ENDOMETRIOMA: SHOULD THIS BE MANAGED BEFORE IN VITRO FERTILIZATION?
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Endometriosis is a common gynaecological disorder in which endometrial tissue (glandular epithelium and stroma) is found outside the uterine cavity. It affects 20–40% of women who complain of subfertility, although it can be found also in 5–10% of fertile women. Endometriosis mostly presents as superficial and deep pelvic peritoneal implants, adhesions and ovarian cysts. Characteristic symptoms include dyspareunia, severe dysmenorrhoea and chronic pelvic pain (Hart et al., 2003).

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 (Cullen, 1920; Sampson, 1927a, b). The origin of ovarian endometrioma, endometriotic deposits within the ovary, is unknown; however, most authors believe that they result initially from a deposit of endometrium passed through the Fallopian tube, causing adherence of the ovary to the pelvic peritoneum and progressive invagination (folding inwards) of the ovary (Hughesdon, 1957; Brosens et al., 1994; Nisolle and Donnez, 1997). If this is true, an endometrioma would be a pseudocyst (false cyst), the wall of which is the inverted ovarian cortex (centre) and hence the removal of this cyst wall might involve removal of normal ovarian tissue, with possible adverse implications for future fertility (Yazbeck et al. 2006).

Transvaginal ultrasound is an increasingly accepted technique for the diagnosis of an ovarian endometrioma. In a recent review, Moore et al. identified 38 articles related to the diagnosis of endometriosis by ultrasound scan, but only seven studies were found to be sufficiently sound for further analysis. The authors concluded that transvaginal ultrasound is indeed a useful test to detect or to exclude the presence of an ovarian endometrioma. However, the size of the endometrioma included in these studies ranged from 20 mm to 200 mm, with a mean of 40 mm, which suggests that the resolution obtained with current ultrasound techniques is inadequate to detect smaller endometrioma (Brosens, 2004).

The primary indications for treatment of ovarian endometrioma are the symptoms of pelvic pain and dyspareunia (pain during or after sexual intercourse). The evidence suggests that, although medical treatment will result in a reduction in size of the endometrioma of up to 57%, the most effective approach to treatment is surgical (Farquhar and Sutton, 1998), but it may impair the outcome of fertility treatment (Yanushpolsky et al., 1998; Hart et al., 2005).

Several alternative laparoscopic techniques have been described for the treatment of ovarian endometrioma: excision (Canis et al., 1992), drainage and methotrexate administration, cyst wall laser vaporization (destruction by burning) preceded or not by medical therapy (Brosens et al., 1996). The procedure of drainage of the endometrioma alone is not recommended due to the risk of infection, ovarian abscess and a high rate of recurrence (Vercellini et al., 1992; Donnez et al., 2002; Audebert A, 2005). With the technique of vaporization of the internal wall of endometriomas by CO2 laser, this technique does not impair ovarian function in terms of IVF parameters and outcome because taking care to preserve the normal residual ovarian cortex (Donnez et al. 2001).

Local medical treatments using in situ ethanol or methotrexate injection have been proposed to avoid surgical management. This treatment seemed to be an effective alternative to surgical treatment of ovarian endometrioma before IVF, but long term effectiveness was not evaluated (Agostini et al., 2007).

Are described much treatments, however, the most effective method of laparoscopic surgery (excisional or ablative) remains controversial. Following ovarian endometrioma cystectomy, some studies have shown conflicting results on ovarian response, with some patients showing a detrimental effect (Tinkanen H and Kujansuu, 2000; Ho et al., 2002) and others showing no adverse effect (Canis et al., 2001; Marconi et al., 2002). There is a lack of randomized controlled studies to report definitively the impact of endometrioma and conservative surgery of ovarian prior to IVF/ICSI cycles. (Garcia-Velasco et al., 2004). The causes of the reduced ovarian reserve in operated ovaries have been poorly investigated. In this regard, it is important to note that, at present, there are no definitive data to clarify whether the damage is related to the surgical procedure and/or to the previous presence of the cyst. Indeed, it cannot be excluded that the cyst per se may damage the surrounding ovarian tissue. Using pathological sections of the ovarian cortex surrounding
ovarian endometriomas, Maneschi et al., found a reduced number of follicles antecedent to surgery, suggesting that the disease per se may be detrimental to the ovary. A major concern is that resection of endometrioma results in the loss of small follicles adjacent to the cyst wall and a reduced oocyte pool, which itself is associated with infertility (Exacoustos et al., 2004). In fact, several retrospective studies have reported reduced responses to gonadotrophins after cystectomy for ovarian endometrioma in young women (Somigliana et al., 2006); and ovarian endometrioma cystectomy before starting ovulation induction in assisted reproduction cycles does not seem to improve the cycle outcome in asymptomatic and uncomplicated patients with certain diameters (Garcia-Velasco et al., 2004).

However, failure to operatively address the endometrioma might result in continued discomfort and potential complications, such as cyst rupture (endometrioma>4cm, Wong, 2004) and the possibility of malignancy (Nishida et al., 2000).

Many previous studies discussed the recurrence of ovarian endometrioma after laparoscopic excision, in view of requirements of reoperation (Busacca et al., 1999; Saleh and Tulandi, 1999; Abbott et al., 2003) or pain recurrence (Busacca et al., 1999; Abbott et al., 2003). K.Koga et al. 2006 demonstrated was that previous medical treatment of endometriosis was a significant factor that was associated with higher recurrence, whereas previous surgery of ovarian endometrioma was not. The results of Fedele et al. 2006 show that a patient with recurrent ovarian endometriosis undergoing repeat conservative laparoscopic surgery, when technically feasible, may expect efficacy with symptoms and disease similar to that of the first operation, with resolution of pain symptoms in about 80% of cases.

In conclusion, it would seem that the age of the patient, the certainty of diagnosis, and the patient’s symptoms are important factors to consider when counselling whether to consider conservative ovarian surgery or proceed directly to controlled ovarian hyperstimulation (COH). Proceeding directly to COH in asymptomatic women with ovarian endometrioma < 4 cm might reduce the time to pregnancy, diminish patient costs, and avoid the potential complications of surgery. Conversely, symptomatic women with ovarian endometrioma and asymptomatic patients with endometrioma ≥ 4 cm (Kennedy S et al., 2005) might be advised to surgical treatment.

References

Sampson J Peritoneal endometriosis due to menstrual dissemination of endometrial tissue into the peritoneal cavity. Am J Obstet Gynecol 1927a;14,422-469.
Sampson J Metastatic or embolic endometriosis, due to menstrual dissemination of endometrial tissue into venous circulation. Am J Pathol 1927b:3,93.
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Sampson J Metastatic or embolic endometriosis, due to menstrual dissemination of endometrial tissue into venous circulation. Am J Pathol 1927b:3,93.