

Review Article:

HOW TO MANAGE ENDOMETRIOMA BY LAPAROSCOPY? ABLATION OR EXCISION?

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ABSTRACT

Endometriosis is a common condition association with pelvic pain, infertility and tumor as endometrioma in women. It may be present in up to 22% of asymptomatic women and up to 45% of women with pelvic pain. In recent years, laparoscopy has become the gold standard for the treatment of ovarian endometriotic cysts. Surgery (especially by laparoscopy) to endometriotic cyst or endometrioma based on some clinical evidence is favourable to perform excision rather than drainage and coagulation. The excisional surgery for endometrioma provides for a more favourable outcome than the drainage and ablation using bipolar coagulation with regard to the recurrence of the endometrioma, recurrence of symptoms and subsequent spontaneous pregnancy in women who were previously infertile.

Keywords: endometrioma, laparoscopy, ablation, excision.

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INTRODUCTION

Endometriosis is a common condition association with pelvic pain, infertility and tumor as endometrioma in women. Endometriosis is defined as the presence of ectopic deposits of endometrial tissue usually limited to pelvis (but not exclusively) which may lead to infertility and pelvic pain. It may be present in up to 22% of asymptomatic women and up to 45% of women with pelvic pain. It has been believed for almost a century by the majority of academic opinion that endometriosis is a disease caused by shedding of menstrual endometrium and its dissemination throughout the pelvis (Hart et al. 2005).

In recent years, laparoscopy has become the gold standard for the treatment of ovarian endometriotic cysts. When compared to traditional surgery by laparotomy, operative laparoscopy is associated with shorter hospital stay, faster patient recovery, decreased costs and lower incidence of de novo adhesion formation. The pregnancy rates, monthly fecundity and cyst recurrence rates after laparoscopic surgery are comparable. Laparoscopic surgery for endometriomata does carry a risk of conversion to laparotomy, and this is associated with the experience of the surgeon, the complexity of the surgery as well as patient factors, such as body mass index. A prospective randomised trial of laparotomy or laparoscopy for the management of endometriomata demonstrated benefits to the patient with regard to less analgesic requirement, earlier

discharge and postoperative recovery in those women operated by laparoscopic ovarian cystectomy.

Several alternative laparoscopic techniques have been described for the treatment of ovarian endometriomata: cyst wall laser vaporization (destruction by burning) preceded or not by medical therapy, drainage and coagulation, and stripping. Excision of the cyst involves the opening of the endometrioma either with or without the use of electrosurgical or laser energy. The wall of the endometrioma is then excised or 'stripped away' from the underlying cortex using a combination of scissors (or monopolar hook) and grasping forceps. Ablation of the endometrioma also involves the opening and drainage of the endometrioma or fenestration (making a window in the wall of the cyst), followed by the destruction of the cyst wall using either electrosurgical current, cutting or coagulating current, or using a form of laser energy (Hart et al. 2005).

PATHOGENESIS

The pathogenesis of typical ovarian endometriosis is a source of controversy. The original paper of Sampson on this condition reported that of the so-called chocolate cyst led to spillage of adhesion and the spread of peritoneal endometriosis. The findings of Hughesdon (1957) contradicted Sampson's (1921, 1927) hypothesis and suggested that adhesions are not the consequence but the cause of endometriomas. In 93% of typical

endometriomas, the pseudocyst is formed by an accumulation of menstrual debris from the shedding and bleeding of active implants located by ovarioscopy at the site of inversion, resulting in a progressive invagination of the ovarian cortex.(Donnez et al.2005, Nisolle & Foidart 2006). The theory is also consistent with the finding of lateral asymmetry of ovarian endometriomas. The cysts occur more frequently on the left than the right which in turn, is consistent with the anatomy of the region. The colon impinges on the left fallopian tube and ovary and is often fixed to the pelvis by adhesions, which creates a disruption of flow of regurgitated material that makes cells more prone to adherence, implantation and proliferation within the hemipelvis. This idea is supported by the finding that on-endometriotic, ovarian cysts occur with the same frequency in the left and right ovaries.

