Recurrence rate after “one step” CO2 laser vaporization versus cystectomy in women with ovarian endometrioma: a 3-year follow-up study.

Introduction: The most appropriate treatment of endometrioma remains controversial. Cystectomy seems to be more beneficial than drainage and ablative techniques (bipolar energy) since it provides a higher spontaneous pregnancy rate and lower recurrence rate. However, it has been demonstrated that ovarian reserve is affected following surgical excision, because of inadvertent removal and thermal destruction of healthy ovarian tissue. For these reasons, some practitioners suggested that cyst wall ablation using energies with little thermal spread, such as CO2 laser and plasma energy, could be a more conservative approach and minimize loss of ovarian reserve. The aim of the present study was to assess post-operative recurrence rates in patients with endometriomas managed by either “one step” CO2 fiber laser vaporization or cystectomy.

Materials and methods: This study included patients who underwent surgery for primary unilateral or bilateral symptomatic endometriomas larger than 3 cm at San Raffaele Scientific Institute between January 2015 and January 2018. Patients underwent a standardized laparoscopic stripping technique (Group 1) or “one step” vaporization with CO2 fiber laser (Group 2). The primary endpoint of the study was the comparison of recurrence rates between the two groups. Other endpoints selected for analysis included the identification of risk factors for recurrence.

Results: One hundred twenty-five patients with symptomatic endometriomas were managed with cystectomy (Group 1, n=64) or ablation with CO2 fiber laser (Group 2, n=61) at San Raffaele Scientific Institute, Milan, Italy. The two study groups were homogeneous with regard to mean age, mean endometrioma diameter, bilateral involvement, concomitant deep endometriosis, r-ASRM score. The mean follow-up was 28±12 months (range 12-48 months). Recurrence of ovarian endometriosis was recorded in 6.3% (n=4) of patients treated with cystectomy and in 4.9% (n=3) of those managed with CO2 fiber laser (p=0.75). The mean diameter of recurrent endometriomas was significantly larger in Group 2 compared to Group 1 (Group 1: 1.6±0.9 cm; Group 2: 3.8±0.3 cm; p=0.012). Kaplan-Meyer survival analysis failed to demonstrate a significant difference in recurrence-free survival between the two groups (log-rank p=0.91). At Cox regression analysis, mean endometrioma diameter > 5 cm at the time of surgery was the only independent poor prognostic indicator for recurrence. Age, unilateral versus bilateral involvement, r-ASRM score, concomitant deep endometriosis, type of surgery (cystectomy versus ablation with CO2 fiber laser), post-operative medical therapy were not statistically associated with recurrence.

Conclusion: No statistically significant differences were observed in terms of recurrences rates between cystectomy and CO2 fiber laser vaporization. Endometrioma diameter at the time of surgery larger than 5 cm has been identified as the only independent poor prognostic factor for recurrence.

Keywords: endometrioma, surgery, CO2 laser, cystectomy, recurrence rate

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