Surgical Management of Endometriosis

Endometriosis should only be treated when either pain or infertility is a presenting symptom. As an incidental finding at the time of surgery, endometriosis does not require any medical or surgical treatment. Suspected ovarian endometriomas or pelvic masses should be evaluated according to the SOGC guidelines for pelvic masses.

The surgical management of endometriosis involves careful consideration of the indications for surgery, preoperative evaluation, surgical techniques, surgeon experience, and ancillary techniques and procedures.

INDICATIONS

Surgical management of endometriosis is indicated in the following groups.

1. Patients with pelvic pain
   a. who do not respond to, decline, or have contraindications to medical therapy
   b. who have an acute adnexal event (adnexal torsion or ovarian cyst rupture)
   c. who have severe invasive disease involving the bowel, bladder, ureters, or pelvic nerves

2. Patients who have or are suspected to have an ovarian endometrioma
   a. Patients for whom the uncertainty of the diagnosis affects management (as with chronic pelvic pain)
   b. Patients with infertility and associated factors (i.e. pain or a pelvic mass)

Recommendations

1. An asymptomatic patient with an incidental finding of endometriosis at the time of surgery does not require any medical or surgical intervention. (III-A)

2. Surgical management in women with endometriosis-related pain should be reserved for those in whom medical treatment has failed. (III-A)

PREOPERATIVE EVALUATION

A complete preoperative evaluation will assist in planning the surgical approach, intraoperative timing, and the need for additional procedures and consultations.

Clinical Tip

The decision to move to surgery in women with pain and suspected endometriosis should be based on clinical evaluation, imaging, and effectiveness of medical treatment. The role of diagnostic laparoscopy should be limited.

The value of a serum CA-125 test in preoperative detection of endometriosis is limited. Therefore, the test is not recommended routinely before surgery but may be performed as part of the evaluation of an undiagnosed adnexal mass.

Pelvic ultrasonography, particularly transvaginal, is recommended when an adnexal mass is suspected from physical examination. Transrectal sonography, colonoscopy, barium enema radiography, and MRI may also be useful to detect deeply infiltrating endometriosis of the bowel and rectovaginal septum in patients with dyschezia and in those with deep dyspareunia with nodularity on examination. Cystoscopy should be performed if there are cyclic bladder symptoms such as hematuria.

Risks associated with surgery should be thoroughly discussed with the patient, and informed consent should be obtained and documented.

SURGICAL APPROACH

Surgery may be either “conservative” or “definitive.” Conservative surgical management of endometriosis has the goal of restoring normal anatomy and relieving pain. This approach is most often applied to women of reproductive age who wish to conceive in the future or to avoid induction of

Clinical Tip

Imaging should be based on the clinical presentation and findings on physical examination.
menopause at an early age. It may involve direct ablation, lysis, or excision of lesions, interruption of nerve pathways, removal of ovarian endometriomas, and excision of lesions invading adjacent organs (bowel, bladder, appendix, or ureter). Definitive surgery involves bilateral oophorectomy to induce menopause and may include removal of the uterus and fallopian tubes and, ideally, excision of all visible endometriotic nodules and lesions. It should be considered in women who have significant pain and symptoms despite conservative treatment, do not desire future pregnancies and have severe disease, or are undergoing hysterectomy because of other pelvic conditions, such as fibroids or menorrhagia.

Laparoscopy is the preferred route for surgical management of endometriosis, irrespective of severity, owing to the greater visualization through a magnified view and the quicker patient recovery and return to normal activity when compared with laparotomy. Patients with invasive endometriosis, including bowel and bladder involvement, should be referred to those with experience or advanced training in managing these cases through a multidisciplinary approach.

**SURGICAL OUTCOMES**

Only a few RCTs have evaluated the surgical treatment of endometriosis. Benefit does appear to exist for laparoscopic management of endometriosis. In 1994 Sutton et al. described the first prospective RCT on this topic, in 63 women, and showed a benefit in more of those treated with laser laparoscopic ablation and uterosacral nerve ablation than those treated with expectant management: 63% versus 23%. A follow-up study showed that more than half of the women undergoing ablation were satisfied with the treatment after a mean of 73 months. In 2004, Abbott et al. demonstrated, in a group of 39 women, benefit 6 months after surgery in more of those treated with laparoscopic excision of endometriotic lesions than those undergoing diagnostic laparoscopy: 80% versus 32%. The difference in study outcome may be attributed to more advanced disease in the latter trial or to the use of excision versus laser ablation, or a combination of factors. Despite the benefits illustrated, it is important to note that a substantial proportion of women (20% to 40%) may not show improvement after surgery.

There is insufficient evidence as to whether superficial endometriotic lesions should be excised or ablated in the treatment of pain. No difference in outcome was illustrated through a small RCT by Wright et al. in 2005. This study included only cases of mild endometriosis and excluded those of deeply infiltrating disease and more severe disease. Shakiba et al. in 2008 described one of the longest follow-up studies of the surgical management of endometriosis. This retrospective study calculated the risk of reoperation at 2, 5, and 7 years after the initial operations, which included laparoscopic conservative surgery (preserving the ovaries), hysterectomy with ovarian preservation, hysterectomy with removal of 1 ovary, and hysterectomy with removal of both ovaries. By 2 years, no further surgery had been required for 80% of the women who underwent local excision of endometriotic lesions versus 96% of those who had undergone hysterectomy with ovaries preserved. Thus, hysterectomy may benefit patients with pelvic pain due to endometriosis even with ovarian preservation.