Other theory who first suggested by Sampson (1921), a role for follicles in the pathogenesis of ovarian endometrioma, and in a retrospective study, Jain and Dalton claimed to have proven the theory by monitoring ovarian follicles serially using transvaginal ultrasound scanning before the became laparoscopically confirmed endometriomas in patients with Rokitansky-Kuster-Hauser syndrome in which without a uterus cannot have retrograde menstruation (Nisolle & Foidart 2006).

Some other authors have suggested that large endometriomas may develop as a result of secondary involvement of functional ovarian cysts in the endometriotic process. Donnez et al., 1993, the haemorrhagic cysts are the consequence of metaplasia of epithelial inclusions in the ovary (Donnez et al.2005). The mesothelium overlying the ovary invaginates to form mesothelial inclusions; a metaplastic process then occurs, resulting in the formation of endometriomas (Nisolle & Foidart 2006).

CLINICAL SIGN

Endometriosis may produce a variety of different symptoms of varying severity and lesions of variable distribution and extent, but there are 3 (three) category of clinical sign of endometriosis are pain, infertility and tumor. The majority of patients with endometriosis have only minor degrees of the disease associated with mild or moderately severe symptomatology (pain). The absolute prevalence is unknown and is dependent on the clinical source of the patients. The presence of superficial endometriosis in asymptomatic infertile patients varies between 20-50%.

The second clinical manifestation of endometriosis is that associated with more severe symptoms and signs.

Thomas Cullen described a condition that he called adenomyoma of the recto vaginal septum. He characterized these lesions as tumors of nonstriated muscle, with islands of uterine mucosa scattered throughout them, that arise from behind the cervix and spread laterally to blend with anterior wall of the rectum and uterosacral ligaments. He noted that the disease might also invade the broad ligaments, encircle the ureter and break through into the vagina. These lesions show marked fibrosis in almost every case. These tumors have a substantial mass that can usually be palpated on careful vaginal examination. The intensity of the patient's pain is strongly correlated with the depth of the lesion. This type of lesion produces not only intense dysmenorrhea but also severe nonmenstrual pain, dyspareunia and dyschesia. The location of the lesion is correlated with the nature of the symptoms, e.g. dyspareunia is associated with uterosacral involvement and noncyclic pelvic pain and dyschesia with bowel involvement.

Ray Garry, proposed endometriosis has two different syndromes according to the sum of the anatomic location, clinical findings and associated histologic appearances. The first syndrome may be defined as the combination of symptoms suggestive of endometriosis together with tender palpable nodular or indurative lesions in the deep pelvis. Such nodules are associated with the histologic finding of marked fibromuscular hyperplasia containing islands of endometrium-like glands. This collection of findings is precisely that described by Cullen in 1920. He suggested this collection of signs and symptoms be called Cullen's Syndrome. The incidence of this syndrome is not known but probably represents a fairly small proportion of all cases of endometriosis, with estimates of between 1/170 and 1/3800 women. Although relatively infrequent, almost all those at risk of developing malignancy and all those at risk of lower bowel and urinary tract involvement.

Other syndrome also consists of the symptoms of infertility and/or chronic pelvic pain with dysmenorrheal and dyspareunia. This syndrome is, however, associated with absence of deep pelvic local tenderness, induration or nodule formation. This condition is usually associated with the laparoscopic appearances of multiple classical superficial clear, red, black or white lesions. The histology of such lesions is characterized by the findings of superficial deposits containing endometrial-like glands and stroma. These lesions have little or no associated myohyperplasia and are the same as those described by Sampson, therefore be known as Sampson's Syndrome, is associated with more minor symptoms, less structural changes in the

pelvis and substantially less risk of major complications (Busacca & Vignali 2006, Garry & Hart 2006).

The ovary is a common site of endometriotic cyst or endometrioma. Endometrioma is often associated with pelvic pain and infertility. These endometriomas are typically adherent to the pelvic side wall and, in most cases; adenomyotic lesions are present in the adherent tissue. It is very likely that pain associated with these advanced endometriomas originates from the adenomyotic lesion rather than the cystic endometrioma.

Asymptomatic endometrioma are increasingly diagnosed in young women with infertility at TVU (transvaginal ultrasound). In younger women, adenomyotic lesions are usually absent in the adherent tissue. The diagnosis of endometrioma is suspected on pelvic examination or ultrasound examination. It is confirmed at the time of surgery and established by histologic examination. Bilateral and large endometriomas tend to adhere to each other and are frequently called 'kissing ovaries' (Al-Shahrani & Tulandi 2006, Kinkle et al. 2006).

