OLGULARLA MİRENA(LNG-IUS) KULLANIMI

Prof. Dr. Nafiye Yılmaz

GÜVEN

- Kontraseptif yöntem olarak MİRENA(LNG-IUS) kullanımı
- Kontrasepsiyon dışı etkinlik açısından MİRENA(LNG-IUS) kullanımı

Kontraseptif Yöntem Nasıl Seçilmeli?

Türkiye'de modern kontraseptif yöntem kullanım oranı TNSA 2018 verilerine göre %4-5

Danışmanlık **bireyselleştirilmiş tedavi** seçeneğinin belirlenmesi ve kontraseptif yönteme uyum-yöntem kullanım devamlılığı için esasdır***

- Yaş
- Eşlik eden pelvik patoloji varlığı, anormal uterin kanama, myoma uteri, endometriozis, adenomyozis, dismenore, akne, hirsutizm, PMS, PMDD, varlığı
- Eşlik eden sistemik hastalık (HT, DM, tromboemboli, meme ca hikayesi)
- Eş zamanlı alınan ilaç var mı?
- Postpartum – postabortal dönemde olup olmadığı?

Kontraseptif Yöntem Nasıl Seçilmeli

JAMA | Review

Contraception Selection, Effectiveness, and Adverse Effects
A Review

Stephanie Teal, MD, MPH; Alison Edelman, MD, MPH

Figure 1. How to Choose a Contraceptive Method

Selection of a contraception method based on patient examination

① **Determine need for reversible contraception** Use a validated algorithm (eg, One Key Question and the PATH questions) with every pregnancy-capable person

② **Assess for contraindications** Use Centers for Disease Control and Prevention's Medical Eligibility Criteria for Contraceptive Use

③ **Elicit patient preferences**

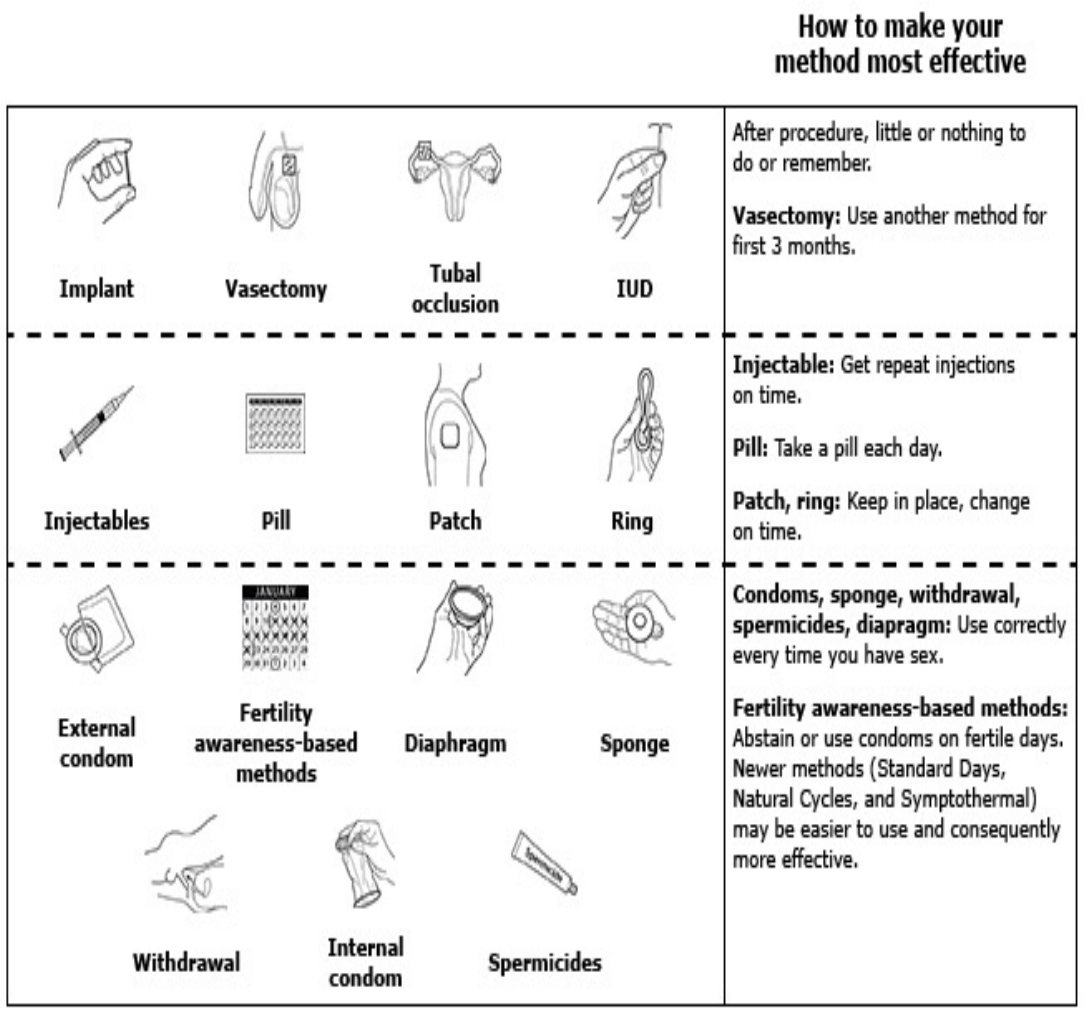
If patient has a preferred contraception method and no contraindications: Prescribe and initiate contraception method
If patient has a condition for which there is insufficient evidence to make a recommendation: Consider referral and bridging method
If patient is unsure of preferred contraception method: Patient-centered counseling to elict preferences

Contraception method patient can stop on their own?	▶ Pill (combined or progestin-only), transdermal patch, vaginal ring, barrier methods
Minimal maintenance?	▶ Subdermal implant, levonorgestrel IUD, copper IUD
Highest effectiveness?	▶ Subdermal implant, levonorgestrel IUD, copper IUD, sterilization
Lighter menstrual bleeding?	▶ Progestin-containing methods: pill, patch, vaginal ring, injectable, levonorgestrel IUD, subdermal implant
Regular withdrawal bleeding?	▶ Cyclic methods: combined pill, patch, vaginal ring
Sexually transmitted infection protection?	▶ Condoms
Acne or hirsutism control?	▶ Estrogen-containing methods: combined pill, path, vaginal ring

This algorithm has not been validated for clinical use. IUD indicates intrauterine device; PATH, Pregnancy Attitudes, Timing, and How Important is pregnancy prevention.

MİRENA(LNG-IUS) – KONTRASEPTİF YÖNTEM

- Servikal mukusun kalınlaşması ile spermin uterin kaviteye girişinin engellenmesi
- Endometriumun incelmesi
- Ovulasyonun inhibisyonu kısmi
- HHO aksının baskılanması minimal, kan estrojen düzeyi etkilenmez
- Enzim indükleyen ilaçlardan etkilenmez



MİRENA(LNG-IUS) İÇERİĞİ

Classification of progestins used in combined oral contraceptive pills

First generation

- Norethindrone acetate
- Ethynodiol diacetate
- Lynestrenol
- Norethynodrel

Second generation

- dl-Norgestrel
- Levonorgestrel

Third generation

- Desogestrel
- Gestodene
- Norgestimate

Unclassified

- Drospirenone
- Cyproterone acetate

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	Progestogenik etki	Androgenik etki	Antiandrogenik etki	Antimineralokortikoid etki	Glukokortikoid etki
Progesteron	+	-	(+)	+	-
Drospirenon	+	-	+	+	-
Siproteron asetat	+	-	+	-	(+)
Desoestrel	+	(+)	-	-	-
Dienogest	+	-	+	-	-
Gestoden	+	(+)	-	(+)	-
Levonorgestrel	+	(+)	-	-	-
Norgestimate	+	(+)	-	-	-

+ etki; (+) terapötik dozlarda ihmal edilebilir; - etkisiz

Level of androgenic activity of progestins in contraceptive pills

Level of activity	Generic name(s)
High	Norgestrel
	Levonorgestrel
Middle	Norethindrone
	Norethindrone acetate
Low	Ethynodiol
	Norgestimate
	Desogestrel
	Drospirenone
	Dienogest

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MİRENA(LNG-IUS)- KORUMA ETKİNLİĞİ

MİRENA etkisi uygulamadan 7 gün sonra başlar.

Table 4: Percentage of women experiencing an unintended pregnancy within the first year of use with typical use and perfect use (modified from Trussell)[100]

Method	Typical use (%) (estimated)	Perfect use (%)
No method	85	85
Fertility awareness-based methods	24	0.4–5
Female diaphragm	12	6
Male condom	18	2
Combined hormonal contraception*	9	0.3
Progestogen-only pill	9	0.3
Progestogen-only injectable	6	0.2
Copper intrauterine device	**0.8**	**0.6**
Levonorgestrel intrauterine system	**0.2**	**0.2**
Progestogen-only implant	**0.05**	**0.05**
Female sterilisation	**0.5**	**0.5**
Vasectomy	0.15	0.1

Long-acting reversible contraception/contraceptive methods in bold type.
*Includes combined oral contraception, transdermal patch and vaginal ring.

LNG-IUS TİPLERİ

Table 2: Types of levonorgestrel intrauterine device (LNG-IUD) available in the UK

Type of LNG-IUD	Benilexa	Levosert	Mirena	Kyleena	Jaydess
Total LNG content (mg)	52	52	52	19.5	13.5
LNG release rate (mcg/24h) **Initial** **At end of licensed use**	 20.1 8.6	 20.1 8.6	 20 9	 17.5 7.4	 14 5
Frame size (W x H, mm)	32 x 32	32 x 32	32 x 32	28 x 30	28 x 30
Inserter	One handed inserter	Two handed inserter	One handed EvoInserter™	One handed EvoInserter™	One handed EvoInserter™
Insertion tube diameter (mm)	4.8	4.8	4.4	3.8	3.8
Silver ring for improved visibility on USS?	No	No	No	Yes	Yes
Colour of threads	Blue	Blue	Brown	Blue	Brown
Recommended duration of use for contraception (years)*	6	6	6	5	3
Licensed duration of use for contraception (years)	6	6	5	5	3
Recommended duration of use for endometrial protection as part of hormone replacement therapy (years)**	5	5	5	Not recommended	Not recommended
Licensed for endometrial protection?	No	No	Yes	No	No
Licensed for heavy menstrual bleeding?	Yes	Yes	Yes	No	No
Minimum uterine cavity length (cm)	5.5	5.5	Not indicated in SPC	Not indicated in SPC	Not indicated in SPC

LNG-IUD: Levonogestrel-releasing intrauterine device; USS: Ultrasound scan; SPC: Summary of product characteristics

*FSRH supports use of any 52mg LNG-IUD for 6 years for contraception

**FSRH supports use of any 52mg LNG-IUD for 5 years for endometrial protection as part of hormone replacement therapy

MİRENA(LNG-IUS)- KULLANIM SÜRESİ

Comparison of intrauterine devices

	Type		
	TCu380A IUD	Levonorgestrel IUD (52 mg)	Levonorgestrel IUD (13.5 mg)
Duration of therapeutic effect (years)	12	7	3
First year of use pregnancy rate, perfect use (percent)	0.6	0.1	0.4
First year of use pregnancy rate, typical use (percent)	0.5 to 0.8	0.1 to 0.2	
5-year cumulative pregnancy rate (percent)	1.4±0.4	1.1±0.5	0.9*
10-year cumulative pregnancy rate (percent)	2.2		
FDA-approved duration of use (years)	10	8	3

IUD: intrauterine device; FDA: US Food and Drug Administration.

* Skyla is approved for 3 years of use. The 3-year cumulative pregnancy rate is 0.9%.

