

Ultrasound-guided aspiration of ovarian endometriotic cysts

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Abstract

OBJECTIVE: To evaluate the outcome of ultrasound-guided aspiration of ovarian endometriotic cysts. **METHOD:** Thirty-four patients with ovarian endometriomas were submitted to transvaginal (28 patients) or transabdominal (6 patients) ultrasound-guided aspiration of the cyst content, and then followed with serial ultrasonograms for a mean period of 12 months (range 6-20 months). **RESULT:** The procedure was successful in all cases, and no early complications occurred. The recurrence rate was 53%, and it was not influenced significantly by the preoperative or postoperative administration of medical suppressive therapy. **CONCLUSION:** Ultrasound-guided aspiration of ovarian endometriomas yields a relatively high recurrence rate, and can be proposed as an alternative treatment when surgery is undesired or contraindicated.

Keywords: Endometriosis; Ovarian cyst; Ultrasonography.

Introduction

The optimal treatment for endometriosis is still a controversial issue in gynecology. In recent years, some authors reported that mild forms of endometriosis do not benefit from

medical or surgical treatment, as comparable results in terms of pregnancy rates can be obtained with simple expectant management [1-3]. In more severe stages of endometriosis, characterized by the presence of ovarian endometriomas and/or pelvic adhesions, treatment is necessary, as the spontaneous fertility potential is very low [1].

Medical treatment of ovarian endometriomas has proved inefficacious [4,5], therefore electing surgery as the only therapeutic option in these cases [5,6]. However, when the surgical approach is contraindicated or undesired for some reason, an alternative therapy should be proposed.

In the present study we report our experience with ultrasound-guided fine-needle aspiration of ovarian endometriomas, in order to evaluate if this minimally invasive procedure can compare favorably with surgery and therefore be considered a suitable alternative to surgery in selected cases.

Materials and methods

In the period January 1988-December 1991, 34 patients who were referred to our ultrasound unit for the evaluation of a pelvic mass were diagnosed as having ovarian endometriomas, which were monolateral in 31 cases and bilateral in 3 cases. The mean age of the patients was 30.0 years, ranging from 23 to 39 years. Eight patients were infertile, 11

presented with chronic pelvic pain and/or dysmenorrhea, whereas 15 were asymptomatic and the cyst was detected at a routine ultrasound exam. Twelve patients had completed a 3–6-month course of hormonal therapy with a combined estro-progestin pill (5 patients) or with GnRH-analogs (7 patients) immediately before entering the present study on the basis of a previous sonogram performed elsewhere; when referred to our unit at the end of treatment, the size of the ovarian cysts had not changed significantly. No patient had a history of previous surgery for endometriosis. In four cases the referral diagnosis had been confirmed by diagnostic laparoscopy.

The mean diameter of the cysts was 5.6 cm, ranging from 3.1 to 11.1 cm. Real-time ultrasound-guided aspiration of the ovarian cyst was performed utilizing a transabdominal 3.5 MHz linear probe with biopsy guide (EUP B11, Hitachi, Tokyo, Japan) in 6 patients and a transvaginal 6.5 MHz probe (EUP V33, Hitachi, Japan, Tokyo) connected to a commercially available ultrasound equipment (AU930, Ansaldo, Genova, Italy) in 28 patients. A 16-gauge modified Chiba needle (Ecojekt, Hakko Shoji, Tokyo, Japan) was used. Intraoperative irrigation of the cyst cavity with normal saline solution was performed in all cases. Perioperative sedation was obtained with intramuscular chlorde-methylidiazepam 0.5 mg, atropine 0.2 mg and fentanyl 0.05 mg. Intramuscular antibiotics (ceftriaxone, 1 g/day) were administered for 4 days starting on the day of the aspiration.

Thirteen patients were given hormonal therapy after the procedure: 2 patients continued the oral contraceptive treatment administered before the procedure, and 11 patients underwent a 6-month course of GnRH analogs. Allocation of the patients to treatment or no-treatment groups was based on the referring physician's choice or on the patient's wish to receive medical therapy; no significant differences between treatment and no-treatment groups were present as to mean

age, mean cyst diameter, mean volume aspirated or prevalence of symptoms.

After the procedure the patients were followed for a mean period of 12 months (ranging from 6 to 20 months) with serial ultrasound scans; patients who underwent medical therapy were followed also after the end of treatment for a minimum of 6 months. No patient was lost to follow-up.

Statistical analysis was performed using Student's *t*-test for continuous variables and with the χ^2 or Fisher's exact test, when appropriate, for categorical variables; a *P* value of <0.05 was considered statistically significant.