The characteristic features of endometriomas are the presence of diffuse, low-level internal echoes and hyperechoic foci in the wall. Using a standardized checklist, Patel et al found that an adnexal mass with low-level internal echoes and absence of particular neoplastic features is highly likely to be an endometrioma, especially if the cyst is multilocular or if hyperechoic foci are present in the cyst wall. A variety of ovarian cysts can mimic the appearance of an endometrioma, including corpus luteum and lutein cysts, teratomas, cystadenomas, ovarian fibroids, tubo-ovarian abscesses and carcinomas (Kinkle et al. 2006). In this paper we just limit the topic only endometriotic cyst or endometrioma.

MANAGEMENT OF ENDOMETRIOMA (ENDOMETRIOTIC CYST)

Medical Treatment

The use of medical treatment for endometriomas is limited. Ovarian endometrioma > 1cm do not respond favorably to medical treatment with hormonal suppression. Mutzli et al, reported that the preoperative use of GnRH-a offered no advantage to surgery or to the recurrence rate. Medical treatment is associated with symptomatic improvement in 50% of the patients but the symptoms tend to recur 6-12 months following cessation of therapy. It also has no effect on pregnancy or on recurrence rates (Al-Shahrani & Tulandi 2006). Farquhar CM, from clinical evidence of endometriosis,

one RCT found no evidence that preoperative treatment with GnRH-a facilitated surgery (Farquhar 2000).

Laparotomy or Laparoscopy

Traditionally, endometrioma was removed by the laparotomy approach. With advances in laparoscopic technique, most endometrioma can be treated by laparoscopy. In recent years, laparoscopy has become the gold standard for the treatment of ovarian endometriotic cysts. When compared to laparotomy, operative laparoscopy is associated with shorter hospital stay, faster patient recovery, decreased costs and lower incidence of de novo adhesion formation. A prospective randomized trial of laparotomy or laparoscopy for the management of endometrioma demonstrated benefits to the patient with regard to less analgesic requirement, earlier discharge and post operative recovery in those women operated by laparoscopic ovarian cystectomy (Hart et al. 2005, Al-Shahrani & Tulandi 2006).

Laparoscopy Ablation or Excision

Several alternative laparoscopic techniques have been described for the treatment of ovarian endometriotic cyst (endometrioma): cyst wall laser vaporization (destruction by burning) preceded or not by medical therapy. Excision of the cyst involves the opening of endometrioma either with or without the use of electrosurgical or laser energy. The wall of the endometrioma is then excised or 'stripped away' from the underlying cortex using a combination of scissors (or monopolar hook) and grasping forceps.

Ablation of the endometrioma also involves opening and draining of the endometrioma or fenestration (making a window in the wall of the cyst), followed by the destruction of the cyst wall using either cutting or coagulating current, or using a form of laser energy. It has been suggested that the technique of ovarian endometrioma capsule excision may lead to removal of normal ovarian tissue and that the procedure of capsule ablation may lead to thermal (heat) damage to underlying ovarian cortex and risk of incomplete destruction of the endometriotic tissue. Thus both interventions may lead ovarian cortical damage and hence a functional loss in the ovarian reserve. The recurrence rate of ovarian endometrioma following surgery has been previously reviewed by Verellini et al. (2003). In this study, endometrioma recurrence was observed in 39 of 212 (18.4%) women treated with coagulation or laser vaporization and in 19 of 295 (6.4%) who underwent excision. This meta-analysis also reported that the pregnancy rates following surgery were 24-60%, with conflicting data regarding the most favorable surgical approach.