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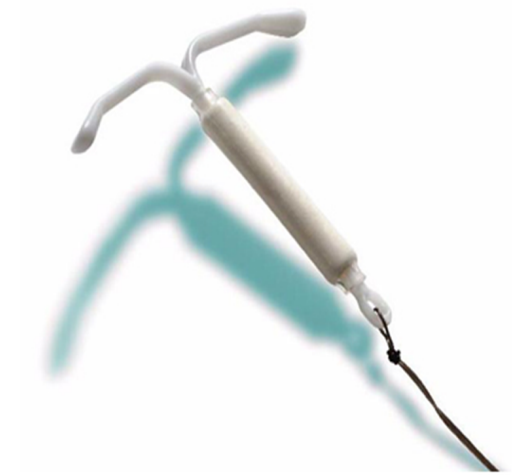
Mirena IUD



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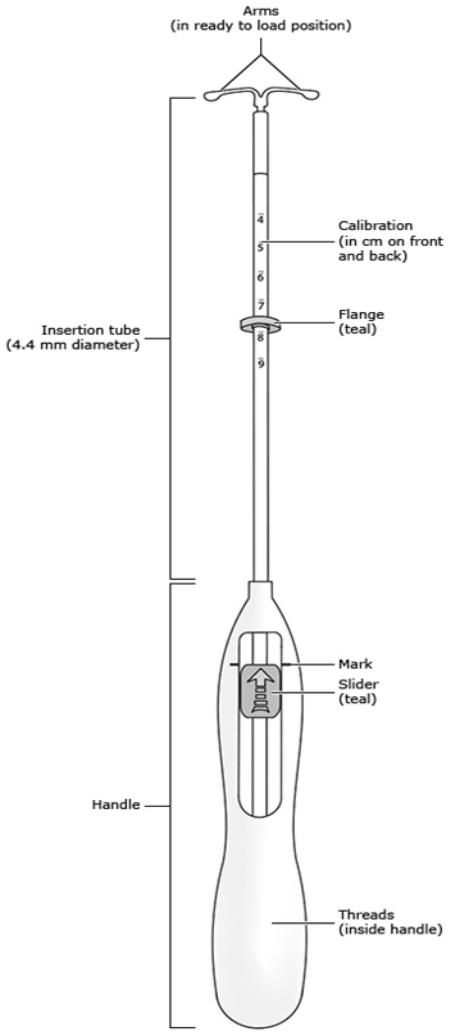
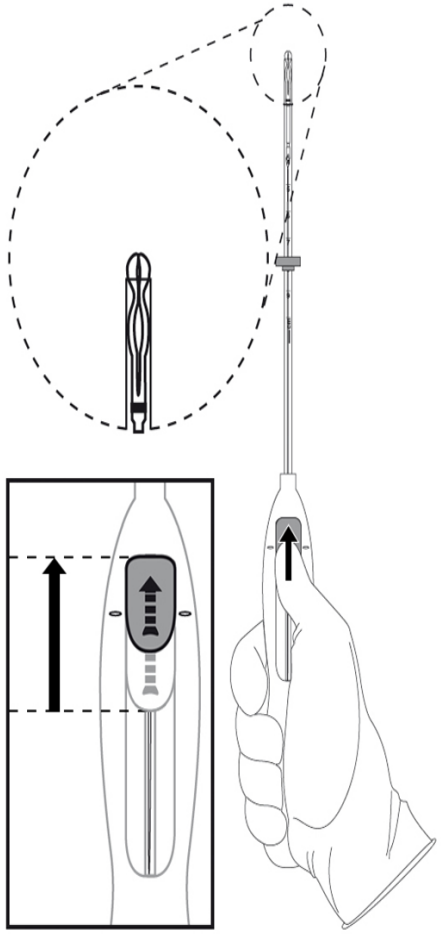
MİRENA(LNG-IUS)- UYGULAMA

LNg52/5 (Mirena) IUD and inserter

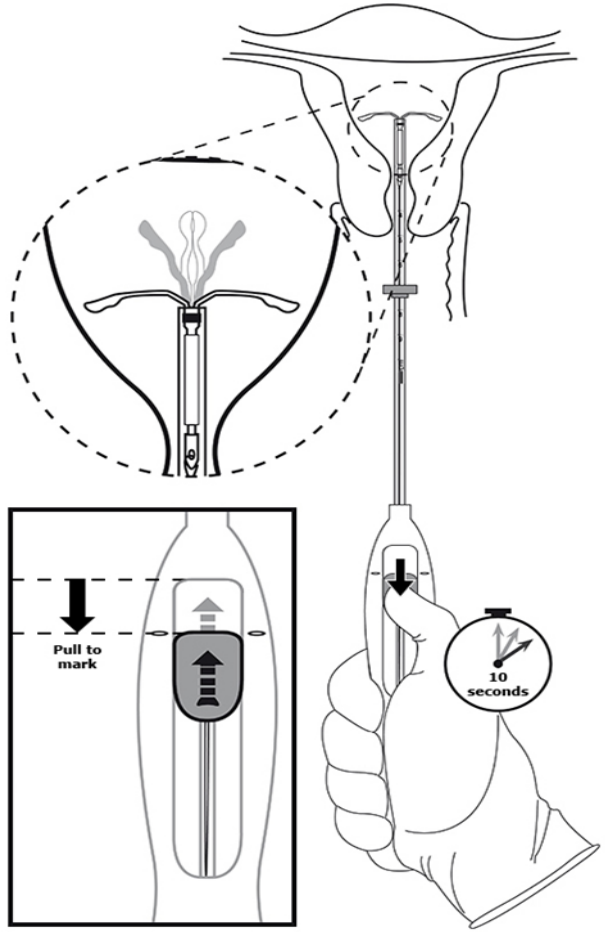


LNg52/5 (Mirena) IUD loaded into insertion device



Move slider all the way to the forward position to load the IUD into the inserter.

LNg52/5 (Mirena) IUD insertion into uterus and deployment of device



Move the slider back to the mark to release and open the arms.

MİRENA(LNG-IUS)- UYGULAMA ZAMANI

How to start contraception

Contraceptive method	When to start (if the provider is reasonably certain that the woman is not pregnant)	Additional contraception (ie, back-up) needed	Examinations or tests needed before initiation*
Copper 380 mm^2 IUD	Anytime	Not needed¶	Bimanual examination and cervical inspection△
Levonorgestrel 52 mg, 19.5 mg, and 13.5 mg IUDs	Anytime	• 52 mg IUD: Not needed¶ • 19.5 mg or 13.5 mg IUD: If inserted >7 days after menses started, use back-up method or abstain for 7 days	Bimanual examination and cervical inspection△
Etonogestrel implant	Anytime	If >5 days after menses started, use back-up method or abstain for 7 days	None
Injectable	Anytime	If >7 days after menses started, use back-up method or abstain for 7 days	None
Combined hormonal contraceptive	Anytime	If >5 days after menses started, use back-up method or abstain for 7 days	Blood pressure measurement
Progestin-only pill	Anytime	If >5 days after menses started, use back-up method or abstain for 2 days	None

Progestin intrauterine devices versus copper intrauterine devices for emergency contraception (Review)

Ramanadhan S, Goldstuck N, Henderson JT, Che Y, Cleland K, Dodge LE, Edelman A.
Progestin intrauterine devices versus copper intrauterine devices for emergency contraception.
Cochrane Database of Systematic Reviews 2023, Issue 2. Art. No.: CD013744.
DOI: 10.1002/14651858.CD013744.pub2.

Main results

We included only one relevant study (711 women); a randomized, controlled, non-inferiority trial comparing LNG-IUDs to Cu-IUDs for EC, with a one-month follow-up. With one study, the evidence was very uncertain for the difference in pregnancy rates, failed insertion rates, expulsion rates, removal rates and the difference in the acceptability of the IUDs. There was also uncertain evidence suggesting the Cu-IUD may slightly increase rates of cramping and the LNG-IUD may slightly increase bleeding and spotting days.

Authors' conclusions

This review is limited in its ability to provide definitive evidence regarding the LNG-IUD's equivalence, superiority, or inferiority to the Cu-IUD for EC. Only one study was identified in the review, which had possible risks of bias related to randomization and rare outcomes.

Additional studies are needed to provide definitive evidence related to the effectiveness of the LNG-IUD for EC.

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N Engl J Med. 2021 January 28; 384(4): 335–344. doi:10.1056/NEJMoa2022141.

Levonorgestrel vs. Copper Intrauterine Devices for Emergency Contraception

David K. Turok, M.D., Alexandra Gero, M.P.H., Rebecca G. Simmons, Ph.D., Jennifer E. Kaiser, M.D., Gregory J. Stoddard, M.P.H., Corinne D. Sexsmith, M.S., Lori M. Gawron, M.D., Jessica N. Sanders, Ph.D.

RESULTS—Among the 355 participants randomly assigned to receive levonorgestrel IUDs and 356 assigned to receive copper IUDs, 317 and 321, respectively, received the interventions and provided 1-month outcome data. Of these, 290 in the levonorgestrel group and 300 in the copper IUD group had a 1-month urine pregnancy test. In the modified intention-to-treat and per-protocol analyses, pregnancy rates were 1 in 317 (0.3%; 95% confidence interval [CI], 0.01 to 1.7) in the levonorgestrel group and 0 in 321 (0%; 95% CI, 0 to 1.1) in the copper IUD group; the between-group absolute difference in both analyses was 0.3 percentage points (95% CI, −0.9 to 1.8), consistent with the noninferiority of the levonorgestrel IUD to the copper IUD. Adverse events resulting in participants seeking medical care in the first month after IUD placement occurred in 5.2% of participants in the levonorgestrel IUD group and 4.9% of those in the copper IUD group.

CONCLUSIONS—The levonorgestrel IUD was noninferior to the copper IUD for emergency contraception. (Supported by the Eunice Kennedy Shriver National Institute of Child Health and Human Development and others; ClinicalTrials.gov number, NCT02175030.)

Exploring the Role of Levonorgestrel Intrauterine System (LNG-IUS) as a Method of Emergency Contraception (EC)

Snigdha Kumari [1], Avir Sarkar [2], Anshul Kulshreshtha [2], Rinchen Zangmo [3], K K. Roy [2]

Considering the plethora of noncontraceptive benefits associated, LNG-IUS can be safely provided as an option of EC in the cafeteria approach within five days of unprotected intercourse.

MİRENA(LNG-IUS) Uygunluk Kriterleri

Summary Chart of U.S. Medical Eligibility Criteria for Contraceptive Use

Condition	Sub-Condition	Cu-IUD		LNG-IUD		Implant		DMPA		POP		CHC	
		I	C	I	C	I	C	I	C	I	C	I	C
Age		Menarche to <20 yrs:2		Menarche to <20 yrs:2		Menarche to <18 yrs:1		Menarche to <18 yrs:2		Menarche to <18 yrs:1		Menarche to <40 yrs:1	
		≥20 yrs:1		≥20 yrs:1		18-45 yrs:1		18-45 yrs:1		18-45 yrs:1		≥40 yrs:2	
						>45 yrs:1		>45 yrs:2		>45 yrs:1			
Anatomical abnormalities	a) Distorted uterine cavity	4		4									
	b) Other abnormalities	2		2									
Anemias	a) Thalassemia	2		1		1		1		1		1	
	b) Sickle cell disease[4]	2		1		1		1		1		2	
	c) Iron-deficiency anemia	2		1		1		1		1		1	
Benign ovarian tumors	(*including cysts*)	1		1		1		1		1		1	
Breast disease	a) Undiagnosed mass	1		2		2*		2*		2*		2*	
	b) Benign breast disease	1		1		1		1		1		1	
	c) Family history of cancer	1		1		1		1		1		1	
	d) Breast cancer[4]												
	i) Current	1		4		4		4		4		4	
	ii) Past and no evidence of current disease for 5 years	1		3		3		3		3		3	
Breastfeeding	a) <21 days postpartum					2*		2*		2*		4*	
	b) 21 to <30 days postpartum												
	i) With other risk factors for VTE					2*		2*		2*		3*	
	ii) Without other risk factors for VTE					2*		2*		2*		3*	
	c) 30-42 days postpartum												
	i) With other risk factors for VTE					1*		1*		1*		3*	
	ii) Without other risk factors for VTE					1*		1*		1*		2*	
	d) >42 days postpartum					1*		1*		1*		2*	
Cervical cancer	Awaiting treatment	4	2	4	2	2		2		1		2	
Cervical ectropion		1		1		1		1		1		1	
Cervical intraepithelial neoplasia		1		2		2		2		1		2	
Cirrhosis	a) Mild (*compensated*)	1		1		1		1		1		1	
	b) Severe[3] (*decompensated*)	1		3		3		3		3		4	
Cystic fibrosis[4]		1*		1*		1*		2*		1*		1*	
Deep venous thrombosis (DVT)/Pulmonary embolism (PE)	a) History of DVT/PE, not receiving anticoagulant therapy												
	i) Higher risk for recurrent DVT/PE	1		2		2		2		2		4	
	ii) Lower risk for recurrent DVT/PE	1		2		2		2		2		3	
	b) Acute DVT/PE	2		2		2		2		2		4	
	c) DVT/PE and established anticoagulant therapy for at least 3 months												
	i) Higher risk for recurrent DVT/PE	2		2		2		2		2		4*	
	ii) Lower risk for recurrent DVT/PE	2		2		2		2		2		3*	
	d) Family history (*first-degree relatives*)	1		1		1		1		1		2	
	e) Major surgery												
	i) With prolonged immobilization	1		2		2		2		2		4	
	ii) Without prolonged immobilization	1		1		1		1		1		2	
	f) Minor surgery without immobilization	1		1		1		1		1		1	
Depressive disorders		1*		1*		1*		1*		1*		1*	

