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INSTRUMENTATION AND TECHNIQUES

Novel Hystero-laparoscopic Technique for LNG-IUD Fixation in Women with High Risk of Expulsion and Desiring to Save the Uterus

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Abstract

Introduction LNG-IUD although used extensively for its non-contraceptive indications like abnormal uterine bleeding (AUB), dysmenorrhoea and fibroid uterus, one of the major drawbacks is the high expulsion rates, especially among adenomyotic and fibroid uterus.

Material and Methods Altius Hospitals, Bangalore have developed a new technique of LNG-IUD fixation, which employs hystero-laparoscopy and usage of a long port closure needle with delayed absorbable sutures.

Conclusion It ensures proper placement and fixation of the LNG-IUD to the uterine cavity, reduces the expulsion rates and has the advantages of being a day care procedure.

Keywords Abnormal uterine bleeding · Dysmenorrhoea · Intrauterine device expulsion · LNG-IUD · Hystero-laparoscopic fixation

Introduction

Levonorgestrel-releasing intra uterine device (LNG-IUD) has been widely used for its non-contraceptive usage over the years. Its use for dysmenorrhoea and AUB is well known among Gynaecologists. LNG-IUD is equal or superior to treatment with systemic progestins or oral contraceptives in adolescent and menopausal women for dysmenorrhoea [1]. It also significantly reduces size of uterus, menorrhagia and dysmenorrhoea in adenomyotic uterus [2]. One of the common problems with its usage is the high expulsion rate, 9.6% overall and a higher rate (9.1–15.8%) in women with adenomyosis and myomas [3]. Even women with heavy menstrual bleeding and dysmenorrhoea have a higher expulsion rate than women with normal uterus [3]. The expulsion rates were similar among nulligravida and parous women [1]. Considering this gynaecologists are finding ways of providing the benefits of LNG-IUD without the risk of expulsion, for women who are desirous of saving the uterus and avoiding extensive surgeries [4].

Study Objective

To introduce an effective technique using hystero-laparoscopy for suture fixation of LNG-IUD in patients with AUB and history of LNG-IUD expulsion or where risk of expulsion of LNG-IUD is high.

Case

A 34-year-old woman diagnosed with adenomyosis had endured 1 year of severe dysmenorrhea and 5–6 months of heavy menstrual bleeding. She gave history of preterm birth with cervical incompetence and spontaneous LNG-IUD expulsion in the 1st month of insertion. Transvaginal

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ultrasonography revealed enlarged uterus with adenomyosis. She wanted her heavy menstrual bleeding and dysmenorrhoea to be relieved and insisted on preserving uterus and menstrual function.

Intervention

An informed consent was obtained from the patient. Firstly, diagnostic hysteroscopy was done, and the uterine cavity was found to be bulky and adenomyotic (honeycomb pattern) with no other local pathology. Serial cervical dilatation was done up to Hegar's No. 8 to facilitate negotiation of port closure needle. Laparoscopy was performed with two contralateral secondary ports for laparoscopic securing of knots. LNG-IUD was prepared by tying a PDS suture at the neck with both free ends of the suture cut to 20 cm length (Fig. 1). Free end of the PDS was held with long port closure needle and introduced through cervix, uterine cavity and pierced through full thickness of uterine wall (Fig. 2). It was then held with plain graspers laparoscopically and port closure needle was withdrawn. The other free end of suture was introduced 2–3 cm away from the first suture end in a similar fashion. The two ends were then pulled laparoscopically with graspers at equal distance simultaneously, to place the LNG-IUD at fundus of uterus. Fixation of LNG-IUD was achieved by placing 5–6 knots intracorporeally on the fundus