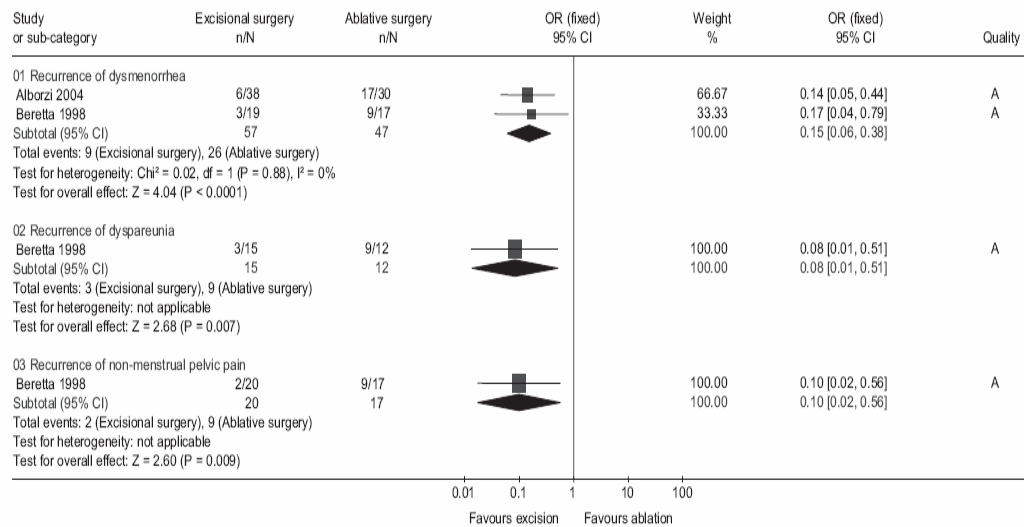


Figure 1. Recurrence of pelvic pain. Favours excision for recurrence of dysmenorrhea, dyspareunia and non-menstrual pain.

From The Cochrane Review by Hart RJ et al, 2005, on

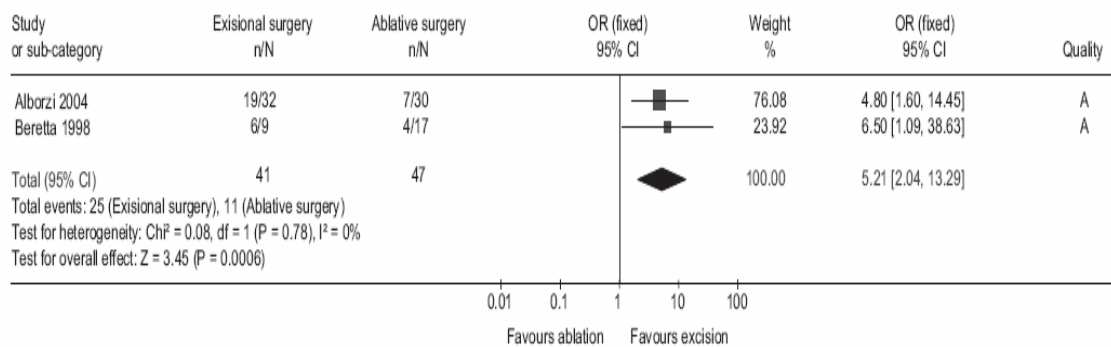


Figure 2. Subsequent spontaneous conception. Favours excision OR 5.21 (CI 2.04–13.29).

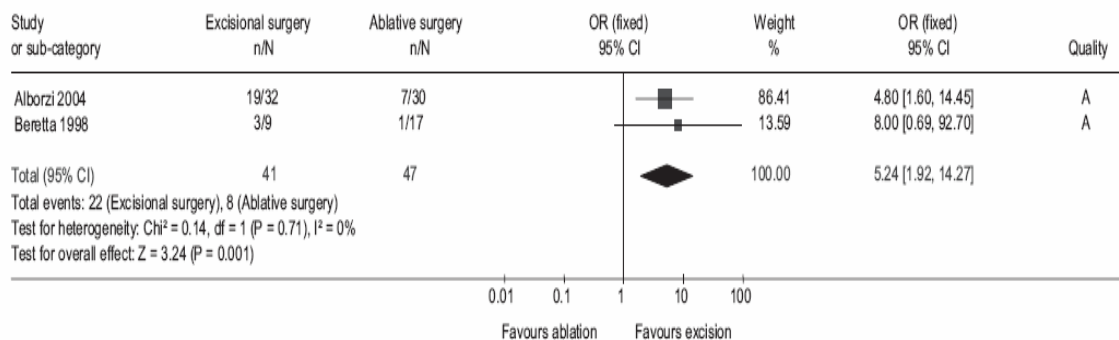


Figure 3. 12 month spontaneous conception. Favours excision OR 5.24 (CI 1.92–14.27).