Results

Thirty-seven cyst aspirations were performed in 34 patients. The procedure was complete and lasted less than 20 min in all cases. A mean volume of 77.0 ml (range 10–500 ml) of thick chocolate fluid was collected and sent for cytologic examination which was consistent with endometriosis in all cases. No post-operative complications occurred.

At follow-up (mean duration of 12 months), 18 endometriomas recurred in 18 patients out of 34 (53%). The mean time to recurrence was 6 months. Two patients strongly unwilling to undergo surgery for psychological reasons were submitted to a second aspiration after cyst recurrence; in both cases the cyst recurred again, 1 and 3 months after the second procedure.

Recurrence was not correlated with the cyst diameter or the volume collected at aspiration; the recurrence rate was 42% for cysts < 5 cm versus 56% for cysts > 5 cm (*P* = not significant), and 40% for volumes < 100 ml versus 59% for volumes > 100 ml (*P* = not significant).

As to medical therapy, the recurrence rate was not significantly different in patients treated with GnRH-analogs either before (recurrence rate: 57%) or after (45%) aspiration or in patients who were not medically treated

(55%). Also the use of oral contraceptives administered before and/or after cyst aspiration did not influence the course of the disease (recurrence rate: 60%).

Discussion

Therapeutic options for endometriosis may vary from a simple expectant management in cases of asymptomatic mild stages of the disease to extensive laparoscopic or laparotomic surgery in cases of severe stages.

In the case of ovarian endometriotic cysts, medical treatment has proved ineffective, since it can only cause temporary shrinkage of the endometrioma, and surgery should therefore be considered the procedure of choice [4,5]. In recent years, more and more surgical procedures in gynecology are performed through the less invasive endoscopic approach. The laparoscopic approach has been reported to be quite efficacious when the ovarian endometrioma is excised or fenestrated [6,7], whereas worse results are obtained when the cyst is simply aspirated [8].

In a paper by Fayez et al. [7], a 2-month recurrence rate of 21% after laparoscopic fenestration and of 22% after laparoscopic stripping of the cyst wall has been reported for endometriomas. Canis et al. [6] recently reported a 8%-recurrence rate 3–6 months after laparoscopic excision of endometriotic cysts. However, post-operative adhesion reformation seems to be nonetheless quite high after surgery performed by laparoscopy. In the study by Canis et al. [6], in fact, adhesion reformation occurred in 82% and de novo adhesion formation in 19% of the cases. In a multicentric study by the Operative Laparoscopy Study Group [9], adhesions reformed in 97% of the cases after laparoscopic surgery.

Whenever surgery is contraindicated or undesired, ultrasound-guided aspiration of endometriomas should be considered; however, scant data have been published in the literature on this approach [10,11].

In a study by Dicker et al. [10], 41 women with endometriomas, who failed to conceive during previous in vitro fertilization and embryo transfer (IVF-ET) cycles, were submitted to transvaginal ultrasound-guided aspiration of the endometriotic cyst followed by ovum pick-up and IVF-ET; a significantly higher number of recovered oocytes and of clinical pregnancies were obtained after aspiration of the endometrioma as compared with the results before the aspiration. However, no data on cyst recurrence were reported.

Aboulghar et al. [11] recently reported a 28.5% recurrence rate at 12 months in 21 women submitted to transvaginal aspiration of ovarian endometriomas, and concluded that the technique appeared to be simple and effective.

In our series, however, the recurrence rate at 12 months (53%) was significantly higher than that reported by Aboulghar et al. [11]. The recurrence rate was not significantly influenced by the use of hormonal suppressive treatment administered either before or after the aspiration. It is therefore our opinion that ultrasound-guided aspiration is of limited value in the treatment of ovarian endometriomas, and should be limited to cases in which surgery is contraindicated or undesired for any reason. One must consider, however, that the procedure is safe, non-invasive and repeatable. If compared with laparoscopy, a patient can be more willing to undergo a repeated out-patient ultrasound-guided aspiration rather than a more invasive laparoscopic procedure in case of cyst recurrence. In our series however, the number of patients undergoing a second procedure is too small to draw any further conclusion on this respect.

One of the main concerns with cyst aspiration is the risk of missing an ovarian malignancy, because a cytological diagnosis of the aspirated fluid can not be 100% accurate in detecting ovarian malignancy [12]. It is therefore our opinion that only patients under 40 years of age, in which ovarian

malignancy is very rare [13,14], should be selected for this procedure. However, the recent improvements in ultrasonography, and particularly the use of transvaginal probes, have permitted the definition of new criteria and scoring systems to appropriately select patients who are at an extremely low risk of ovarian malignancy [15,16]. In our series, the cytological evaluation of the cyst content was always negative for malignancy, and the histology report in the patients who underwent surgery after recurrence confirmed the endometriotic nature of the cyst in all cases.

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