Condition	Sub-Condition	Cu-IUD		LNG-IUD		Implant		DMPA		POP		CHC	
		I	C	I	C	I	C	I	C	I	C	I	C
Diabetes	a) History of gestational disease	1		1		1		1		1		1	
	b) Nonvascular disease												
	i) Non-insulin dependent	1		2		2		2		2		2	
	ii) Insulin dependent	1		2		2		2		2		2	
	c) Nephropathy/retinopathy/neuropathy[4]	1		2		2		3		2		3/4*	
	d) Other vascular disease or diabetes of >20 years' duration[4]	1		2		2		3		2		3/4*	
Dysmenorrhea	Severe	2		1		1		1		1		1	
Endometrial cancer[4]		4	2	4	2	1		1		1		1	
Endometrial hyperplasia		1		1		1		1		1		1	
Endometriosis		2		1		1		1		1		1	
Epilepsy[4]	(*see also Drug Interactions*)	1		1		1*		1*		1*		1*	
Gallbladder disease	a) Symptomatic												
	i) Treated by cholecystectomy	1		2		2		2		2		2	
	ii) Medically treated	1		2		2		2		2		3	
	iii) Current	1		2		2		2		2		3	
	b) Asymptomatic	1		2		2		2		2		2	
Gestational trophoblastic disease[4]	a) Suspected GTD (immediate postevacuation)												
	i) Uterine size first trimester	1*		1*		1*		1*		1*		1*	
	ii) Uterine size second trimester	2*		2*		1*		1*		1*		1*	
	b) Confirmed GTD												
	i) Undetectable/non-pregnant ß-hCG levels	1*	1*	1*	1*	1*		1*		1*		1*	
	ii) Decreasing ß-hCG levels	2*	1*	2*	1*	1*		1*		1*		1*	
	iii) Persistently elevated ß-hCG levels or malignant disease, with no evidence or suspicion of intrauterine disease	2*	1*	2*	1*	1*		1*		1*		1*	
	iv) Persistently elevated ß-hCG levels or malignant disease, with evidence or suspicion of intrauterine disease	4*	2*	4*	2*	1*		1*		1*		1*	
Headaches	a) Nonmigraine (mild or severe)	1		1		1		1		1		1*	
	b) Migraine												
	i) Without aura (includes menstrual migraine)	1		1		1		1		1		2*	
	ii) With aura	1		1		1		1		1		4*	
History of bariatric surgery[4]	a) Restrictive procedures	1		1		1		1		1		1	
	b) Malabsorptive procedures	1		1		1		1		3		COCs: 3 P/R: 1	
History of cholestasis	a) Pregnancy related	1		1		1		1		1		2	
	b) Past COC related	1		2		2		2		2		3	
History of high blood pressure during pregnancy		1		1		1		1		1		2	
History of Pelvic surgery		1		1		1		1		1		1	
HIV	a) High risk for HIV	1*	1*	1*	1*	1		1		1		1	
	b) HIV infection									1*		1*	
	i) Clinically well receiving ARV therapy	1	1	1	1	If on treatment, see Drug Interactions							
	ii) Not clinically well or not receiving ARV therapy[6]	2	1	2	1	If on treatment, see Drug Interactions							

Key:

1 No restriction (method can be used)	3 Theoretical or proven risks usually outweigh the advantages
2 Advantages generally outweigh theoretical or proven risks	4 Unacceptable health risk (method not to be used)

Abbreviations: ARV = antiretroviral; C=continuation of contraceptive method; CHC=combined hormonal contraception (pill, patch, and, ring); COC=combined oral contraceptive; Cu-IUD=copper-containing intrauterine device; DMPA = depot medroxyprogesterone acetate; I=initiation of contraceptive method; LNG-IUD=levonorgestrel-releasing intrauterine device; NA=not applicable; POP=progestin-only pill; P/R=patch/ring; SSRI=selective serotonin reuptake inhibitor; † Condition that exposes a woman to increased risk as a result of pregnancy. *Please see the complete guidance for a clarification to this classification: https://www.cdc.gov/reproductivehealth/contraception/mmwr/spr/summary.html

MİRENA(LNG-IUS) Uygunluk Kriterleri

Summary Chart of U.S. Medical Eligibility Criteria for Contraceptive Use

Condition	Sub-Condition	Cu-IUD		LNG-IUD		Implant		DMPA		POP		CHC	
		I	C	I	C	I	C	I	C	I	C	I	C
Hypertension	a) Adequately controlled hypertension	1*		1*		1*		2*		1*		3*	
	b) Elevated blood pressure levels (*properly taken measurements*)												
	i) Systolic 140-159 or diastolic 90-99	1*		1*		1*		2*		1*		3*	
	ii) Systolic ≥160 or diastolic ≥100[‡]	1*		2*		2*		3*		2*		4*	
	c) Vascular disease	1*		2*		2*		3*		2*		4*	
Inflammatory bowel disease	(*Ulcerative colitis, Crohn's disease*)	1		1		1		2		2		2/3*	
Ischemic heart disease[‡]	Current and history of	1		2	3	2	3	3		2	3	4	
Known thrombogenic mutations[‡]		1*		2*		2*		2*		2*		4*	
Liver tumors	a) Benign												
	i) Focal nodular hyperplasia	1		2		2		2		2		2	
	ii) Hepatocellular adenoma[‡]	1		3		3		3		3		4	
	b) Malignant[‡] (hepatoma)	1		3		3		3		3		4	
Malaria		1		1		1		1		1		1	
Multiple risk factors for atherosclerotic cardiovascular disease	(e.g., older age, smoking, diabetes, hypertension, low HDL, high LDL, or high triglyceride levels)	1		2		2*		3*		2*		3/4*	
Multiple sclerosis	a) With prolonged immobility	1		1		1		2		1		3	
	b) Without prolonged immobility	1		1		1		2		1		1	
Obesity	a) Body mass index (BMI) ≥30 kg/m²	1		1		1		1		1		2	
	b) Menarche to <18 years and BMI ≥ 30 kg/m²	1		1		1		2		1		2	
Ovarian cancer[‡]		1		1		1		1		1		1	
Parity	a) Nulliparous	2		2		1		1		1		1	
	b) Parous	1		1		1		1		1		1	
Past ectopic pregnancy		1		1		1		1		2		1	
Pelvic inflammatory disease	a) Past												
	i) With subsequent pregnancy	1	1	1	1	1		1		1		1	
	ii) Without subsequent pregnancy	2	2	2	2	1		1		1		1	
	b) Current	4	2*	4	2*	1		1		1		1	
Peripartum cardiomyopathy[‡]	a) Normal or mildly impaired cardiac function												
	i) <6 months	2		2		1		1		1		4	
	ii) ≥6 months	2		2		1		1		1		3	
	b) Moderately or severely impaired cardiac function	2		2		2		2		2		4	
Postabortion	a) First trimester	1*		1*		1*		1*		1*		1*	
	b) Second trimester	2*		2*		1*		1*		1*		1*	
	c) Immediate postseptic abortion	4		4		1*		1*		1*		1*	
Postpartum (*nonbreastfeeding women*)	a) <21 days					1		1		1		4	
	b) 21 days to 42 days												
	i) With other risk factors for VTE					1		1		1		3*	
	ii) Without other risk factors for VTE					1		1		1		2	
	c) >42 days					1		1		1		1	
Postpartum (*in breastfeeding or non-breastfeeding women, including cesarean delivery*)	a) <10 minutes after delivery of the placenta												
	i) Breastfeeding	1*		2*									
	ii) Nonbreastfeeding	1*		1*									
	b) 10 minutes after delivery of the placenta to <4 weeks	2*		2*									
	c) ≥4 weeks	1*		1*									
	d) Postpartum sepsis	4		4									

Condition	Sub-Condition	Cu-IUD		LNG-IUD		Implant		DMPA		POP		CHC	
		I	C	I	C	I	C	I	C	I	C	I	C
Pregnancy		4*		4*		NA*		NA*		NA*		NA*	
Rheumatoid arthritis	a) On immunosuppressive therapy	2	1	2	1	1		2/3*		1		2	
	b) Not on immunosuppressive therapy	1		1		1		2		1		2	
Schistosomiasis	a) Uncomplicated	1		1		1		1		1		1	
	b) Fibrosis of the liver[‡]	1		1		1		1		1		1	
Sexually transmitted diseases (STDs)	a) Current purulent cervicitis or chlamydial infection or gonococcal infection	4	2*	4	2*	1		1		1		1	
	b) Vaginitis (*including trichomonas vaginalis and bacterial vaginosis*)	2	2	2	2	1		1		1		1	
	c) Other factors relating to STDs	2*	2	2*	2	1		1		1		1	
Smoking	a) Age <35	1		1		1		1		1		2	
	b) Age ≥35, <15 cigarettes/day	1		1		1		1		1		3	
	c) Age ≥35, ≥15 cigarettes/day	1		1		1		1		1		4	
Solid organ transplantation[‡]	a) Complicated	3	2	3	2	2		2		2		4	
	b) Uncomplicated	2		2		2		2		2		2*	
Stroke[‡]	History of cerebrovascular accident	1		2		2	3	3		2	3	4	
Superficial venous disorders	a) Varicose veins	1		1		1		1		1		1	
	b) Superficial venous thrombosis (acute or history)	1		1		1		1		1		3*	
Systemic lupus erythematosus[‡]	a) Positive (or unknown) antiphospholipid antibodies	1*	1*	3*		3*		3*	3*	3*		4*	
	b) Severe thrombocytopenia	3*	2*	2*		2*		3*	2*	2*		2*	
	c) Immunosuppressive therapy	2*	1*	2*		2*		2*	2*	2*		2*	
	d) None of the above	1*	1*	2*		2*		2*	2*	2*		2*	
Thyroid disorders	Simple goiter/ hyperthyroid/hypothyroid	1		1		1		1		1		1	
Tuberculosis[‡] (*see also Drug Interactions*)	a) Nonpelvic	1	1	1	1	1*		1*		1*		1*	
	b) Pelvic	4	3	4	3	1*		1*		1*		1*	
Unexplained vaginal bleeding	(suspicious for serious condition) before evaluation	4*	2*	4*	2*	3*		3*		2*		2*	
Uterine fibroids		2		2		1		1		1		1	
Valvular heart disease	a) Uncomplicated	1		1		1		1		1		2	
	b) Complicated[‡]	1		1		1		1		1		4	
Vaginal bleeding patterns	a) Irregular pattern without heavy bleeding	1		1	1	2		2		2		1	
	b) Heavy or prolonged bleeding	2*		1*	2*	2*		2*		2*		1*	
Viral hepatitis	a) Acute or flare	1		1		1		1		1		3/4*	2
	b) Carrier/Chronic	1		1		1		1		1		1	1
Drug Interactions													
Antiretrovirals used for prevention (PrEP) or treatment of HIV	Fosamprenavir (FPV) All other ARVs are 1 or 2 for all methods.	1/2*	1*	1/2*	1*	2*		2*		2*		3*	
Anticonvulsant therapy	a) Certain anticonvulsants (phenytoin, carbamazepine, barbiturates, primidone, topiramate, oxcarbazepine)	1		1		2*		1*		3*		3*	
	b) Lamotrigine	1		1		1		1		1		3*	
Antimicrobial therapy	a) Broad spectrum antibiotics	1		1		1		1		1		1	
	b) Antifungals	1		1		1		1		1		1	
	c) Antiparasitics	1		1		1		1		1		1	
	d) Rifampin or rifabutin therapy	1		1		2*		1*		3*		3*	
SSRIs		1		1		1		1		1		1	
St. John's wort		1		1		2		1		2		2	

Updated in 2020. This summary sheet only contains a subset of the recommendations from the U.S. MEC. For complete guidance, see: https://www.cdc.gov/reproductivehealth/contraception/mmwr/mec/guidance.htm. Most contraceptive methods do not protect against sexually transmitted diseases (STDs). Consistent and correct use of the male latex condom reduces the risk of STDs and HIV.

