DEBATE

The ovarian endometrioma: why is it so poorly managed?

Indicators from an anonymous survey

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As a tertiary referral centre for women with severe endometriosis we see a large number of patients who have endometriotic cysts, and many of these patients have been operated on by gynaecologists elsewhere in the UK. We have been surprised by the variety of approaches to their management. In order to establish the current clinical practices of endometrioma management amongst gynaecologists in the UK, we have carried out an anonymous survey. There appears to be an equal preference for open versus endoscopic surgery, even though there is considerable evidence suggesting that endoscopic surgery is superior. However, the management of endometriomas varies significantly between the two groups. In this article, we have presented the results of our survey and used them as the basis for a debate on the management of endometriomas.

Key words: endometrioma/management

Introduction

We first started performing advanced operative laparoscopic surgery for endometriosis in Guildford during 1982. Initially there was a long learning curve associated with this new surgical approach, which also required the operator to master new technology. In the early years we felt that the only management option for patients with severe disease involving the ovaries or rectovaginal septum was a laparotomy. In fact a laparotomy in these circumstances is fraught with difficulty, and we have little doubt that it leads to increased post-operative adhesion formation, which is particularly detrimental when the procedure is designed for fertility enhancement or the relief of painful symptoms. We decided, therefore, to always treat these patients by the laparoscopic route, and in the past 16 years we have never had to revert to a laparotomy. The endometrioma is mobilized from the pelvic sidewall, and then opened up at the point of invagination of the cyst. The haemosiderin-laden fluid is evacuated, and the inside of the cyst capsule is then photo-coagulated with the KTP/532 laser (Laserscope, Cwmbran, UK) or ablated with the Bicap™ bipolar device (Cory Bros, London, UK). Any co-existing endometriosis is also ablated (Jones and Sutton, 2000). We are currently treating six women with endometriomas each month in our unit (Jones and Sutton, 2001), and it has become increasingly clear that their previous management is very variable. Therefore, we decided to conduct a questionnaire survey of all the specialist gynaecologists in order to document the current clinical practice in the UK.

Survey of practice in the UK

The participants were specialist gynaecologists (eligible to hold a certificate of completion of specialist training) who were members or fellows of the Royal College of Obstetricians and Gynaecologists during September 2000. An anonymous, self administered, structured questionnaire was posted to 1240 gynaecologists. They were presented with the following clinical scenario: ‘Faced with a patient complaining of pelvic pain, who has had an endometrioma diagnosed (measuring 4–8 cm), if she wishes to retain her fertility, is it your usual practice to:’ The questionnaire contained 22 questions, requiring a yes or no answer. Data for analysis were recorded using Microsoft® Access software (v.5 for Windows). A \(\chi^2\)-test was used to compare the difference between proportions. Large sample, 95% confidence interval analysis for the difference and ratio of two proportions was used. Significance was accepted where \(P < 0.05\).

The postal questionnaire was returned by 651 consultants (52.5% response rate; Figure 1). Similar questionnaire studies directed at gynaecologists have reported response rates varying between 44.2% for West German gynaecologists (Semm, 1979), 55% for British Society of Gynaecological Endoscopy members (Daniels, 2000) and 80% for Norwegian gynaecologists (Moen, 1998). It must be remembered that a proportion of obstetricians and gynaecologists in the UK pursue obstetrics as their main interest, which may explain the low return rate. The survey indicated that 487 (74.8%) managed patients surgically, and 179 (36.8%) treated them with a preoperative
GnRH analogue. A laparotomy was performed by 206 (42.3%) gynaecologists, and 239 (49.1%) performed a laparoscopy in order to treat the endometrioma. Some consultants stated that they did both a laparotomy and a laparoscopy, and they were excluded from further analysis. All subsequent responses were analysed on the basis of how the surgeon gained access to the endometrioma, i.e. whether they performed a laparotomy or laparoscopy. The results are shown in Table I.

Of those gynaecologists who usually performed a laparotomy (206), 195 (94.7%) also perform an ovarian cystectomy (strip out the capsule), 21 (10.1%) fenestrate the ovarian cyst (lay it open), and 125 (60.7%) treat co-existing rectovaginal disease. A total of 104 consultants (50.5%) do not routinely use any GnRH analogue after surgery and 117 (56.8%) follow-up the patients with an ultrasound scan.

