch of Douglas). This method allows direct entry into the pelvic peritoneal cavity⁽¹⁾. It is a surgical approach to the adnexa reported since the beginning of the 19th century^(2,4). An overwhelming body of evidence in the literature indicates that minimally invasive surgery not only offers superior cosmetic results but, most importantly, also reduces surgical trauma and blood loss, neuroendocrine stress and inflammatory response, postoperative pain, and recovery time^(1,2,3). Culdotomy meets the criteria for a minimally invasive surgical approach. Colpotomy or culdotomy is also used in both gynecologic adnexal surgery and general surgery to extract large masses resected during laparoscopy^(5,6,7,8,9,10). It is also employed during culdoscopy^(11,12).

The first colpotomy is attributed to Dr. J Recamier, a French gynecologist, who used it in 1831 to drain a pelvic abscess⁽¹³⁾. Early colpotomy⁽¹⁴⁾ was also described in 1835 where it was used to drain a tuboovarian abscess by Hohhmeister and Peleton⁽³⁾. In 1894 Kelly⁽⁴⁾ reported 10 cases of ectopic pregnancy treated with the culdotomy approach. He was the first to suggest culdotomy as a way to treat adnexal pathology. As a female sterilization method, culdotomy or colpotomy was described for the first time in 1895 by DIA Duhrseen, a German obstetric doctor⁽¹⁵⁾. In 1928 Dr. VI Babcock, a doctor in Philadelphia, recommended the use of the vaginal approach for some intraperitoneal surgeries, in order to reduce the complications of laparotomy⁽¹⁾. In 1943 Dr. BN Purandare, in India, suggested colpotomy for sterilization through the posterior fornix^(16,17). The posterior fornix was used for culdoscopy for the first time in 1901 by Dr. Dimitri Osorovich Ott, a gynecologist from St. Petersburg^(18,19). For a variety of reasons, morbidity and complication rates were lower in Asia than in Western industrialized nations,⁽²⁰⁾ where they ranged from about 3 to 13%⁽²¹⁾. The main disadvantages of colpotomy are postop-

erative infections and the fact that intercourse should be avoided for at least two weeks after surgery. After 1972, many doctors used routine colpotomy for female sterilization^(11,21).

Although culdotomy became popular in 1970, laparoscopy was widely accepted by this time, and culdotomy was relatively ignored, despite its merits. The invasive nature of gynecological transvaginal adnexal surgery is comparable with laparoscopic surgery⁽²⁻³⁾ but transvaginal surgery has some advantages. These include a shorter operative time, simpler and cheaper surgical instruments found in any operative theater and a shorter assimilation curve, especially when the gynecologist is experienced in vaginal surgery. It also has a better cosmetic result. Despite its merits⁽²²⁾, the transvaginal technique of adnexal surgery is not widely performed by gynecologists especially non-vaginalists, because of unfamiliarity with culdotomy and adnexal surgery and the possibility of complications, such as rectal damage. In our opinion, the lack of popularity for culdotomy is influenced by the commercialization of laparoscopy⁽²³⁾.

In this study we are reporting our experience in transvaginal adnexal surgery.

METHODS: This prospective study was performed in the Gynecologic Service of Durres Regional Hospital, Albania, from 2009 to 2013. Culdotomies were carried out by the same staff on patients in the dorsal lithotomy position on the operating table under general (17 cases) or spinal anesthesia (29 cases). The total operating time for each procedure was recorded from the beginning of culdotomy until the end of culdography. The operating time for adnexal surgery was recorded from entrance into the peritoneal cavity until the beginning of culdography. The same procedure was used in each of 46 culdotomies (fig 1,2), each through a 3-4 cm horizontal cut

of the posterior fornix with monopolarelectrocautery, at a level about 2 cm below the intersection of the two sacrouterine ligaments. We used monopolarelectrocautery because we have observed that this is the fastest way to reach the cul-de-sac with minimum blood loss. After entering the peritoneal cavity, a long piece of gauze (30x4 cm) was inserted and upon it was placed a wide divaricator in order to broaden, extend and enlarge the operative field. Upon completion of the adnexal surgery, culdraphywas performed with a continuous vicril 0-1 suture, closing peritoneum and vagina simultaneously. A peritoneal-vaginal drain was placed in only 5 cases complicated by ruptured tubal pregnancy.



