COMPARATIVE ANALYSIS OF LAPAROSCOPIC VERSUS MEDICAL MANAGEMENT IN SYMPTOMATIC ENDOMETRIOSIS: A MULTICENTER PROSPECTIVE STUDY

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Topic:

Comparative Analysis of Laparoscopic Versus Medical Management in Symptomatic Endometriosis: A Multicenter Prospective Study

Relevance

Endometriosis is a chronic gynecological disorder characterized by the presence of endometrial-like tissue outside the uterine cavity, most commonly affecting the ovaries, pelvic peritoneum, and surrounding reproductive structures. It affects approximately 10% of women in reproductive age and is a leading cause of pelvic pain, dysmenorrhea, dyspareunia, and infertility.

Due to its chronic nature, endometriosis significantly impairs quality of life and imposes a substantial socioeconomic burden.

Two major approaches dominate the treatment landscape: medical therapy, primarily involving hormonal suppression of ovarian function, and surgical intervention via laparoscopy aimed at lesion excision and adhesiolysis. Despite numerous studies, the comparative long-term effectiveness of these modalities in improving pain, fertility, and recurrence rates remains a topic of ongoing debate.

This multicenter prospective study aims to provide comprehensive evidence comparing laparoscopic surgical management and standard medical therapy for symptomatic endometriosis, focusing on clinical outcomes, patient-reported outcomes, fertility restoration, and recurrence over a 36-month follow-up period.

Aim

To compare the efficacy and safety of laparoscopic excision of endometriotic lesions with medical management in women with moderate to severe symptomatic endometriosis, with a focus on pain reduction, improvement in quality of life, fertility outcomes, and recurrence rates.

Materials and Methods

Study Design: This is a multicenter, prospective cohort study conducted over three years at four major academic hospitals specializing in reproductive health. Institutional ethics approval was obtained, and written informed consent was secured from all participants.

Study Population: A total of 600 women aged 18 to 42 years with confirmed symptomatic endometriosis (stage II-IV per revised American Society for Reproductive Medicine [rASRM] criteria) were enrolled between January 2018 and December 2019.

Inclusion Criteria:

a. Diagnosed with symptomatic endometriosis via laparoscopy or imaging
b. Chronic pelvic pain score >5 on Visual Analogue Scale (VAS)
c. Willingness to undergo either medical or surgical therapy
d. No prior hysterectomy or bilateral oophorectomy

Exclusion Criteria:

a. Suspected malignancy
b. Concurrent pelvic inflammatory disease
c. Recent major abdominal surgery (<6 months)
d. Contraindications to hormonal therapy or anesthesia

Group Allocation: Participants self-selected into two treatment arms based on clinical recommendation and patient preference:

a. Group A (n=300): Underwent laparoscopic excision of visible endometriotic lesions and adhesiolysis

b. Group B (n=300): Received continuous hormonal therapy (oral contraceptive pills, progestins, or GnRH agonists)

Baseline Assessment: All participants underwent comprehensive clinical evaluation:

a. Pain assessment using VAS (dysmenorrhea, dyspareunia, chronic pelvic pain)
b. Health-related quality of life (HRQoL) using SF-36 and EHP-30 questionnaires
c. Pelvic imaging (transvaginal ultrasound, MRI as indicated)
d. Fertility assessment for participants seeking conception
e. Serum biomarkers (CA-125, inflammatory markers)

Follow-up Protocol: Patients were followed at 6, 12, 24, and 36 months with repeat pain scoring, HRQoL assessment, imaging, and documentation of any recurrence or pregnancy.

Outcome Measures:

Primary: Change in VAS pain scores

Secondary: Quality of life scores, pregnancy rates, recurrence rates, need for additional intervention, side effect profile

Statistical Analysis: Statistical analysis was performed using SPSS version 25. Paired and unpaired t-tests, chi-square tests, and Kaplan-Meier survival analysis were used. Significance threshold set at $p<0.05$.

Results

Baseline Characteristics: No significant difference in baseline pain scores, HRQoL indices, or fertility history was found between groups. Average pain VAS: 7.6/10.

Pain Reduction: At 12 months:

- Group A (Laparoscopy): Mean VAS score reduced to 2.1
- Group B (Medical): Mean VAS score reduced to 3.8

At 36 months:

1. Group A: Sustained improvement with VAS at 2.4
2. Group B: Pain recurrence noted; mean VAS rose to 5.6

Quality of Life (QoL):

1. SF-36 scores improved by an average of 40% in Group A versus 25% in Group B at 12 months.
2. Emotional wellbeing and sexual function showed higher improvement in Group A.

Fertility Outcomes: Among women desiring conception:

a. Group A (n=180): Spontaneous pregnancy in 78 (43%) within 36 months
b. Group B (n=170): Spontaneous pregnancy in 38 (22%) within 36 months

Recurrence Rates:

a. Group A: 18% clinical recurrence (pain/symptoms requiring intervention)
b. Group B: 44% recurrence

Complications and Side Effects:

a. Group A: Minor surgical complications (5%), no major complications

b. Group B: Hormonal side effects (35%) including weight gain, mood changes, breakthrough bleeding

Discussion

This study provides compelling evidence favoring laparoscopic surgery as the more durable and effective modality for the management of moderate to severe symptomatic endometriosis.

Patients undergoing laparoscopic excision experienced greater pain relief, sustained improvement in quality of life, and higher fertility outcomes compared to those managed medically.

Pain recurrence was significantly lower in the surgical group, consistent with the notion that excision of ectopic endometrial tissue, particularly deep infiltrating lesions, provides lasting symptom control. Conversely, the medical therapy group experienced a gradual return of symptoms, particularly after discontinuation or adaptation to hormonal agents.

Fertility outcomes were notably better in the surgical group, likely due to restoration of normal pelvic anatomy and removal of inflammatory foci. Hormonal therapy, while effective in temporary suppression of symptoms, does not restore anatomical relationships and may delay conception in women actively trying to conceive.

Notwithstanding its benefits, surgical intervention is not without risks, and careful patient selection remains crucial. Laparoscopy should be offered especially to patients with refractory pain, suspected deep infiltrating endometriosis, or infertility. On the other hand, medical management retains value for patients seeking non-invasive options, those unfit for surgery, or as adjunct therapy postoperatively.

Limitations of this study include non-randomized group allocation, reliance on subjective outcome measures, and potential center-based variability in surgical expertise. Future randomized trials are needed to further validate these findings.

Conclusion

In the management of moderate to severe symptomatic endometriosis, laparoscopic surgery offers superior outcomes in terms of pain reduction, quality of life, and fertility restoration, with lower recurrence rates over a 36-month period. While hormonal medical therapy remains a valid treatment option, particularly for symptom control and short-term relief, it is associated with higher recurrence and lower pregnancy rates.

A multidisciplinary approach, incorporating shared decision-making, patient preferences, and clinical severity, is essential in optimizing individualized treatment plans. Long-term follow-up and potential integration of both treatment modalities may offer the most comprehensive management strategy.

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