



Efficacy of Levonorgestrel Intrauterine System in the Management of Abnormal Uterine Bleeding: A Retrospective Analysis of a 100 Women

Atul Ganatra¹ · Freni Shah² · Keya Ganatra³

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Abstract

Aim Abnormal uterine bleeding (AUB) is a common gynaecological complaint affecting around 10–30% women during reproductive years. It adversely affects a woman's life, leading to psychological, medical, social and sexual problems. We aim to study the efficacy of a levonorgestrel intrauterine system (LNG-IUS) in 100 women suffering from AUB.

Methodology A retrospective study was carried out at a private nursing home in Mumbai over a period of 4 years. A total of 100 patients aged 30 years to 50 years (average age = 42.9 years) who underwent LNG-IUS insertion for abnormal uterine bleeding were studied. Cases were evaluated according to clinical findings, hemogram and transvaginal ultrasound. The women were called for follow-up at 1 week, 1 month, 6 months, 1 and 2 years to analyse type and amount of bleeding and development of amenorrhea.

Results At the end of 6 months, 75% patients experienced decreased menstrual blood loss. Five patients underwent removal of the LNG-IUS at the end of 6 months as they experienced no relief of symptoms. At the end of 2 years, 95% patients were fully satisfied with the LNG-IUS insertion.

Conclusion A levonorgestrel intrauterine system significantly reduces bleeding in menorrhagia due to benign causes and is found to be highly effective in the management of various gynaecological pathologies such as endometrial polyps, adenomyosis and endometrial hyperplasia when insertion performed after dilatation and curettage/polypectomy. It has proven to be superior to various surgical and other non-surgical treatment modalities.

Keywords Abnormal uterine bleeding · Levonorgestrel intrauterine system · PALM-COEIN classification · Adenomyosis · Endometrial hyperplasia · Polyp

Introduction

Abnormal uterine bleeding (AUB) is a common gynaecological complaint affecting around 10–30% women during reproductive years. It adversely affects a woman's life, leading to psychological, medical, social and sexual problems. It may be acute or chronic and is defined as bleeding from the uterine corpus that is abnormal in regularity, volume, frequency, or duration and occurs in the absence of pregnancy [1, 2]. It could be caused by both structural and non-structural causes and is a major cause of distress and inconvenience to women. The recent PALM-COEIN classification given by FIGO (the International Federation of Gynaecologists and Obstetricians) divides AUB as being caused by either organic lesions (polyp, adenomyosis, leiomyoma, malignancy and hyperplasia) or functional disturbances

Dr Atul Ganatra is an Proprietor and Director, Dr RJ Ganatra Nursing Home; Dr Freni Shah is an Associate Obstetrician and Gynaecologist, Dr RJ Ganatra Nursing Home; Dr Keya Ganatra is a MBBS Intern, Seth GS Medical College and KEM Hospital.

✉ Atul Ganatra
ganatra.atul@gmail.com

¹ Dr R.J Ganatra Nursing Home, Fortis Hospital, RRT Road, Near Mulund Railway Station, Mulund West, Mumbai 400080, India

² Dr R.J. Ganatra Nursing Home, Mumbai, Maharashtra, India

³ Seth Gordhandas Sunderdas Medical College & King Edward Memorial Hospital, Mumbai, India

Table 1 Presenting complaints

Presenting complaints	No. of patients
Menorrhagia (Heavy menstrual bleeding)	76
Polymenorrhea (Frequent menstrual bleeding)	6
Menometrorrhagia (Irregular heavy bleeding)	13
Dysmenorrhea	5

(coagulopathy, ovulatory dysfunction, endometrial, iatrogenic, not yet classified) [2].

Several medical and surgical modalities have been suggested for the management of symptoms associated with AUB, including heavy menstrual bleeding, pain associated with menstruation, irregular cycles, etc. Depending on patient history, bleeding patterns and associated conditions/risk factors, several medical modalities are available. These include hormonal modalities such as combined oral contraceptive regimens, progestin only regimens, injectable and implantable hormone therapies, procoagulants such as tranexemic acid and hormonal and non-hormonal intrauterine devices (IUDs) [3, 4]. For patients with AUB refractory to medical management, and especially those with underlying structural lesions causing and/or aggravating these symptoms, surgical interventions can be performed.