Alborzi's (2004) & Beretta's (1998) Studies, their meta-analysis have found the recurrence of dysmenorrhoea, dyspareunia and non menstrual pelvic pain was significantly greater in the drainage and ablation group and the time to the recurrence of the pain was significantly shorter in the Baretta study (Figure.1).

The recurrence of pelvis pain and dysmenorrhoea was also significantly greater in the drainage and ablation

group in the Alborzi (2004) study. The laparoscopic excision of endometrioma was significantly associated with a benefit from the recurrence of dysmenorrhoea (OR 0.15, CI 0.06-0.38), recurrence of dyspareunia (OR 0.14, CI 0.05-0.44) and recurrence of non-menstrual pelvic pain (OR 0.10, CI 0.02-0.56).

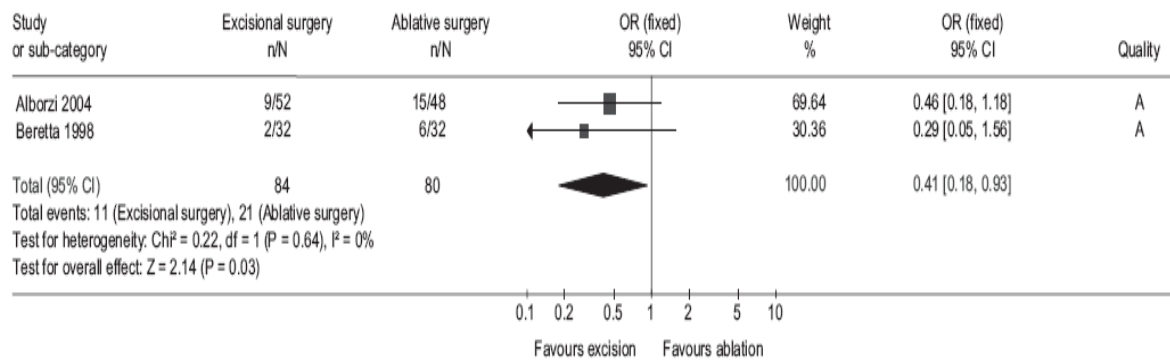


Figure 4. Recurrence of endometrioma. Favours excision OR 0.41 (CI 0.18–0.93).

In one of the studies patients were followed up for 1 year and at this time the spontaneous pregnancy was significantly greater in the excision group and the other study follow up was performed for 24 months and the spontaneous conception rate observed. It analysed and the 12 month spontaneous fecundity derived and plotted. After combining with the data from Alborzi et al. (2004) the chance of a spontaneous pregnancy at up to 12 months significantly favoured laparoscopic excision of endometrioma (OR 5.24, CI 1.92-14.27) (Figure 3). The overall subsequent spontaneous conception rate also favoured laparoscopic excision (OR 5.21, CI 2.04-13.29; Figure 2) (Hart et al. 2005)

From the two studies, leads to a significant reduction in the rate of recurrence of an endometrioma (OR 0.41, CI 0.18-0.93) (Hart et al. 2005).

No studies were found which addressed the effect of laparoscopic excision versus drainage and coagulation of endometrioma on ovarian function or the quality of life of patients after surgery (Hart et al. 2005).

According ESHRE (European Society of Human Reproduction and Embryology) 2005 guideline based on evidence-based medicine; Laparoscopic cystectomy for ovarian endometriomas >4cm diameter improves fertility compared to drainage and coagulation. Coagulation or laser vaporization of endometrioma without excision of the pseudocapsule is associated with a significantly increased risk of cyst recurrence. It is

grade A (highly strength of evidence) with level of evidence is 1b (at least one RCT). The treatment with danazol or a GnRH-a after surgery does not improve fertility compared with expectant management. It is grade A with evidence level is 1b (Kennedy et al. 2005).

CONCLUSION

Surgery (especially by laparoscopy) to endometriotic cyst or endometrioma based on some clinical evidence is favourable to perform excision rather than drainage and coagulation. The excisional surgery for endometrioma provides for a more favourable outcome than the drainage and ablation using bipolar coagulation with regard to the recurrence of the endometrioma, recurrence of symptoms and subsequent spontaneous pregnancy in women who were previously infertile.

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