CS314239-A

MİRENA(LNG-IUS)- FERTİLİTE

Journal of Assisted Reproduction and Genetics (2020) 37:45–52
https://doi.org/10.1007/s10815-019-01624-5

REVIEW

Levonorgestrel IUD: is there a long-lasting effect on return to fertility?

Erin Dinehart[1] · Ruth B. Lathi[2] · Lusine Aghajanova[2]

Table 1 Mechanisms of contraceptive actions of intrauterine devices

Intrauterine device (IUD) mechanism of action		
	Copper IUD	Levonorgestrel IUD
Cervical mucus	Copper ions penetrate cervical mucus and decrease sperm motility	Thickens cervical mucus
Spermatozoa and oocyte	Decreases sperm motility, viability, and fertilizing capability; damages oocyte prior to fertilization	Decreases sperm motility
Fertilization	Impairs fertilization	Impairs fertilization
Ovulation	No effect	Can cause anovulatory cycles within first year, but thereafter most cycles are ovulatory [27]
Endometrium	In vitro studies have shown copper affects endometrial gene expression [26]	Thins endometrial lining and causes some changes in endometrial gene expression [28]

Table 2 Summary of fertility outcomes after IUD removal described in the literature

Study	Sample size (n)	Mean age (range)	Nulliparous (%)	IUD type	Length of IUD use	Fertility outcome measures (%)
Andersson et al., 1992 [41]	138	27 (18–36)	Information not available	LNG	19 months (3–50)	CR (12 m)–79.1
Doll et al., 2001 [45]	162	27.7 (< 20–35+)	100	Copper	Used for < 42 months Used for 42–78 months Used for > 78 months	LBR (24 m)–76.5 By length of use: < 42 m - 88.1 42–78 m - 73.5 > 78 m - 68.3
Zhu et al., 2013 [44]	1770	37.3 (21–53)	0	Copper	10.3 years (1–28)	CR (12m)–70.96 By age: < 35 - 92.18 35–40 - 84.17 > 40 - 58.57
Eisenberg et al., 2015 [38]	68	27.3 (16–45)*	57.7	LNG	< 3 years	CR (12 m)–86.8
Gemzell-Danielsson et al., 2017 [40]	179	27.1 (18–35)*	39.5	LNG	< 5 years	CR (12 m)–71.2

IUD, intrauterine device, LNG = levonorgestrel, m = months, yrs = years, CR = conception rate, LBR = live birth rate

*Average age reported for entire LNG IUD study group, unavailable for subgroup of women who discontinued LNG IUD and were followed for time to conception

MİRENA(LNG-IUS)- KONTRASEPSİYON DIŞI ETKİLERİ

Noncontraceptive benefits of reversible contraceptive methods

Combined estrogen-progestin methods	▪ Reduction in menstrual cramps ▪ Reduction in pelvic pain related to endometriosis ▪ Reduction of menorrhagia, with improvement in iron deficiency anemia related to blood loss ▪ Reduction in risk of ectopic pregnancy ▪ Reduction in symptoms associated with premenstrual syndrome and premenstrual dysphoric disorder ▪ Reduction in risk of benign breast disease ▪ Reduction in development of new ovarian cysts (true for higher dose estrogen pills only, which suppress ovulation), but no effect on existing ovarian cysts ▪ Reduction in ovarian cancer, including some hereditary forms, such as those associated with mutations in the *BRCA1* or *BRCA2* gene, presumably due to inhibition of ovarian stimulation ▪ Reduction in endometrial cancer due to the progestin effect ▪ Reduction in colorectal cancer in current users ▪ Reduction in moderate acne ▪ Reduction in hirsutism ▪ More regular menstrual cycles
Hormonal IUD (levonorgestrel)	▪ Reduction in menstrual cramps ▪ Reduction in pelvic pain related to endometriosis ▪ Reduction of menorrhagia, with improvement in iron deficiency anemia related to blood loss ▪ Reduction in endometrial hyperplasia ▪ Reduction in cervical cancer ▪ Reduction in pelvic inflammatory disease
Copper IUD	▪ Continued menstrual cyclicity ▪ Reduced risk of cervical cancer
Progestin-only injection	▪ Reduction in menstrual cramps ▪ Reduction in menstrual bleeding ▪ Reduction in risk of endometrial cancer
Progestin-only pills	▪ Reduction in risk of endometrial cancer

IUD: intrauterine device.

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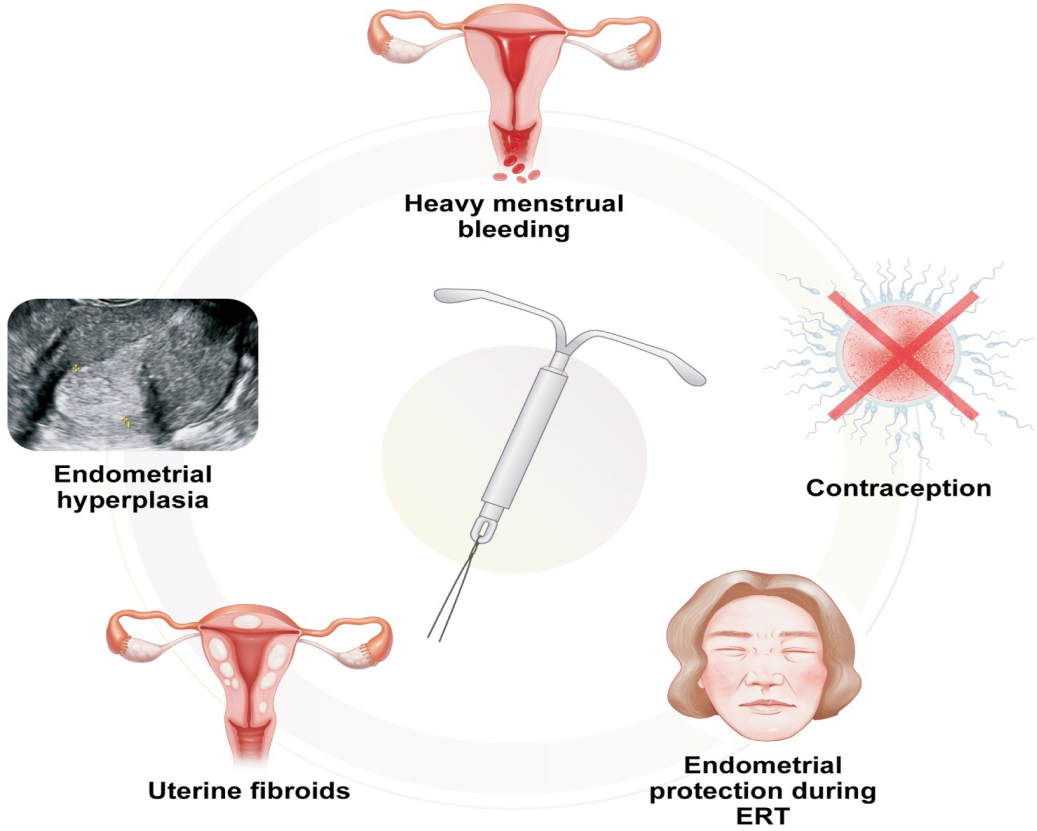


J Menopausal Med 2021 Aug;27(2):49-57.
https://doi.org/10.6118/jmm.20038

LNG-IUS TİPLERİ ve KONTRASEPSİYON DIŞI ETKİLERİ

Table 2: Types of levonorgestrel intrauterine device (LNG-IUD) available in the UK

Type of LNG-IUD	Benilexa	Levosert	Mirena	Kyleena	Jaydess
Total LNG content (mg)	52	52	52	19.5	13.5
LNG release rate (mcg/24h) Initial At end of licensed use	 20.1 8.6	 20.1 8.6	 20 9	 17.5 7.4	 14 5
Frame size (W x H, mm)	32 x 32	32 x 32	32 x 32	28 x 30	28 x 30
Inserter	One handed inserter	Two handed inserter	One handed EvoInserter™	One handed EvoInserter™	One handed EvoInserter™
Insertion tube diameter (mm)	4.8	4.8	4.4	3.8	3.8
Silver ring for improved visibility on USS?	No	No	No	Yes	Yes
Colour of threads	Blue	Blue	Brown	Blue	Brown
Recommended duration of use for contraception (years)*	6	6	6	5	3
Licensed duration of use for contraception (years)	6	6	5	5	3
Recommended duration of use for endometrial protection as part of hormone replacement therapy (years)**	5	5	5	Not recommended	Not recommended
Licensed for endometrial protection?	No	No	Yes	No	No
Licensed for heavy menstrual bleeding?	Yes	Yes	Yes	No	No
Minimum uterine cavity length (cm)	5.5	5.5	Not indicated in SPC	Not indicated in SPC	Not indicated in SPC

LNG-IUD: Levonogestrel-releasing intrauterine device; USS: Ultrasound scan; SPC: Summary of product characteristics

*FSRH supports use of any 52mg LNG-IUD for 6 years for contraception

**FSRH supports use of any 52mg LNG-IUD for 5 years for endometrial protection as part of hormone replacement therapy

FSRH The Faculty of Sexual & Reproductive Healthcare

FSRH Guideline
Intrauterine Contraception

Clinical recommendations

- ✓ Any 52 mg LNG-IUD inserted at age <45 years can be used for contraception for 6 years.
- ✓ Any 52 mg LNG-IUD inserted at age ≥45 years can be used for contraception until age 55 years.
- ✓ Any 52 mg LNG-IUD can be used for 5 years as endometrial protection as part of hormone replacement therapy (HRT).

PCOS, Endometrial hyperplasia
Heavy menstrual bleeding, Myoma uteri < 3cm + heavy menstrual bleeding
Dysmenorrhoea

MİRENA(LNG-IUS)- ÖZELLİKLİ VAKALARDA KULLANIMI

Table 3: UKMEC categories for the use of intrauterine contraception for age and parity

Condition	UKMEC category for Cu-IUD	UKMEC category for LNG-IUD
Age	Menarche to <20 = 2 ≥ 20 = 1	Menarche to <20 = 2 ≥ 20 = 1
Parity		
a) Nulliparous	1	1
b) Parous	1	1

Cu-IUD, copper intrauterine device; LNG-IUS, levonorgestrel intrauterine device; UKMEC, UK Medical Eligibility Criteria for Contraceptive Use.

Table 4: UKMEC categories for the use of intrauterine contraception for postpartum and post-abortion

Condition	UKMEC category for Cu-IUD	UKMEC category for LNG-IUD
Postpartum (in breastfeeding or non-breastfeeding individuals, including post-caesarean section)		
a) 0 to <48 hours	1	1
b) 48 hours to <4 weeks	3	3
c) ≥4 weeks	1	1
d) Postpartum sepsis	4	4
Post-abortion		
a) First trimester	1	1
b) Second trimester	2	2
c) Postabortion sepsis	4	4

Cu-IUD, copper intrauterine device; LNG-IUD, levonorgestrel intrauterine device; UKMEC, UK Medical Eligibility Criteria for Contraceptive Use.

Table 5: UKMEC categories for the use of intrauterine contraception for gestational trophoblastic disease

Condition	UKMEC category for Cu-IUD	UKMEC category for LNG-ID
Gestational trophoblastic disease		
a) Undetectable hCG levels	1	1
b) Decreasing hCG levels	3	3
c) Persistently elevated hCG levels or malignant disease	4	4

Cu-IUD, copper intrauterine device; hCG, human chorionic gonadotropin; LNG-IUD, levonorgestrel intrauterine device; UKMEC, UK Medical Eligibility Criteria for Contraceptive Use.