A levonorgestrel intrauterine system is a progestin-based IUD which is classified as a long active reversible contraception. Beside its use as a contraceptive, these progestin IUDs are also used for long-term medical management of AUB and other gynaecological disorders. Several studies have shown the superiority of LNG-IUS compared to other treatment modalities (both surgical and non-surgical) in terms of both higher efficacy and lower side effects [5, 6]. The LNG-IUS used in this study contains 52 mg of levonorgestrel in its stem. The hormone release rate is 20 µg/day and is considered to be an effective contraception for up to 5–7 years [7].

Here, we study the efficacy of a levonorgestrel intrauterine system (LNG-IUS) in 100 women suffering from AUB. The efficacy is studied in terms of relief of symptoms, quality of life and side effects associated with it.

Methodology

A retrospective study was carried out at Dr R.J. Ganatra Nursing Home, a private nursing home in Mumbai over a period of 4 years. A total of 100 patients aged 30–50 years (average age = 42.9 years) who underwent LNG-IUS insertion for abnormal uterine bleeding were studied. Patients complained of irregular bleeding with or without dysmenorrhea (pain associated with menstruation) (Table 1). Exclusion criteria were uterus size > 12 weeks, pregnancy,

Table 2 Sonographic findings

Sonography findings	Group A (below 45)	Group B (45 and above)	Total no of patients
Bulky uterus	20	12	32
Adenomyosis	25	8	33
Polyp	5	8	13
Fibroids	6	3	9
Thickened endometrium	5	7	12
Others	0	1	1

Table 3 Comorbidities

Comorbidities	No. of patients
Diabetes	4
Thyroid disorders	22
Hypertension	9
Asthma	2
Others ^a	3

^aOthers: aplastic anaemia, myasthenia gravis

Table 4 Follow-up data

Follow-up	1 month	6 months	1 year	2 years
Heavy bleeding	5	5 ^b	0	0
Moderate bleeding	10	4	0	0
Spotting	77	30	10	0
Amenorrhea	8	66	82	95

^bFive patients failed to respond to LNG-IUS, Mirena removed at the end of 6 months and underwent hysterectomy

distorted uterine cavity, endometrial or cervical carcinoma and genital bleeding of unknown ethology.

Patients were divided into two groups according to age at which the LNG-IUS was inserted—group A: women under 45 ($n = 61$); group B: women aged 45 and above ($n = 39$). Cases were evaluated according to clinical findings, hemogram and transvaginal ultrasound (Table 2). After proper counselling, pre-operative work up including identification of comorbidities (Table 3) and taking written informed consent, patients underwent hysteroscopy and dilatation and curettage followed by LNG-IUS insertion under sedation.

The women were called for follow-up at 1 week, 1 month, 6 months, 1 and 2 years (Table 4). This primarily included analysis of amount and type of bleeding at 1 month and 6 months (Fig. 1) and number of women that developed amenorrhea (Fig. 2).

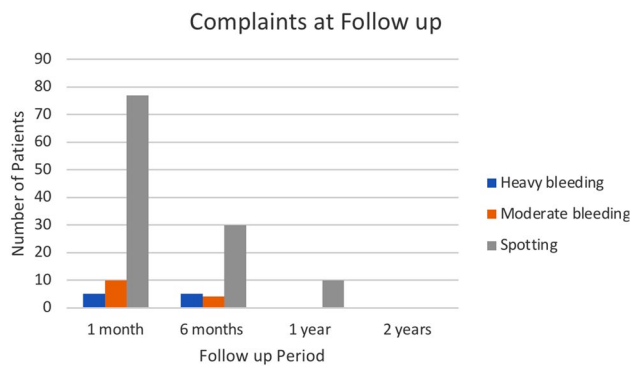


Fig. 1 Complaints at follow-up

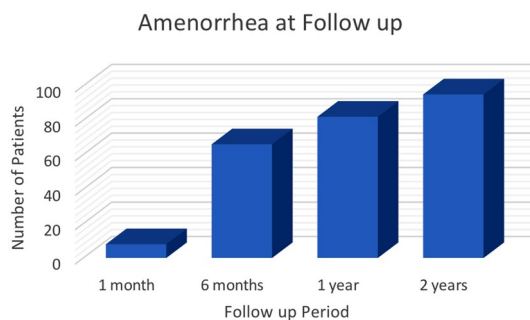


Fig. 2 Patients that developed amenorrhea at follow-up

Data was extracted from case files and cross verified by two authors individually, following which it was compiled into an excel sheet. As the study was performed in the form of a descriptive analysis, basic excel functions were used to calculate percentages and other values.

