**Abstract**

**Aim:** To evaluate the clinical efficacy and safety of laparoscopic adenomyomectomy combined with intraoperative replacement of levonorgestrel-releasing intrauterine system (LNG-IUS) in the treatment of symptomatic adenomyosis.

**Methods:** This is a case-series study in a university medical center. A total of 52 patients with symptomatic adenomyosis were treated by laparoscopic adenomyomectomy combined with intraoperative replacement of LNG-IUS from January 2015 to July 2018. Visual analog scale, menstrual flow and uterine volume were compared before and after the surgery (3, 12 and 24 months). Meanwhile, LNG-IUS-induced adverse reactions (e.g. irregular vaginal bleeding, amenorrhea, expulsion, and perforation) were also recorded.

**Results:** All operations were successfully completed via laparoscopy without conversion to laparotomy. No severe complications were noted during the surgical procedure or follow-up period. The mean postoperative visual analog scale and menstrual flow scores and the volume of the uterus were significantly decreased (all P < 0.001) at 3, 12, and 24 months postoperatively, compared with preoperative scores. The clinical effective rates among the patients with dysmenorrhea were 98%, 96% and 96% at 3, 12 and 24 months after the operation, respectively. And the clinical effectiveness rate of menorrhagia was 97.6%, 95.2% and 95.2% at 3, 12 and 24 months after treatment, respectively. Among all related adverse reactions, amenorrhea was the most common (n = 12, 23.1%). There was one case of LNG-IUS perforation (1.9%) and two cases of expulsion (3.8%).

**Conclusion:** Laparoscopic adenomyomectomy combined with intraoperative replacement of LNG-IUS is a novel and effective conservative surgical procedure for symptomatic adenomyosis treatment.