In 11 of 18 cases of transvaginal tubal sterilization, after placing the intraperitonealdivaricator, the left tube descended spontaneously and was easily reached. The right tube was grasped in 13 cases by pursuing the tube and in 5 cases directly. After grasping the tube, a clamp was placed 1 cm away from ovary and the tube was tightened, cut and removed. The same method was used contralaterallyso that the definitive tubal sterilization was accomplished. In 8 cases, culdotomic tubectomy was performed immediately following voluntary interruption of pregnancy (8weeks).In our opinion relaxation of the ligaments during pregnancy makes the culdotomic tubectomy easier.



In 11 cases, a cyst was found in the left adnexa, (3 paraovarian and 8 ovarian) and in 8 cases in the right adnexa (2 paraovarian and 6 ovarian). The paraovarian cysts were more mobile and therefore easier to excise. After the cyst capsule (P) was removed, hemostasis was achieved with bipolar electrocautery. In 5 cases, sutures were placed. Then culdraphywas performed as described above.



Five cases were ruptured tubal pregnancy with hemoperitoneum(approximately 250-540 ml blood loss). First the intraperitoneal blood was aspirated. After this the tubal pregnancy

was located, the side of which was previously determined by echography, and the tubectomy was performed as described above. An intraperitoneal drain was placed before culdraphy. In 4 cases with intacttubal pregnancy, only tubectomywas performed.



Four cases were transvaginal myomectomy posteriorly⁽²⁴⁾. After entering in douglasmoma was identified, classic myomectomy was made and uterus was sutured transvaginal.

RESULTS: The culdotomy and adnexal surgeries were successfully performed by the same operative technique in all 46 cases included in the study. Classified by disease process, these included: 19 vaginal cystectomies, 18 vaginal tubectomies and 9 resections of tubal pregnancy (5 ruptured and 4 intact). The patients of the three groups had appropriate clinical characteristics (age, BMI, parity). There were 3 nulliparous women with tubal pregnancy and 4 nulliparous womenwith transvaginal cystectomy.

In all cases included in the study, the time ofculdotomy was recorded separately from the time of adnexal surgery. The mean age of patients was 32.1 years (range 21-60).

In our study, obesity, especially morbid obesity, (8 cases) presented difficulties in performing culdotomybut eventually these were completed without complication. Patients with BMI>30 had the same advantagesin receivingculdotomy and transvaginal adnexal surgery as those women with BMI<30. The duration of culdotomy was 1 min 50 sec for women with BMI<30 and 3min 10 sec for women with BMI>30. All culdotomies were performed with electrocautery. The duration of culdotomy was not influenced by the type of adnexal surgery. The average duration of sterilization tubectomy was 12 minutes, 24 minutes for cystectomy, and 21 minutes for tubectomy in both types of tubal pregnancies (ruptured with drain insertion and intact).

Closure of the culdotomy incision in all cases was accomplished with continuous vicril 1-0 suture. Only one intraoperativehemotransfusionwas necessary in a case with ruptured tubal pregnancy with hemoperitoneum.Although it is impossible to separately evaluate the quantity of blood loss from culdotomy vs. adnexal surgery, the total quantity of blood loss was minimal during the interventions (average of 67 ml for 42 cases), excluding 5 cases with hemoperitoneum from ruptured tubalgestation.

There were no intraoperative complications including no rectal injury. There was one minor postoperative complication encountered on the third day with38 degree C temperature, occurring in a case with ruptured tubal pregnancy.

DISCUSSION: The effectiveness and safety of the transvaginal surgical approach in gynecologic surgery has been described historically^(1,3,4,15,16,17,21,22). The challenges to perform vaginal surgery in general and especially culdotomy include: obesity, nulliparity, previous abdominal surgeries and pelvic pathologies that cause adhesions such as endometriosis, PID etc.

In our study we observed that obesity presents difficulties for culdotomy but does not contribute to an increased incidence of complications and should therefore be offered to those women with BMI of any category.

Historically nulliparity is considered a relative contraindication in performing culdotomy arising from the theory that vaginal birth increases vaginal elasticity. However Mass and his collaborators⁽¹⁹⁾ concluded that nulliparity does not negate the possibility of culdotomy. In our study, tubectomy for tubal pregnancy was performed in 3 nulliparous women and vaginal cystectomy in 4. There were no major complications⁽²⁴⁾

CONCLUSION: Culdotomy is a safe and effective operative technique for performing gynecological adnexal surgery. It uses simple and inexpensive instruments and has a very low complication rate.

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