Five patients failed to respond to the LNG-IUS at the end of 6 months. They got the LNG-IUS removed and subsequently underwent a hysterectomy.

Results

Of the 100 patients included in this study, 61 belonged to group A (under 45 years of age) and 39 belonged to group B (45 years and above). Menorrhagia was the chief presenting complaint in 72% patients attending the gynaecological OPD. By the end of 6 months, 75% patients experienced decreased menstrual blood loss. Five patients (2 in group A vs 3 in group B) underwent removal of the LNG-IUS at the end of 6 months as they experienced no relief of symptoms. They subsequently underwent a hysterectomy.

Of the 95 patients still having Mirena in situ, 95% reported reduced menstrual bleeding at the 1-year follow-up, with similar outcomes in both groups (56 in group A vs

34 in group B). By the end of 2 years, all 95 patients (100%) had developed amenorrhea, showing results similar to other studies done in the past [9].

Major side effect of LNG-IUS to be reported was irregular bleeding or spotting (seen in 77 out of 100 patients). Twenty of these patients, 14 belonging to group A and 6 from group B, required additional management with selective oestrogen receptor modulators for the first 3–6 months.

At the end of 2 years, 95% patients were fully satisfied with the LNG-IUS insertion. Eight patients underwent reinsertion, time interval between removal and reinsertion averaged 2–2.5 months.

Discussion

Abnormal menstrual bleeding is a problem affecting numerous women globally. This study highlights both the benefits and side effects to the use of LNG – IUS in the management of AUB. The high rates of amenorrhea and low rates of side effects at the end of 2 years indicate the effectiveness of LNG – IUS, with its minimally invasive insertion technique adding to its superiority over other surgical techniques. The similarity of outcomes between groups A and B highlight that the LNG-IUS can be used in all age groups of women.

However, AUB is a multifaceted problem that cannot have a single solution. Although, the LNG-IUS has shown to be effective in a high percentage of patients, the small number of patients that eventually required hysterectomy indicate that there is a need for consideration of all treatment options – both medical and surgical in the management of this condition.

Conclusion

Heavy menstrual bleeding or menorrhagia is a subjective finding that can be caused by various structural and non-structural pathologies. Unpredictable or heavy bleeding can lead to psychological, social, medical and sexual problems, necessitating appropriate and adequate management. Multiple medical and surgical treatment modalities are available for the same. However, conservative management is the key to modern gynaecology.

A Levonorgestrel Intra-Uterine System significantly reduces bleeding in menorrhagia due to benign causes and is found to be highly effective in the management of various gynaecological pathologies such as endometrial polyps, adenomyosis and endometrial hyperplasia. As in this study, it has proven to be superior to various surgical and non surgical treatment modalities in several studies performed world wide [10–12]. It provides excellent patient satisfaction

and compliance, provided proper counselling is done before insertion.

Thus, in addition to being a highly effective reversible contraceptive method, it is an excellent fertility sparing device and is the first choice of treatment for heavy menstrual bleeding as per the NICE guidelines [13]. Having said that, it is essential that the patient is provided a cafeteria approach in the method suitable for them depending on their socioeconomic state. Enough time should be provided to discuss the pros and cons of all modalities of treatment. The treatment chosen by the patient is the one best suited for them.

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Declarations

Conflict of interest The authors declare that they have no conflict of interest and nothing to disclose.

Ethics approval NA.

Informed Consent Informed consent was obtained from all participating patients prior to the procedure, and it was explicitly conveyed that their case information may be used for future publications while ensuring strict patient anonymity in all forms of dissemination.

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