MİRENA(LNG-IUS)- ÖZELLİKLİ VAKALARDA KULLANIMI

Uterine malformation

Key information

D **For individuals with known distortion of the uterine cavity, risks associated with IUC insertion generally outweigh the benefits (UKMEC3).**

Table 7: UKMEC categories for the use of intrauterine contraception for individuals with anatomical abnormalities of the uterine cavity

Condition	UKMEC category for Cu-IUD	UKMEC category for LNG-IUD
Anatomical abnormalities		
a) Distorted uterine cavity	3	3
b) Other abnormalities	2	2

Cu-IUD, copper intrauterine device; LNG-IUD, levonorgestrel intrauterine device; UKMEC, UK Medical Eligibility Criteria for Contraceptive Use.

Clinical recommendations

✓ **The decision to insert an IUC in an individual with uterine cavity distortion should be made on an individualised basis, considering the degree of distortion, uterine cavity size, the accuracy of imaging available, the indication for use and other suitable alternatives, the type of device being inserted and the potential consequence of complications for that particular individual.**

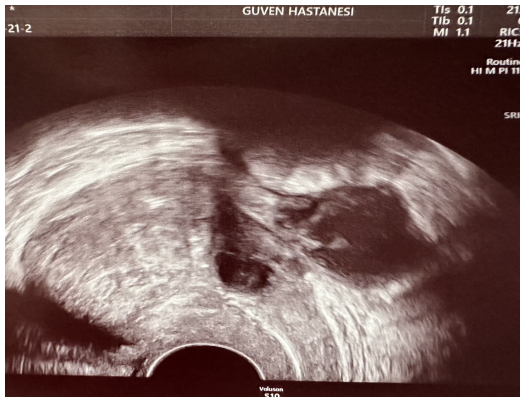
✓ **IUC insertion for an individual with uterine cavity distortion due to fibroids or uterine malformation should be undertaken in a specialist setting with access to concurrent ultrasound or hysteroscopy.**

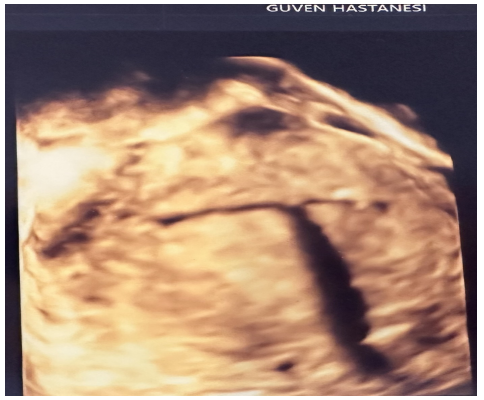
MİRENA(LNG-IUS)- ÖZELLİKLİ VAKALARDA KULLANIMI

Table 8: UKMEC categories for the use of intrauterine contraception for individuals with uterine fibroids

Condition	UKMEC category for Cu-IUD	UKMEC category for LNG-IUD
Uterine fibroids		
a) Without distortion of the uterine cavity	1	1
b) With distortion of the uterine cavity	3	3

Cu-IUD, copper intrauterine device; LNG-IUD, levonorgestrel intrauterine device; UKMEC, UK Medical Eligibility Criteria for Contraceptive Use.

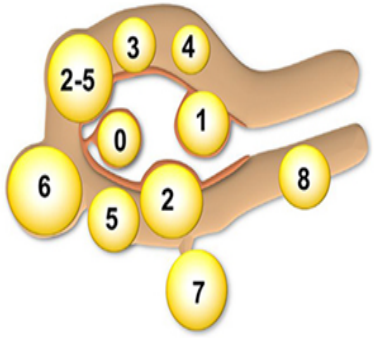




PALM-COEIN subclassification system for leiomyomas

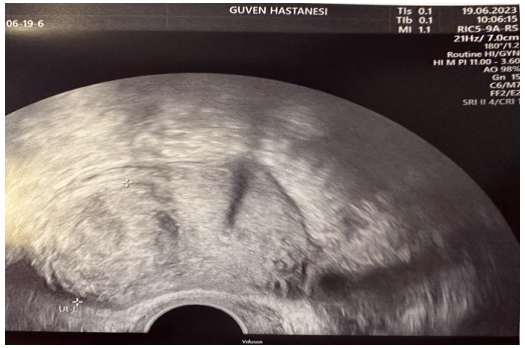
Polyp	Coagulopathy
Adenomyosis	Ovulatory dysfunction
Leiomyoma	Endometrial
Malignancy and hyperplasia	Iatrogenic
Submucous	Not otherwise classified
Other	

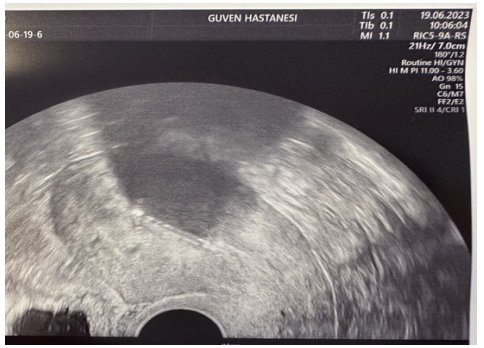
FIGO leiomyoma subclassification system

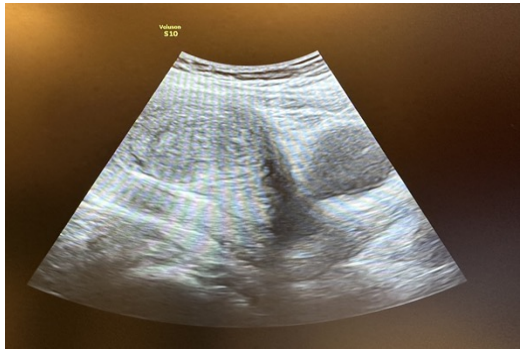


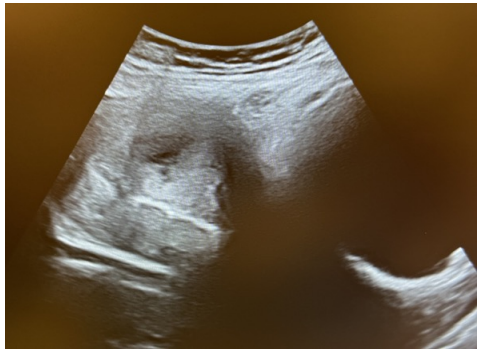
SM – submucous	0	Pedunculated intracavitary
	1	<50% intramural
	2	≥50% intramural
	3	Contacts endometrium; 100% intramural
O – Other	4	Intramural
	5	Subserous ≥50% intramural
	6	Subserous <50% intramural
	7	Subserous pedunculated
	8	Other (specify eg, cervical, parasitic)

Hybrid (contact both the endometrium and the serosal layer)	Two numbers are listed separated by a hyphen. By convention, the first refers to the relationship with the endometrium while the second refers to the relationship to the serosa. One example is below.	
	2-5	Submucous and subserous, each with less than half the diameter in the endometrial and peritoneal cavities, respectively.









MİRENA(LNG-IUS)- ÖZELLİKLİ VAKALARDA KULLANIMI

Levonorgestrel-releasing intrauterine device (LNG-IUD) for symptomatic endometriosis following surgery (Review)

Gibbons T, Georgiou EX, Cheong YC, Wise MR.
Levonorgestrel-releasing intrauterine device (LNG-IUD) for symptomatic endometriosis following surgery.
Cochrane Database of Systematic Reviews 2021, Issue 12. Art. No.: CD005072.
DOI: 10.1002/14651858.CD005072.pub4.

Background

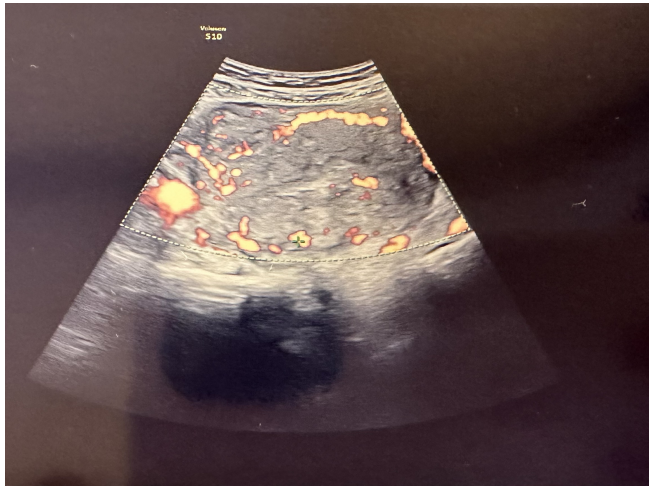
Endometriosis is a condition characterised by the presence of ectopic deposits of endometrial-like tissue outside the uterus, usually in the pelvis. The impact of laparoscopic treatment on overall pain is uncertain and a significant proportion of women will require further surgery. Therefore, adjuvant medical therapies following surgery, such as the levonorgestrel-releasing intrauterine device (LNG-IUD), have been considered to reduce recurrence of symptoms.

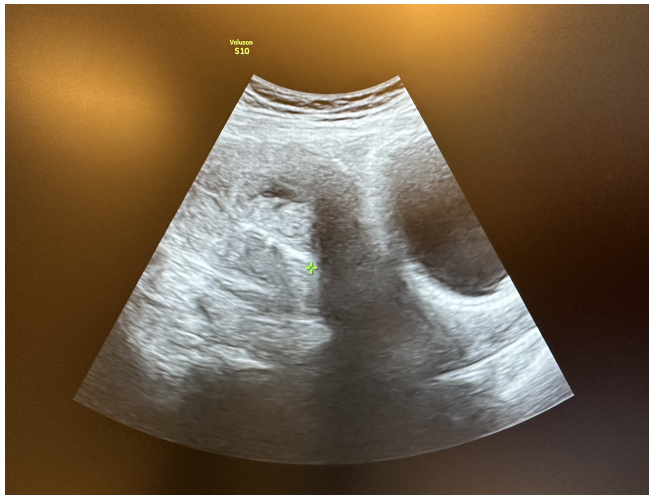
Objectives

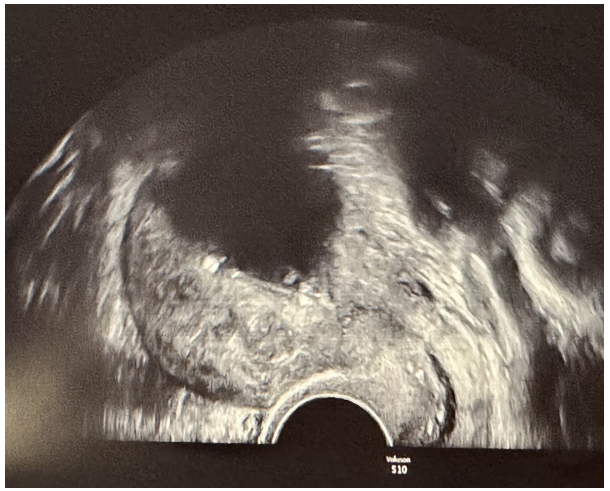
To determine the effectiveness and safety of post-operative LNG-IUD in women with symptomatic endometriosis.

Authors' conclusions

Post-operative LNG-IUD is widely used to reduce endometriosis-related pain and to improve operative outcomes. This review demonstrates that there is no high-quality evidence to support this practice. This review highlights the need for further studies with large sample sizes to assess the effectiveness of post-operative adjuvant hormonal IUD on the core endometriosis outcomes (overall pain, most troublesome symptom, and quality of life).