Of those gynaecologists who usually performed a laparoscopy (239), 127 (53.1%) also perform an ovarian cystectomy, 146 (61%) fenestrate the ovarian cyst, and 155 (64.9%) treat co-existing rectovaginal disease. Ninety consultants (37.6%) do not routinely use any GnRH analogue after surgery and 170 (71.2%) follow-up the patients with an ultrasound scan.

Why do gynaecologists persist with medical treatment when it has been shown to be ineffective?

Only 16 (2.5%) responders in our study used medication alone to treat endometriomas, which is reassuring because it is an ineffective form of treatment (Dmowski et al., 1989; Donnez et al., 1989; Crickel et al., 1995; Rana et al., 1996). The use of GnRH analogue pre-operatively might be expected to shrink the cysts and facilitate surgery. However, this does not appear to be the case (Muzii et al., 1996) and there seems little justification for this on the present evidence. Of the gynaecologists who managed their patients surgically, only 179 (36.8%) treated them with a pre-operative GnRH analogue. The use of GnRH analogue post-operatively might also be expected to improve outcome. Those consultants who perform a laparoscopy also favour the use of a post-operative GnRH analogue (116; 48.5%), compared with those who perform open surgery (72; 35.0%). Prospective studies comparing cyst excision with or without post-operative medication for 3–6 months demonstrated equal cyst recurrence rates within the two groups (Marana et al., 1994). Similar findings have been reported by other authors (Canis et al., 1992; Montanino et al., 1996). Therefore, the policy of prescribing post-operative GnRH analogue cannot be justified on these grounds alone. However, a prospective comparative study of 36 women receiving post-operative GnRH analogue over 12 months demonstrated an improvement in pain symptoms in 87% of patients (Gurgan et al., 1996), and this seems to be the only indication for prescribing a post-operative GnRH analogue.

Why is laparoscopic surgery superior to laparotomy?

In the UK the traditional surgical approach to endometriomas has been to perform a laparotomy and microsurgery. This

Table I. Questionnaire responses analysed on the basis of how the surgeon gained access to the endometrioma

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Laparotomy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perform an ovarian cystectomy (strip out the capsule)</td>
<td>195</td>
</tr>
<tr>
<td>Ovarian cystectomy and suture the ovary after treating the endometrioma</td>
<td>140</td>
</tr>
<tr>
<td>Perform an oophorectomy</td>
<td>11</td>
</tr>
<tr>
<td>Aspirate the cyst contents only</td>
<td>3</td>
</tr>
<tr>
<td>Fenestrate the cyst (lay it open)</td>
<td>21</td>
</tr>
<tr>
<td>Fenestrate and do nothing further to the capsule</td>
<td>2</td>
</tr>
<tr>
<td>Fenestrate and ablate the capsule with an electrosurgical device</td>
<td>16</td>
</tr>
<tr>
<td>Fenestrate and ablate the capsule with a laser</td>
<td>1</td>
</tr>
<tr>
<td>Fenestrate and suture the ovary after treating the endometrioma</td>
<td>10</td>
</tr>
<tr>
<td>Excise or ablate any co-existing recto vaginal endometriosis</td>
<td>125</td>
</tr>
<tr>
<td>Use a GnRH analogue for 3–6 months after surgery in all patients</td>
<td>50</td>
</tr>
<tr>
<td>Use a GnRH analogue for 3–6 months after surgery in all patients who do not want to conceive immediately</td>
<td>72</td>
</tr>
<tr>
<td>I do not routinely use any GnRH analogue after surgery</td>
<td>104</td>
</tr>
<tr>
<td>Discharge the patient with no hospital follow-up</td>
<td>25</td>
</tr>
<tr>
<td>Follow-up the patient in hospital only if the patient has a recurrence of her symptoms</td>
<td>54</td>
</tr>
<tr>
<td>Follow-up the patient in hospital with a routine ultrasound scan</td>
<td>117</td>
</tr>
<tr>
<td>Follow-up the patient in hospital with a routine second look laparoscopy</td>
<td>7</td>
</tr>
</tbody>
</table>