**Summary Statement**

1. Treatment of endometriosis by excision or ablation reduces pain. (I)

**DEEPLY INFILTRATING ENDOMETRIOSIS**

In contrast to superficial peritoneal endometriosis, deeply infiltrating endometriosis refers to lesions that penetrate 5 mm or more. See Table 4.1 for examples. The lesions are often multifocal and deeper than is appreciated by visualization alone. A depth greater than 10 mm is related to pain. Excision of these lesions is likely to be of greater benefit in terms of pain relief than excision of superficial disease, but the evidence is limited to reports on case series in expert hands.

Surgery in cases of rectovaginal infiltration, with involvement of the pelvic lateral sidewall or bowel, requires a multidisciplinary approach. Preoperative consultation with another gynaecologist experienced in minimally invasive surgery as well as a general surgeon or urologist is recommended. Bowel resection may be required for pain relief and should be performed by those with expertise and experience in this approach. Often this may be done by a laparoscopy-assisted approach, for quicker patient recovery.

**Table 4.1. Examples of deeply infiltrating endometriosis**

<table>
<thead>
<tr>
<th>Rectovaginal nodule</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bowel invasion and constriction</td>
</tr>
<tr>
<td>Bladder invasion</td>
</tr>
<tr>
<td>Ureteric invasion or compression</td>
</tr>
<tr>
<td>Nerve involvement (e.g., sciatic nerve)</td>
</tr>
</tbody>
</table>
When deeply infiltrating endometriosis is diagnosed only at the time of diagnostic laparoscopy, it is preferable to avoid immediate excision. One should first obtain informed consent and conduct a proper preoperative evaluation owing to the complex nature of the disease.

**Recommendation**

3. Surgical treatment of deeply infiltrating endometriosis may require particular experience with a multidisciplinary approach. (III-A)

**OVARIAN ENDOMETRIOMAS**

Ovarian endometriomas indicate severe disease and present a surgical management challenge.\(^1\) It is important to consider the patient’s desire for fertility in order to determine the level of intervention required to preserve the ovaries and their function. Surgical options include excision of the cyst wall or drainage and coagulation of the cyst bed.

**Clinical Tips**

- With ovarian endometriomas it is important to consider the patient’s desire for fertility in order to determine the level of intervention required to preserve the ovaries and their function.
- Ovarian endometriomas are often a marker of more extensive endometriosis.

A recent Cochrane review,\(^1\) although based on only 2 RCTs\(^16,17\) and a total of 164 women, suggests that laparoscopic excision provides more benefits than simple laparoscopic ablation of ovarian endometriomas for pelvic pain. Excision resulted in reduced rates of endometrioma recurrence, dysmenorrhea, dyspareunia, non-menstrual pelvic pain, and requirement for further surgery. The cumulative pregnancy rate was higher in the women who underwent cystectomy.

Although there are benefits to laparoscopic excision of ovarian endometriomas, this technique has been associated with inadvertent removal of normal ovarian tissue.\(^18\) Great care must be exercised to preserve ovarian tissue during the excision. After the risks of inadvertent removal of normal ovarian tissue and the benefits of cyst excision are weighed, the decision to treat endometriomas surgically must be based on clinical presentation and surgeon preferences. It is reasonable to suggest excision of larger endometriomas (> 3 cm in diameter) in the presence of pelvic pain but simple drainage and ablation or expectant management of smaller cysts.

Ovarian endometriomas recur in up to 30% of patients after laparoscopic excision.\(^19\) Postoperative hormonal suppression has been shown to result in a lower recurrence rate and better management of symptoms.\(^20,21\) In patients not seeking pregnancy, CHC therapy (cyclic or continuous) should be considered after surgery. Since the risk of malignant disease is low and there is no evidence of improved fertility as an outcome, the decision about repeat surgery should be based on symptoms and size of the cyst: the greater the pain or the size, the more likely the need for a repeat procedure.

**Summary Statement**

2. For women with endometriomas, excision rather than drainage or fulguration provides better pain relief, a reduced recurrence rate, and a histopathological diagnosis. (I)

**Recommendations**

4. Ovarian endometriomas greater than 3 cm in diameter in women with pelvic pain should be excised if possible. (I-A)

5. In patients not seeking pregnancy, therapy with CHCs (cyclic or continuous) should be considered after surgical management of ovarian endometriomas. (I-A)

**ADDITIONAL SURGICAL INTERVENTIONS**

Several surgical procedures have been used in addition to ablation or excision of endometriotic lesions to further improve pain relief. Laparoscopic uterosacral nerve ablation has not been shown to be effective for chronic pain relief in a large randomized control trial.\(^22\) However, upstream interruption of the presacral nerves (presacral neurectomy) has demonstrated some midline pain relief in women with endometriosis.\(^23–25\) Laparoscopic presacral neurectomy is both feasible and preferred over laparotomy when conducted by experienced endoscopic surgeons.

Appendectomy has been advocated in patients with chronic pelvic pain. The appendix may be affected by endometriosis, chronic inflammation, or other disorders in patients with endometriosis.\(^26,27\) At the time of laparoscopy, the appendix should be identified, if possible, and its appearance noted. Laparoscopic appendectomy should be considered if the appendix is obviously abnormal; however, patient consent, surgical consultations, and perioperative risk need to be considered.
Uterine suspension has been advocated to correct the retroverted uterus in women with dyspareunia. There is no report of an independent trial whose results confirm the effectiveness or clinical utility of this procedure.

Summary Statement

3. Laparoscopic uterine nerve ablation alone does not offer significant relief of endometriosis-related pain. (I)

Recommendations

6. Presacral neurectomy may be considered as an adjunct to the surgical treatment of endometriosis-related pelvic pain. (I-A)

REFERENCES