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EDITORIAL

Post-surgical ovarian failure after laparoscopic excision of bilateral endometriomas: Is this rare problem preventable?

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Endometriosis is a prevalent disease around which a series of controversial issues provide constant stimulation for continuous studies. More than 100 such papers have been published in peer-review journals just in the first 2 months of 2006 on topics related to the etiopathogenic and epidemiologic aspects of the disease, as well as its diagnosis and treatment. In confirmation of the controversy regarding this disease, many of these articles propose conflicting conclusions. It is therefore extremely difficult to reach any consensus on the basis of publications in the literature, and attempts to establish guidelines based on clinical experience and meta-analyses are, in turn, criticized. The paper by Busacca et al entitled “Post-surgical ovarian failure after laparoscopic excision of bilateral endometriomas” is an undeniable example of this type of discussion involving the possible consequences of a well-debated topic: surgery for the management of ovarian endometrioma.

Ovarian endometriosis involves the formation of cysts with a characteristic chocolate-like content and is one of the most common manifestations of the disease, affecting approximately 50% of women with endometriosis. Its expression is pleomorphic with histologic variations¹ and there are even specific classifications with respect to disease presentation.² In 1986, the technique of laparoscopic resection of the endometrioma capsule as a primary procedure was first described³

and since then there has been continuous debate regarding the optimal treatment of this form of endometriosis. The principal parameters of therapeutic success have been defined as recurrence of the disease based on the patient’s clinical symptoms, ovarian reserve, and the reappearance of ultrasonographic images suggestive of new ovarian endometriomas. More specifically, various questions have been posed regarding the treatment of these cysts, principally with respect to factors concerning the patient’s fertility: Should the endometrioma be excised? Is this decision dependent on the size of the endometrioma? What is the best surgical therapy for endometriomas: removal of the capsule or drainage of the cyst and ablation of the intracystic endometriotic foci? Does capsule removal lead to a decrease in ovulatory function? Should we surgically remove endometriomas of patients whose only complaint is infertility or only of those whose symptomatology includes pain? And what about an associated risk with ovarian cancer?

According to the guidelines established by European Society for Human Reproduction and Endocrinology in 2005,⁴ laparoscopic cystectomy for ovarian endometriomas >4 cm in diameter improves fertility when compared to drainage and coagulation. Coagulation or laser vaporization of ovarian endometriomas without pseudocapsule excision is associated with a significantly increased risk of cyst recurrence.

In the study by Busacca et al, and published in this issue of the *American Journal of Obstetrics and Gynecology*, the authors defend the surgical treatment of ovarian endometrioma with excision of the cyst capsule,

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and affirm that, even when the surgical technique is appropriate, there is a risk of premature ovarian failure in women submitted to laparoscopic excision of bilateral endometrioma. There are certainly other controversies on the above-mentioned topic that have not yet been resolved, and the appropriate surgical technique is still very much a matter of debate. The authors make the observation that, even now, 20 years after the surgical method most commonly used for this purpose was first described, no other study has been published in the literature regarding the question of ovarian failure despite the fact that it occurs in 2.4% of women submitted to this type of procedure. Without doubt, the importance of this article is that it concisely discusses the possible causes involved in this situation, including: irreversible trauma to ovarian vascularization caused by electrocoagulation, excessive removal of ovarian tissue, and an autoimmune reaction caused by a severe, local inflammatory process. One single phrase summarizes the authors' conclusion, "It is to note that our study indicates that the complication is strictly consequent to surgery."

A few words about technique. Excision of an endometrioma cyst wall without ovarian damage is often a complex exercise dependent on finding the plane of attachment of the fibrotic endometrioma to the ovarian cortex. The surgeon first identifies the site of rupture occurring during dissection of the ovary from the pelvic sidewall. In this opening, the fibrotic endometrioma is firmly attached to the ovarian cortex. Gentle peeling or needle vaporization of this junction with cutting current delineates the plane. A little concentrated work here goes a long way as, once started, the endometrioma cyst wall will usually peel easily from the ovarian parenchyma with traction. A different type of forceps is used to identify endometrioma from cortex throughout the procedure; be consistent (biopsy forceps on endometrioma and atraumatic forceps on ovarian cortex). In many cases, the dissection is very close to the utero-ovarian ligament, whose vasculature is very susceptible to avulsion injury requiring bipolar electro-surgical application for hemostasis. Be very careful in this area. Excising the fibrotic pelvic sidewall and/or uterosacral ligament lesions to which the ovary was attached will reduce recurrences. Healthy ovarian tissue adjacent to the endometrioma cyst wall per pathology report indicates that the surgeon should try to improve technique the next time.

The response of women to ovarian hyperstimulation may supply further data on the trauma caused to the ovarian follicular reserve by surgery. Certainly, the stage immediately before ovarian failure is the poor-responder, a fact that is frequently reported in the literature and which has been described by Loo et al,⁵ who nevertheless emphasize that despite the poorer response to stimulation, there were no statistically significant differences in their study between the pregnancy

rate of women with tubal factor and those submitted to surgical treatment of ovarian endometrioma. A conflicting result that is pertinent to this discussion was reported by Canis et al,⁶ who failed to observe any difference in the number of oocytes and embryos obtained following surgery for ovarian endometriomas >3 cm. These authors described the technique used to remove the endometrioma capsule, emphasizing that dissection close to the ovarian hilus can be difficult and requires extreme care to avoid damaging vessels in this region, which would result in severe damage to the ovary.

Busacca et al questioned whether the paucity of previous studies on this subject may be a consequence of fear of criticism about applying laparoscopic surgical techniques from conventional laparotomists. It is easy to imagine that too much cortex was removed or electro-surgical destruction of the ovaries occurred in 1 of the patients in whom surgery appears to have been more complex. However, the other 2 cases, ages 30 and 31, clearly illustrate the enigma described in this paper. Groups experienced in the study of endometriosis should do new studies to better understand how ovarian failure occurs. Specifically, the best surgeons must group, videotape their cases, and prospectively identify those patients most likely to have ovarian compromise. From this group, further studies should yield the answers. These further studies should evaluate the best form of surgical treatment of ovarian endometrioma, taking the risks and benefits into consideration and assessing the presence of both pain and infertility with the objective of achieving the best quality of life for the patients, associated with optimal pregnancy rates and maintenance of ovarian follicular reserve. We wonder if the much larger uncomplicated endometrioma excision control group will exhibit a similar frequency of ovarian failure!

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