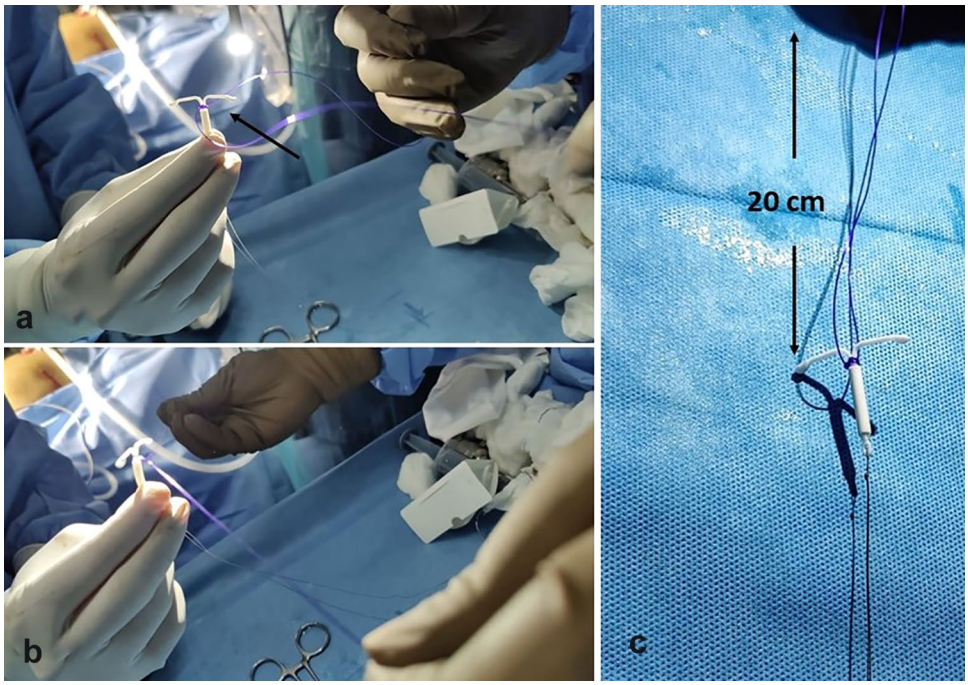

Fig. 1 **a-c** Preparation of LNG-IUD for Hystero-laparoscopic fixation with 20 cm long free ends of PDS suture tied at the neck

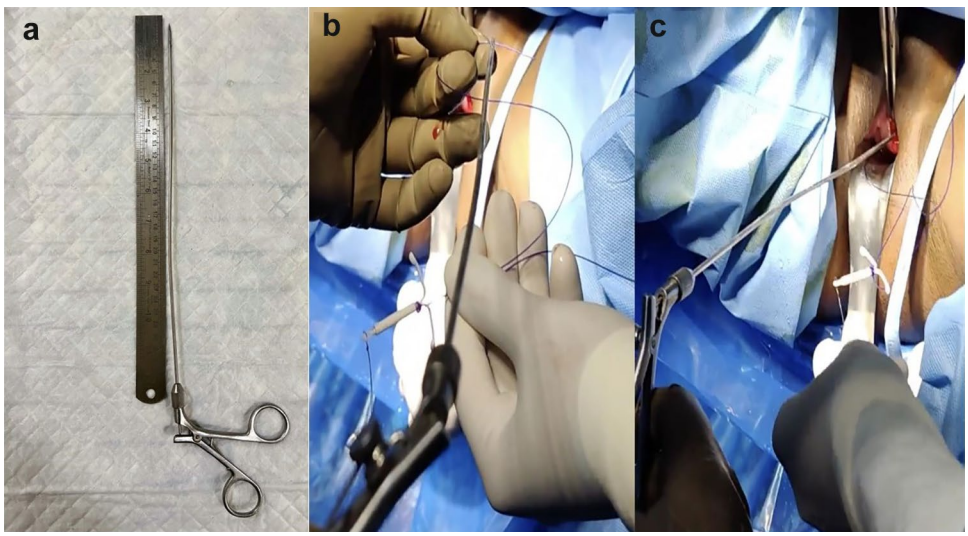

Fig. 2 **a** Long port closure needle used for hystero-laparoscopic LNG-IUD fixation, **b** free end of PDS tied at neck of LNG-IUD positioned in port closure needle, **c** introduction of free ends of suture through cervix with long port closure needle