MİRENA(LNG-IUS)- ÖZELLİKLİ VAKALARDA KULLANIMI

Progestogen-releasing intrauterine systems for heavy menstrual bleeding (Review)

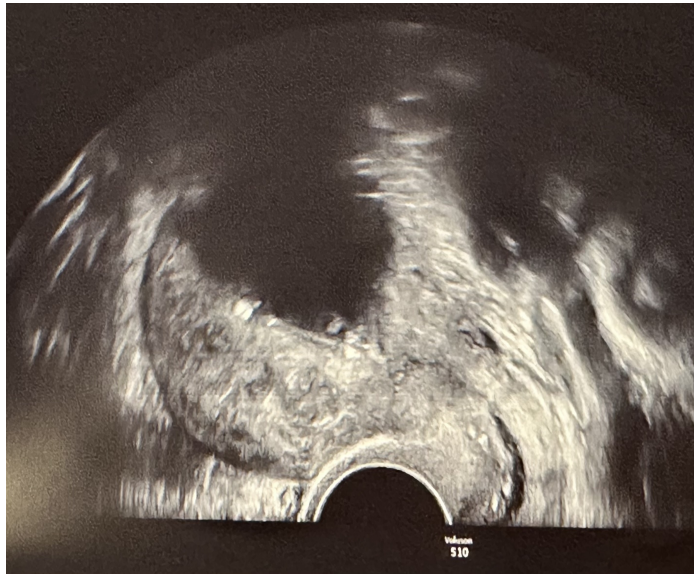
Bofill Rodriguez M, Lethaby A, Jordan V

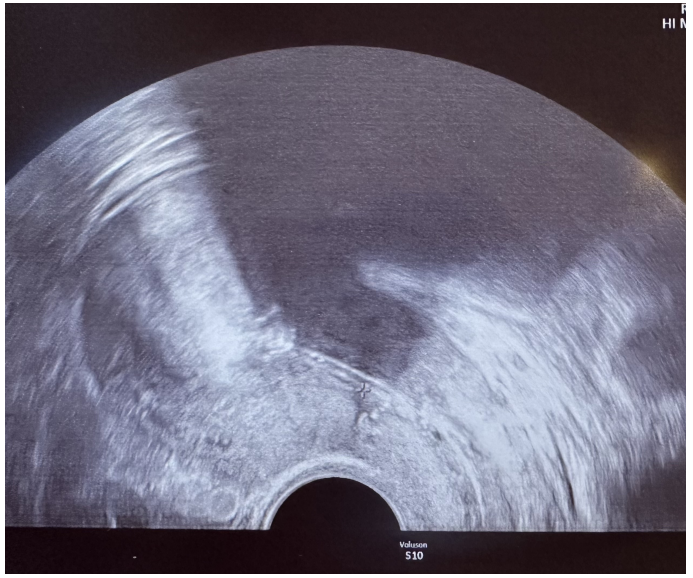
Authors' conclusions

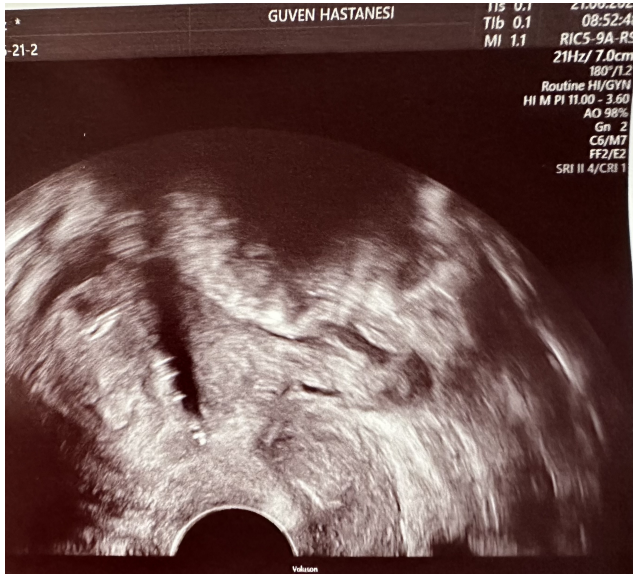
The LNG-IUS may improve HMB and quality of life compared to other medical therapy; the LNG-IUS is probably similar for HMB compared to endometrial destruction techniques; and we are uncertain if it is better or worse than hysterectomy.

The LNG-IUS probably has similar serious adverse events to other medical therapy and it is more likely to have any adverse events than EA.

Bofill Rodriguez M, Lethaby A, Jordan V.
Progestogen-releasing intrauterine systems for heavy menstrual bleeding.
Cochrane Database of Systematic Reviews 2020, Issue 6. Art. No.: CD002126.
DOI: 10.1002/14651858.CD002126.pub4.







MİRENA(LNG-IUS)- ÖZELLİKLİ VAKALARDA KULLANIMI

Choice of progestin therapy for treatment of endometrial hyperplasia

Drug*	Treatment dose (typically used for 3 to 6 months at which point endometrial sampling is repeated)	Provides contraception	Patient selection
Preferred:			
Levonorgestrel 52 mg IUD (LNG 52; Mirena, Liletta)[¶,Δ]	Releases 20 mcg/day initially	Yes	The LNG 52 is the **preferred** progestin therapy for pre- and postmenopausal patients with EH (any type)
Alternatives for patients who decline, or cannot tolerate, the LNG 52:			
Megestrol acetate	40 to 160 mg orally daily[◇,§]	No	Can be used for pre- and postmenopausal patients with EH (any type)
Medroxyprogesterone acetate (MPA)	10 to 20 mg orally daily[§]	No	Can be used for pre- and postmenopausal patients with EH (any type)
Norethindrone acetate (NETA, also known as norethisterone acetate; Aygestin)	5 to 15 mg orally daily	No	Can be used for pre- and postmenopausal patients with EH (any type) who decline, or cannot tolerate, stronger oral progestins
Micronized progesterone (oral)	200 to 300 mg orally daily	No	Use **only** for patients with **all** of the following: • EH without atypia (any menopausal status), **and** • Who decline, or cannot tolerate, stronger oral progestins
Norethindrone (progestin-only contraceptive pill; eg, Camila, Ortho Micronor)	0.35 mg orally twice or three times daily	Yes[¥]	Use **only** for patients with **all** of the following: • Premenopausal status, **and** • Require contraception
Combined estrogen-progestin contraceptive (COC)	Variable; refer to product labeling	Yes	Use **only** for patients with **all** of the following: • Premenopausal status, **and** • EH without atypia, **and** • Require contraception
Depo medroxyprogesterone acetate (DMPA)	150 mg intramuscularly every three months	Yes	Use **only** for patients with **all** of the following: • Premenopausal status, **and** • EH without atypia, **and** • Who decline, or cannot tolerate, stronger oral progestins

For additional discussion, including choice of treatment and duration, refer to UpToDate content on management of endometrial hyperplasia and related algorithms.

MİRENA(LNG-IUS)- ÖZELLİKLİ VAKALARDA KULLANIMI

Levonorgestrel intrauterine system as a treatment option for severe menorrhagia in adolescent with type III von Willebrand disease

Carla Donato Silva, Fernanda Geraldes, Isabel Santos Silva

CASE PRESENTATION

A 14-year-old girl attended our consult for severe menometrorrhagia since menarche, associated with iron deficiency anaemia and physical activity restriction; this condition had a great impact on the patient's quality of life.

Medical history: type III von Willebrand disease diagnosed in 2001 at the age of 3 (bleeding with dental eruption and minor trauma led to medical investigation and ultimately to the diagnostic).

Previous surgeries: None.

Family history: mother with Type II von Willebrand disease.

Gynaecological history: menarche in May/2009 (11 years old); persistent menometrorrhagia since menarche; and no history of sexual activity.

DISCUSSION

Levonorgestrel intrauterine system is a highly effective therapy in menorrhagia induced by bleeding disorders[6–8] and although its use in adolescents is uncommon, especially in those with no previous pregnancy or sexual activity, it seems to be a safe option in the treatment of these patients.[9 10]

The literature on intrauterine device use among adolescents is still scant, but the data on pregnancy, discontinuation and expulsion rates seem similar to the adult population. There has been no report of irreversible effects of levonorgestrel intrauterine system in endometrial function.

Changes in bleeding patterns are expected with a typical decrease in bleeding over time that will lead to light bleeding, spotting or amenorrhoea, and healthcare providers should counsel adolescents so they understand these changes.[11]

Learning points

- Bleeding disorders are the second main cause of puberty menometrorrhagia.
- Von Willebrand disease is the most common bleeding disorder in women (1% of the general population).
- Levonorgestrel intrauterine system is a highly effective therapy in menorrhagia induced by bleeding disorders and can be considered as a temporary treatment in adolescents.

MİRENA(LNG-IUS)- ÖZELLİKLİ VAKALARDA KULLANIMI

Lu and Yang *BMC Women's Health* (2018) 18:45
https://doi.org/10.1186/s12905-018-0533-0

BMC Women's Health

CASE REPORT Open Access

Levonorgestrel-releasing intrauterine system for treatment of heavy menstrual bleeding in adolescents with Glanzmann's Thrombasthenia: illustrated case series

Meiqiu Lu and Xin Yang*

Abstract

Background: Glanzmann's Thrombasthenia (GT) is an inherited genetic disorder caused by defects in the platelet membrane glycoproteins IIb/IIIA, and is associated with heavy menstrual bleeding (HMB). HMB is a common complication in female patients, and many adolescent girls with this disease have issues with HMB beginning at menarche. The available treatment modalities including anti-fibrinolytics, nonsteroidal anti-inflammatory drugs (NSAIDs) and hormonal therapies though are effective, their associated side effects, limited efficacy and the poor compliance is a challenge in management of HMB. Levonorgestrel-releasing intrauterine system (LNG-IUS) has been a potential alternative to overcome this challenge. The use of the LNG-IUS for the management of HMB in adolescents with GT is explored in this case series.

Case presentation: Two adolescents diagnosed with GT and received the LNG-IUS as treatment modality for management of HMB is discussed in this case series.

Conclusions: For patients with poor compliance to oral hormonal therapies, the use of LNG-IUS is associated with a significant reduction of menstrual blood loss along with improved quality of life. These findings support the use of LNG-IUS to control adolescent GT-related HMB.

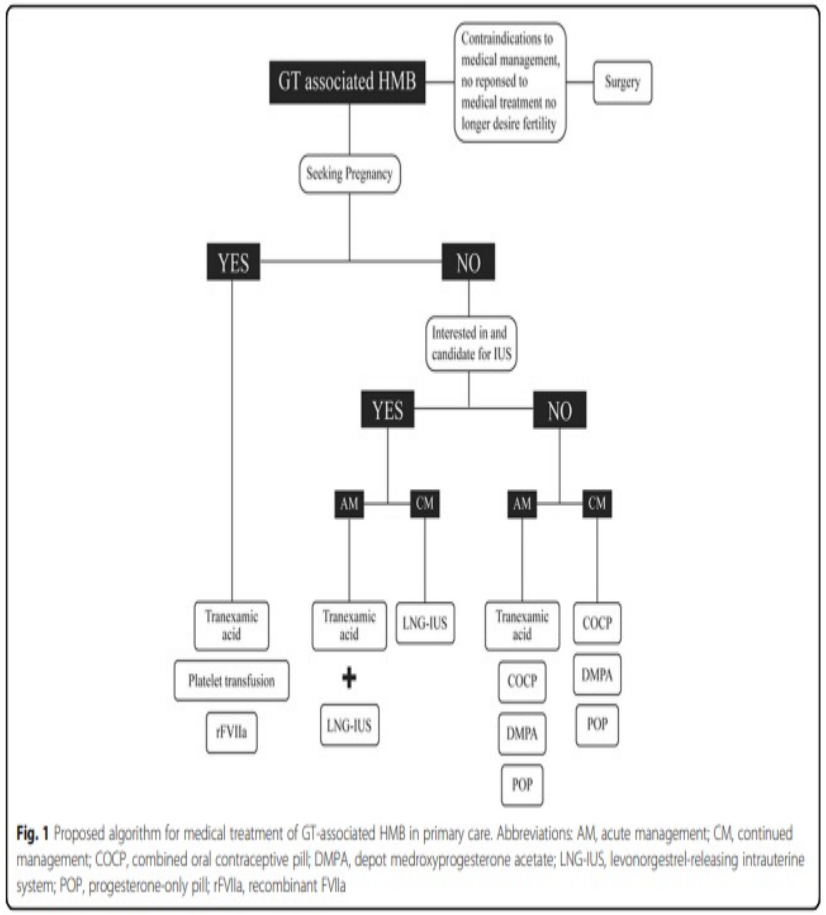


Fig. 1 Proposed algorithm for medical treatment of GT-associated HMB in primary care. Abbreviations: AM, acute management; CM, continued management; COCP, combined oral contraceptive pill; DMPA, depot medroxyprogesterone acetate; LNG-IUS, levonorgestrel-releasing intrauterine system; POP, progesterone-only pill; rFVIIa, recombinant FVIIa