**P-value**

- Perform an ovarian cystectomy: < 0.0001
- Ovarian cystectomy and suture the ovary: < 0.0001
- Perform an oophorectomy: 0.067
- Aspirate the cyst contents: 0.0006
- Fenestrate the cyst: < 0.0001
- Fenestrate and do nothing further: 0.092
- Fenestrate and ablate with an electrosurgical device: < 0.0001
- Fenestrate and ablate with a laser: < 0.0001
- Fenestrate and suture: 0.009
- Excise or ablate: 0.363
- Use GnRH analogue for 3–6 months: 0.76
- Use GnRH analogue for 3–6 months: 0.004
- I do not routinely use any GnRH analogue: 0.0065
- Discharge patient: < 0.0001
- Follow-up patient: < 0.0001
- Follow-up patient with ultrasound: 0.0016
- Follow-up patient with second look laparoscopy: 0.4
survey indicates that there is currently an equal preference for open versus endoscopic surgery. However, laparotomy should no longer be the surgical technique of first choice. A recent study comparing these surgical approaches showed that pregnancy rates, monthly fecundity and cyst recurrence rates were comparable. However, blood loss at operation, the length of hospital stay and the recovery time of patients were significantly lower in the laparoscopic group (Milingos et al., 1999). Many other studies have compared the outcomes from laparotomy and laparoscopic treatments. They all support these conclusions, which also apply to the management of endometriomas (Adamson et al., 1992; Bateman et al., 1994; Catalano et al., 1996; Crosignani et al., 1996; Busacca et al., 1998; Milingos et al., 1999; Sawada et al., 1999). The laparoscope also provides a magnified image comparable with that obtained at microsurgery, and therefore it is unnecessary to open the abdomen to achieve this. Laparoscopic surgery also embraces all the principles of microsurgery. These include copious irrigation to prevent tissue desiccation, careful attention to haemostasis, and increasingly, the avoidance of sutures which cause localized tissue ischaemia, and post-operative adhesion formation.

A large number of patients referred to our unit have had laparotomies elsewhere, so we regularly see the consequences of failure to adopt new techniques. The incidence of adhesions is much higher in patients who have had a laparotomy compared with patients who have only had laparoscopies, and this has previously been described by other authors (Fayez and Vogel, 1991). Adhesions which may include loops of bowel increase the risk of primary trochar insertion at subsequent laparoscopy (Audebert, 1999), as well as making the ablation of the endometriosis more complex. Therefore it is difficult to justify open surgery on clinical grounds. In fact there is a plethora of publications in the gynaecological literature which give the impression that laparoscopic surgery dominates clinical practice, when in reality this is not the case, as this survey has shown.

Why do so many gynaecologists in the UK perform laparotomy?

The decision to perform a laparotomy is often made because the surgeon lacks minimal access skills, and not because it is a superior technique. In this study, 487 (74.8%) of gynaecologists managed their patients by performing surgery themselves, even if they lacked the surgical skills to offer an operative laparoscopy. The alternative is to refer patients to a specialist centre; however, very few consultants do this, and there are a number of possible reasons. It is not part of the traditional culture of specialists in the UK to refer patients with endometriosis to colleagues. Furthermore, the way the National Health Service is funded does not encourage experts to accept referrals from outside their local area, because it causes a huge increase in the length of waiting lists. As the length of hospital waiting lists is increasingly being used as an indicator of performance, we can expect a decrease in the treatment of 'out of area' patients.

What is the best laparoscopic approach to treating an endometrioma?

In our survey, the gynaecologists who performed a laparotomy usually perform an ovarian cystectomy (195; 94.7%), whereas the gynaecologists who performed a laparoscopy are equally divided between fenestration (146; 61.1%) and excision (127; 53.1%) of the ovarian cyst. The correct technique for dealing with the endometrioma once access has been gained remains undecided, and this is reflected in the practice of endoscopic surgeons in the UK according to our survey. The aetiology and pathogenesis of ovarian endometriomas should have a bearing on which surgical technique is used. If endometriotic cysts originate by implantation (Sampson, 1921, 1927; Hughesdon, 1957; Ishimura and Masuzaki, 1991; Brosens et al., 1996; Brosen, 1999) or metaplasia (Meyer, 1919, 1923; Donnez et al., 1994, 1996) then the aetiology of the condition is in the ovarian cortex. The ovarian cortex involutes because the ovary is densely adherent to the pelvic side wall, which prevents blood produced by the endometriotic deposits from escaping. Therefore, it seems unnecessary to strip away or excise normal ovarian tissue when this superficial disease can be ablated with minimal loss of the follicular reserve. However, if endometriomas are benign tumours that have arisen in the deep tissues as a result of somatic mutations (Koninckx et al., 1994, 1998, 1999; Kennedy et al., 1995; Jiang et al., 1996; Kennedy, 1998) then excision may be justified, but extensive ablation is also an appropriate treatment. In terms of cyst recurrence, pregnancy rates, pain relief and patient satisfaction both excision and ablation are broadly similar. This may be due to study design, but it must also depend on the extent of the disease and the skill of the surgeon, which will vary considerably. The correct management still needs to be resolved.