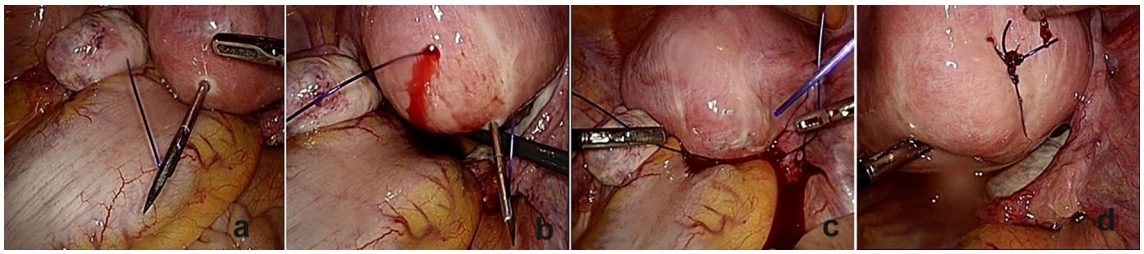

Fig. 3 **a** First free end of suture introduced through full thickness of uterine wall, **b** second free end of suture introduced 2–3 cm apart, **c** each suture ends pulled simultaneously at equal distance to place LNG-IUD at fundus in uterine cavity, **d** fixation of LNG-IUD by 5–6 knots at fundus

(Fig. 3). After confirming haemostasis laparoscopically, a relook hysteroscopy was performed to confirm proper position of the LNG-IUD inside cavity.

Result

The LNG-IUD was fixed successfully within 30 min at the fundus in the uterine cavity by hystero-laparoscopy using PDS suture. The intraoperative blood loss was < 5 mL, and patient was discharged after 12 h of observation with no postoperative complications. At 6 months and 1 year follow-up, symptoms were significantly reduced, and ultrasound demonstrated normal position of the LNG-IUD without displacement or expulsion. The author has successfully implemented this technique in two other cases with similar success rates.

Discussion

Adenomyosis and fibroid uterus affect women of reproductive age and are often associated with AUB and dysmenorrhoea. In the present day and age with the advent of various medical and minimally invasive treatment options, with most women postponing the age of pregnancy, it is common to come across women opting for a medical treatment over an extensive surgical treatment/hysterectomy for these conditions. LNG-IUD being a hormonal contraceptive is also popular for its non-hormonal uses in conditions like AUB, adenomyosis, endometrial hyperplasia, endometriosis, and dysmenorrhoea [5] Spontaneous expulsion is a common drawback of LNG-IUD with crude expulsion rates of 9.6% and an even higher rate of up to 11.1% in adenomyosis, 15.8% in fibroid uterus, 13.4% with heavy menstrual bleeding, 10% in dysmenorrhoea and 17.3% in women with history of gonadotropin releasing hormone treatment pre insertion has been reported in the past [3].

To combat this drawback, attempts have been made to achieve a proper fixation and non-displacement of the LNG-IUD, with complete hysteroscopic approach using a modified LNG-IUD [4]. Here at Altius Hospitals, Bangalore, a novel technique has been employed for LNG-IUD fixation, which involves a procedure as described above. We believe this will allow for a definitive fixation of LNG-IUD with reduced to almost nil expulsions.

Conclusion

LNG-IUD is the treatment of choice in various gynaecological conditions. In patients suffering from AUB or dysmenorrhea having previously expelled an LNG-IUD or at high risk of expulsion, suture fixation of the LNG-IUD using hystero-laparoscopy is a novel and effective technique for proper fixation of an intrauterine device at the fundus in uterine cavity.

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Declarations

Conflict of interest None.

Ethical Approval The work described has not been published before and that it is not under consideration for publication anywhere else. The publication has been approved by all co-authors, as well as by the responsible authorities at Altius Hospitals, Bangalore. A case report for IRB purposes is a retrospective analysis of one, two, or three clinical cases. Therefore it does not have to be reviewed by an IRB.

Informed consent An informed consent was obtained from the patient for the surgical procedure and recordings. None of the above data/figures reveals any patient identifiers. The Institutional Review Board

does not mandate approval for case reports such as this, thus this report meets the Ethical standards as stated in the 1964 Declaration of Helsinki and its subsequent amendments.

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