MİRENA(LNG-IUS)- ÖZELLİKLİ VAKALARDA KULLANIMI

7.1.9 After large loop excision of the transformation zone (LLETZ) procedure

Clinical recommendations

✓ **If an IUC is removed during LLETZ and not immediately reinserted, alternative contraception should be provided and EC considered.**

MİRENA(LNG-IUS)- ÖZELLİKLİ VAKALARDA KULLANIMI

7.1.10 Individuals at risk of infection

Key information

D **Current pelvic inflammatory disease, postpartum or post-abortion sepsis, symptomatic gonorrhoea or chlamydia infection or purulent cervicitis are all contraindications to IUC insertion (UKMEC4).**

Clinical recommendations

✓ **If IUC insertion has to be delayed due to infection, bridging contraception should be offered.**

✓ **A sexual history should be taken prior to IUC insertion and screening offered to individuals at risk of STIs. Screening can be performed at the time of insertion.**

Table 9: UKMEC categories for the use of intrauterine contraception for individuals at risk of infection

Condition	UKMEC category for Cu-IUD		UKMEC category for LNG-IUD	
Pelvic Inflammatory disease (PID)				
a) Past PID (assuming no current risk factor for STIs)	1		1	
b) Current PID	**I**	**C**	**I**	**C**
	4	2	4	2
Sexually transmitted infections				
Chlamydial infection (current)				
a) Symptomatic	**I**	**C**	**I**	**C**
	4	2	4	2
b) Asymptomatic	**I**	**C**	**I**	**C**
	3	2	3	2
Purulent cervicitis or gonorrhoea (current)	**I**	**C**	**I**	**C**
	4	2	4	2
Other current STIs (excluding HIV and hepatitis)	2		2	
Vaginitis (including *Trichomonas vaginalis* and bacterial vaginosis) (current)	2		2	

Initiation: Starting a method by an individual with a specific medical condition.
Continuation: Continuing with the method already being used by anindividual who develops a new medical condition.
Cu-IUD, copper intrauterine device; LNG-IUD, levonorgestrel intrauterine device; UKMEC, UK Medical Eligibility Criteria for Contraceptive Use.

MİRENA(LNG-IUS)- ÖZELLİKLİ VAKALARDA KULLANIMI

8.3 Bone mineral density

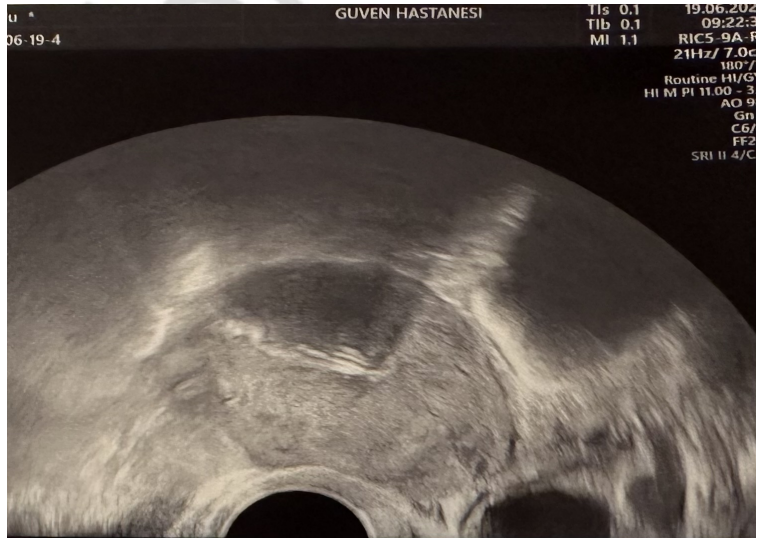
Key information

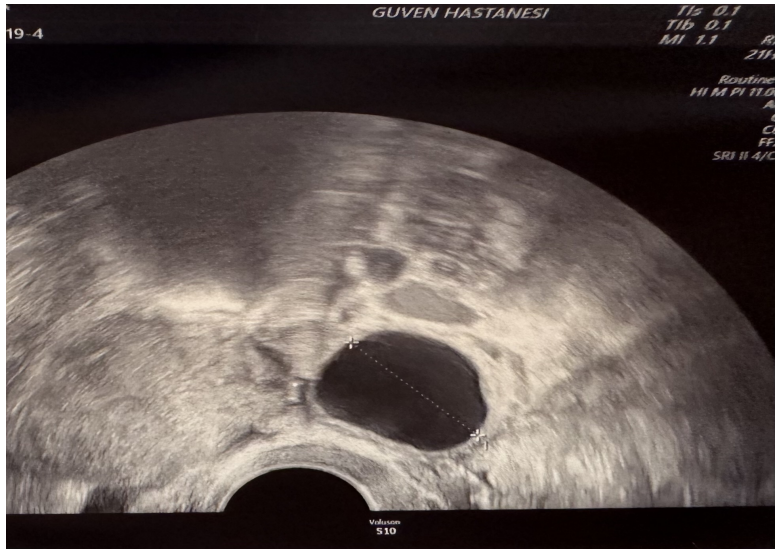
D	The limited evidence available suggests that IUC use has no significant effect on serum estradiol levels or bone mineral density.

8.2 Ovarian cysts

Key information

D	Although incidence of ovarian cysts may be elevated during LNG-IUD use, this does not appear to be clinically significant.
D	Presence of (or history of) ovarian cysts or polycystic ovary syndrome is not a contraindication to IUC use.





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7.1.14 Individuals with cardiac disease

Key information

C	**Antibiotic prophylaxis is not routinely recommended when an individual at increased risk of developing infective endocarditis has an IUC procedure.**
D	**There is a small risk of vasovagal reaction during IUC procedures.**
✓	**The majority of IUC insertions in individuals with postural orthostatic tachycardia syndrome (PoTS) should be straightforward and low risk, providing precautions (adequate hydration, salt intake and postural awareness) are in place.**

Table 10: UKMEC categories for the use of intrauterine contraception for individuals with cardiac disease

Condition	UKMEC category for Cu-IUD		UKMEC category for LNG-IUD	
Current and history of ischaemic heart disease	1		I	C
			2	3
Stroke (history of cerebrovascular accident, including TIA	1		I	C
			2	3
Cardiac arrhythmias				
a) Atrial fibrillation	1		2	
b) Known long QT syndrome	I	C	I	C
	3	1	3	1

Initiation: Starting a method by an individual with a specific medical condition.
Continuation: Continuing with the method already being used by anindividual who develops a new medical condition.
Cu-IUD, copper intrauterine device; LNG-IUD, levonorgestrel intrauterine device; TIA, transient ischemic attack; UKMEC, UK Medical Eligibility Criteria for Contraceptive Use.

MİRENA(LNG-IUS)- ÖZELLİKLİ VAKALARDA KULLANIMI

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J Menopausal Med 2021;27:49-57
REVIEW ARTICLE

Levonorgestrel-Releasing Intrauterine System Use in Perimenopausal Women

Jong-Kil Joo[1], Jung-Ho Shin[2], Jung Ryeol Lee[3,4], Mee-Ran Kim[5]

Table 1. Summary of studies that assessed LNG-IUS use in perimenopausal women

Disease	Study	Study design	No. of subjects	Main results
Heavy menstrual bleeding	Yoo et al. [16]	Retrospective	192	80.7% success rate of LNG-IUS 13.5% women failed with LNG-IUS
	Desai [17]	Prospective observational	40	33 women continued to use LNG-IUS
	Küçük and Ertan [18]	RCT	44 (DMPA), 44 (MPA 5 mg daily), 44 (LNG-IUS)	LNG-IUS, superior to DMPA and MPA in PBAC scores and hemoglobin levels
Non-atypical endometrial hyperplasia	Abu Hashim et al. [24]	RCT	60 (LNG-IUS), 60 (NET)	Higher regression rate in LNG-IUS group Higher hysterectomy rate in NET group (57.4% vs. 22%)
	Haimovich et al. [25]	Open, prospective	15	Regression rate at 12 months: 100%
Uterine fibroids	Machado et al. [27]	Prospective observational	60	At 24 months, hysterectomy avoidance rate, 89.5%

LNG-IUS: levonorgestrel-intrauterine system, RCT: randomized controlled trial, DMPA: depo-medroxyprogesterone acetate, MPA: medroxyprogesterone acetate, PBAC: pictorial blood loss assessment, NET: norethisterone acetate.

Table 2. Summary of key clinical trials using LNG-IUS for endometrial protection in perimenopausal women

Study	Population, mean age (y)	No. of subjects	Treatment duration	Endpoints
Boon et al. [35] RCT (open-label)	Perimenopausal; 46.9 (LNG-IUS), 46.8 (oral NETA)	97 (LNG-IUS), 99 (oral NETA)	2 y	Endometrial protection assessed by histology, bleeding pattern, efficacy, overall acceptability
Andersson et al. [37] RCT (open-label)	Perimenopausal; 48.1 (LNG-IUS), 48.7 (oral HRT)	18 (LNG-IUS), 19 (oral LNG 250 μg on day 11-21)	1 y	Climacteric symptoms, bleeding pattern, endometrial protection assessed by histology
Depypere et al. [36] non-randomized (open-label)	Peri/postmenopausal; 47.8	394 (contraception phase), 168 (ERT phase)	9-48 mo contraception phase, 1-5 y ERT phase	Bleeding pattern, QoL, LNG-IUS continuation, adherence, tolerability
Suhonen et al. [38] non-comparative	Peri/postmenopausal; 52	29 (LNG-IUS)	38 mo	Endometrial protection assessed by histology and transvaginal ultrasound, bleeding pattern
Suhonen et al. [39,40] non-comparative	Peri/postmenopausal; 51.4	36 (LNG-IUS)	5 y	Endometrial protection assessed by histology

LNG-IUS: levonorgestrel-intrauterine system, RCT: randomized controlled trial, NETA: norethindrone acetate, HRT: hormone replacement therapy, LNG: levonorgestrel, ERT: estrogen replacement therapy, QoL: quality of life.

MİRENA(LNG-IUS)- ÖZELLİKLİ VAKALARDA KULLANIMI

Table 6: UKMEC categories for the use of intrauterine contraception for after breast cancer

Condition	UKMEC category for Cu-IUD	UKMEC category for LNG-IUD
Breast cancer		
a) Current breast cancer	1	4
b) Past breast cancer	1	3

Cu-IUD, copper intrauterine device; LNG-IUD, levonorgestrel intrauterine device; UKMEC, UK Medical Eligibility Criteria for Contraceptive Use.

8 Health risks associated with IUC use

8.1 Breast cancer

Key information

D **The available evidence is limited, conflicting and insufficient to exclude or confirm an association between LNG-IUD use and breast cancer; however, any potential associated risk appears to be small.**

MİRENA(LNG-IUS)- ÖZELLİKLİ VAKALARDA KULLANIMI

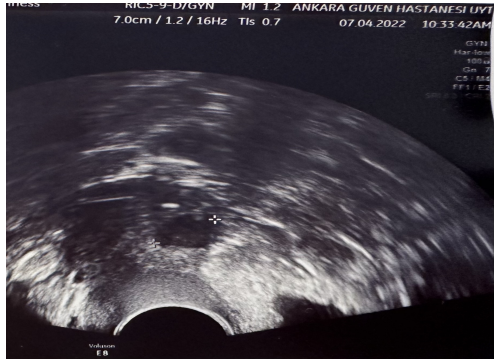
Levonorgestrel intrauterine system for endometrial protection in women with breast cancer on adjuvant tamoxifen (Review)

Romero SAD, Young K, Hickey M, Su HI

Authors' conclusions

The LNG-IUS probably slightly reduces the incidence of benign endometrial polyps and endometrial hyperplasia in women with breast cancer taking tamoxifen. At 12 and 24 months of follow-up, the LNG-IUS probably increases abnormal vaginal bleeding or spotting among women in the treatment group compared to those in the control. Data were lacking on whether the LNG-IUS prevents endometrial cancer in these women. There is no clear evidence from the available RCTs that the LNG-IUS affects the risk of breast cancer recurrence or breast cancer-related deaths. Larger studies are necessary to assess the effects of the LNG-IUS on the incidence of endometrial cancer, and to determine whether the LNG-IUS might have an impact on the risk of secondary breast cancer events.