Both the open (125; 60.7%), and the endoscopic surgeons (155; 64.9%) reported that they treated co-existing rectovaginal disease. This is important, because ovarian endometriosis is a marker for more extensive pelvic and intestinal disease, which should be treated at the same time if the patient is to benefit from the operation (Redwine, 1999).

Follow-up after surgery

Cyst recurrence rates range from 0–30% for the various techniques and modalities used to treat the endometriomas (Jones and Sutton, 2000). In view of this, we believe that follow-up should occur after conservative surgery, and ultrasound is the ideal modality because it is non-invasive and endometriomas can be distinguished from other adnexal masses with a high degree of accuracy (Mais et al., 1993; Guerriero et al., 1995; Volpi et al., 1995; Dogan et al., 1996; Alcazar et al., 1997). If recurrence is to occur it is usually within 6 months (Jones and Sutton, 2000), and therefore this seems to be the most appropriate time for a follow-up ultrasound scan. This study indicated that a greater proportion of laparoscopists follow this management strategy (170; 71.1%) than open surgeons (117; 56.8%).
Why are so many gynaecologists failing to take up laparoscopic surgery?

The NHS Executive and Wolfson Foundation initially funded two centralized Minimal Access Therapy Training Units (MATTU) in England, and a further one in Scotland. The Royal Surrey County Hospital in Guildford was one of the two centres in England. In addition, there are a handful of hospitals that have established their own training courses. Very few gynaecology consultants have attended the courses, and those who did have not pursued these techniques when they returned to their own hospitals. In fact, most of the delegates at our courses are junior doctors, many of whom come from overseas. Consultants may have difficulty in obtaining funds or time to retrain, or they may have difficulty getting their colleagues to support a new service once they get back to their own hospitals. They may also be unwilling to learn new techniques. It is also a fact that laparoscopic surgery does require excellent hand–eye co-ordination, and an ability to operate in a three-dimensional field using a two-dimensional screen. Some people can never learn to do this despite being outstanding traditional surgeons.

The increase in medical litigation is also having a detrimental effect on the uptake of minimal access surgery in the UK. Whether or not patients accept that complications can occur and that opening the bowel or bladder may be part of the planned procedure in cases of severe endometriosis depends on good pre-operative counselling. Unfortunately, almost any complication that occurs during a laparoscopic procedure will result in a claim for compensation. This is not the case for a complication that occurs during a laparotomy because the expectation that the abdomen will be opened and the hospital stay will be prolonged is already there.

What can be done to improve this situation?

The situation with regard to training in continental Europe is quite different because this is where minimal access surgery was developed. Some of the most renowned centres of excellence exist in these countries. This almost certainly means that opening the bowel or bladder may be part of the planned procedure in cases of severe endometriosis is more widely available in continental Europe. The Europeans tend to operate a pyramidal staffing hierarchy, and all gynaecological surgery is done in these special centres by a professor and his cartel. The remaining gynaecological practice, the so called ‘office’ based or community gynaecology is done by specialists who do not operate. British post-graduate training does not reflect this because every specialist or consultant is expected to be able to operate. It is hoped that a new generation of surgical trainees will shift the balance in favour of minimal access techniques in the UK.

Conclusions

There is an equal preference for open versus endoscopic surgery in the UK. However, the management of endometriomas varies significantly between the two groups. Gynaecologists who perform open surgery tend to carry out ovarian cystectomies. Minimal access surgeons, on the other hand, are equally divided between those who do and those who do not perform ovarian cystectomies. It is hoped that minimal access techniques will become more widely available in the UK.

Acknowledgements

This work was supported by an unrestricted educational grant from Cory Bros™. K.J.’s Fellowship has been funded by the PPP Healthcare Medical Trust and the British Laser Appeal For Surgical Equipment and Research (BLASER). The authors would like to thank Professor Martin Bland at the department of medical statistics, St George’s Hospital, London, for his help and advice with the analysis of our data.

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