Romero SAD, Young K, Hickey M, Su HI.
Levonorgestrel intrauterine system for endometrial protection in women with breast cancer on adjuvant tamoxifen.
Cochrane Database of Systematic Reviews 2020, Issue 12. Art. No.: CD007245.
DOI: 10.1002/14651858.CD007245.pub4.



Abstract

Purpose The intention of this systematic review was to analyze the literature on breast cancer (BC) and the use of the levonorgestrel-releasing intrauterine system (LNG-IUS).

Methods The literature was searched in Medline, Embase, Cochrane Library, CINAHL, Web of Science and ClinicalTrials.com and included search terms related to breast cancer and LNG-IUS. After elimination of duplicates, 326 studies could be identified and were assessed according to inclusion and exclusion criteria. In the end, 10 studies met the defined criteria and were included in the systematic review.

Results 6 out of the 10 selected studies were cohort studies, three were case–control studies and one a systematic review/meta-analysis. 6 found a positive association between BC and the use of LNG-IUS. One study only found an increased risk for invasive BC in the subgroup of women aged 40–45 years. In contrast, three studies showed no indication of a higher BC risk.

Conclusion The results imply an increased BC risk in LNG-IUS users, especially in postmenopausal women and with longer duration of use. Positive effects of the LNG-IUS such as reduced risks for other hormonal cancers have been observed, were, however, not focus of this systematic review. The heterogeneity of the analyzed studies and vast number of confounding factors call for further investigations in this issue. Patients should be advised according to their individual risk profile and hormone-free alternatives may be considered for women with a history of BC.

Archives of Gynecology and Obstetrics (2023) 307:1747–1761
https://doi.org/10.1007/s00404-022-06640-y

REVIEW

Influence of the levonorgestrel-releasing intrauterine system on the risk of breast cancer: a systematic review

Aline Zürcher[1] · Laura Knabben[2] · Heidrun Janka[3] · Petra Stute[2]

MİRENA(LNG-IUS)- ÖZELLİKLİ VAKALARDA KULLANIMI

Impact of the levonorgestrel-releasing intrauterine device on controlled ovarian stimulation outcomes

Amanda J. Adeleye, M.D., Lusine Aghajanova, M.D., Ph.D., Chia-Ning Kao, M.S., Marcelle I. Cedars, M.D., and Mark V. Sauer, M.D.

Objective: To report differences in ovarian stimulation outcomes in women using a levonorgestrel-releasing intrauterine device (LNG-IUD).
Design: Retrospective cohort study.
Setting: University-based infertility practice.
Patient(s): Female patients pursuing either social oocyte cryopreservation or oocyte donation.
Intervention(s): Chart review of all female patients presenting from January 1, 2012, to June 30, 2017, for social oocyte cryopreservation or oocyte donation. Demographic data, cycle performance data, and the presence or absence of an LNG-IUD at the time of ovarian stimulation were compared.
Main Outcome Measure(s): Total oocyte yield and total mature oocyte yield. Secondary measures included clinical pregnancy rate and live birth rate in recipients of donor oocytes.
Result(s): Univariate analysis of predicted oocyte yield and mature oocyte yield showed no significant difference between subjects with and without an LNG. When controlling for history of recent hormonal contraceptive use, initial antral follicle count (AFC), age, body mass index (BMI), gonadotropin dose, and stimulation day/protocol, no significant differences were seen in total oocyte yield or mature oocyte yield in the presence or absence of an LNG-IUD. Univariate analysis of the effect of LNG-IUDs on the predicted clinical pregnancy rate and live birth rate did not significantly differ for oocyte recipients. Controlling for history of recent hormonal contraceptive use, initial AFC, age, BMI, gonadotropin dose, and stimulation day/protocol also showed no significant differences in the predicted clinical pregnancy rate and live birth rate.
Conclusion(s): LNG-IUDs do not affect cycle performance in women undergoing ovarian stimulation cycles. (Fertil Steril® 2018;110: 83–8. ©2018 by American Society for Reproductive Medicine.)

Comparison of oocyte yield in the presence and absence of a levonorgestrel-releasing intrauterine device (LNG-IUD).

Oocyte outcome	LNG-IUD absent	LNG-IUD present	*P* value
No. of subjects	1,028	45	
Total oocytes retrieved	16.99 (15.89–18.08)	15.74 (12.81–18.66)	.41
No. of subjects with oocytes cryopreserved[a]	641	32	
Mature oocytes retrieved	9.84 (8.84–10.83)	10.89 (7.96–13.83)	.49

Note: Values are reported as predicted mean (95% confidence interval), unless specified otherwise. Models are controlled for history of recent hormonal contraceptive use, initial antral follicle count, age, body mass index, gonadotropin dose, and stimulation days/protocol.
[a] Maturity of donor cycle oocytes was not assessed, because most were conventionally inseminated. Donor oocyte cycles are not included in this analysis.

Adeleye. Impact of LNG-IUD on ovarian stimulation. Fertil Steril 2018.

MİRENA(LNG-IUS)- ÖZELLİKLİ VAKALARDA KULLANIMI

Research question

Does the levonorgestrel-releasing intrauterine device (LNG-IUD) influence cumulative live birth rate (CLBR) in oocyte donor cycles?

Design

Retrospective cohort study based on prospectively collected data from 1 May 2009 to 31 December 2017, without attrition, consisting of 491 consecutive cycles of vitrified oocyte donation, none lost to follow-up (unique donor–recipient pairs). All donors underwent ovarian stimulation using gonadotrophin releasing hormone (GnRH) antagonist co-treatment and GnRH agonist trigger. CLBR was chosen as primary outcome measure.

Results

In total, 103 (21.0%) cycles were carried out in donors carrying a LNG-IUD. In 388 (79.0%) cycles, no LNG-IUD was present. After confounder-adjustment, the use of an LNG-IUD did not have a statistically significant influence on CLBR.

Conclusions

The LNG-IUD does not negatively affect CLBR.

MİRENA(LNG-IUS)- YAN ETKİ- KANAMA PATERNİ

Table 11: Clinically important bleeding patterns over first year of levonorgestrel intrauterine device (LNG-IUD) use (note that figures for the different devices come from different studies and are not directly comparable)

Type of LNG-IUD	Pattern (WHO Belsey criteria)	First 90 days (%)	Second 90 days (%)	Last 90 days of first year (%)
52 mg [228]	Prolonged	51	10	5
	Frequent	26	10	5
	Irregular	38	14	6
19.5 mg [174]	Prolonged	57	14	6
	Frequent	25	10	4
	Irregular	43	25	17
13.5 mg [67,84,206]	Prolonged	39–55	14–19	5–8
	Frequent	20–31	5–13	3–10
	Irregular	39–49	25–32	18–25

Prolonged: bleeding/spotting episode(s) lasting >14 days during a 90-day reference period; Frequent: more than 5 bleeding/spotting episodes during a 90-day reference period; Irregular: 3-5 bleeding/spotting episodes and <3 bleeding/spotting free intervals of 14 days or more during a 90-day reference period

Table 12: Amenorrhoea rates by levonorgestrel intrauterine device (LNG-IUD) type over the first year (note that figures for the different devices come from different studies and are not directly comparable)

Type of LNG-IUD	Pattern (WHO Belsey criteria)	First 90 days (%)	Second 90 days (%)	Last 90 days of first year (%)
52 mg [226,228]	Amenorrhoea	0.2	8	20
	Infrequent	13.5	25.1	30.6
19.5 mg [174]	Amenorrhoea	<1	5	12
	Infrequent	10	20	26
13.5 mg [67,84,206]	Amenorrhoea	<1	3–4	6–9
	Infrequent	8	19–20	19–20

Amenorrhoea: no bleeding or spotting during a 90-day reference period; Infrequent: 1 or 2 bleeding or spotting episodes during a 90-day reference period

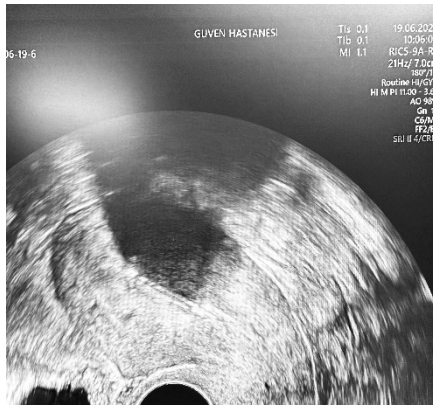
MİRENA(LNG-IUS)- YAN ETKİ- KANAMA PATERNİ

Medical interventions for unscheduled and/or heavy bleeding in levenorgestrel users

Medication class	Medication	Oral dose (mg)	Frequency	Length of time
Nonsteroidal anti-inflammatory drug (NSAID)	Naproxen	500*	Two times daily	Five days
Antifibrinolytic	Tranexamic acid	500 to 650¶Δ or 1300	Three times daily	Up to five days (may be stopped sooner if bleeding stops)
Antiprogestin	Mifepristone	100	Once	Monthly

* Naproxen base.

¶ Dose adjustment may be needed in setting of renal impairment.



14 Managing problems associated with IUC

14.1 Unscheduled bleeding

Clinical recommendations

D	Tranexamic acid or NSAIDs can be offered for management of HMB during use of IUC.
✓	A 3-month trial of COC can be offered to medically eligible individuals with problematic bleeding during use of IUC.

MİRENA(LNG-IUS)- HORMONAL YAN ETKİ

9.2 Hormonal side effects

Key information

D	**Acne, breast tenderness, headache and mood changes are reported by some individuals using LNG-IUD. However, evidence is too limited to confirm or exclude a causative effect. When present, these symptoms appear to be more prevalent in the first few months after insertion but decrease with time.**

MİRENA(LNG-IUS)- YAN ETKİ- YENİ BAŞLAYAN AĞRI

Table 15: Possible causes of new-onset pelvic pain

Gynaecological causes	Other causes
IUC malposition/partial expulsion/expulsion	Appendicitis (± sepsis)
IUC perforation	Diverticulitis (± sepsis)
Pregnancy (ectopic, miscarriage, labour)	Irritable bowel syndrome/constipation
Pelvic inflammatory disease (± abscess/sepsis)	GI infection (± sepsis)
Ovarian cyst accident	GI obstruction/perforation/necrosis
	Urinary tract infection/pyelonephritis (± sepsis)
	Hernia

GI, gastrointestinal; IUC, intrauterine contraception.

MİRENA(LNG-IUS)- TAKİP

14.6 Expulsion

Key information

C	**The overall risk of IUC expulsion is approximately 1 in 20 and expulsion appears to be most common in the first year of use, particularly within 3 months after insertion.**
C	**Expulsion rates are higher when inserted immediately postpartum compared with interval postpartum insertion.**
D	**Expulsion rates may be higher in adolescents, those who have IUC inserted after late first-trimester or second-trimester surgical abortions, individuals with fibroids and HMB, individuals concurrently using a menstrual cup with IUC, and those who have had a previous expulsion.**

Clinical recommendations

✓	**If there have been ≥2 IUC expulsions, a pelvic ultrasound to assess the uterine cavity may be helpful prior to insertion of a third IUC.**
✓	**Post-insertion USS is not predictive of the likelihood of further expulsion but can provide immediate confirmation of correct positioning.**

MİRENA(LNG-IUS)- TAKİP

14.7 Perforation

Key information

C	**The rate of uterine perforation associated with IUC use is very low, with an overall risk of perforation in the general population of 1-2 in 1000.**
C	**Postpartum interval IUC insertion (from 48 hours after childbirth) is associated with an increased risk of uterine perforation, particularly if the user is breastfeeding**
D	**Uterine perforation may be identified at the time of insertion or at a later date.**
D	**Lower abdominal pain, non-visible threads or changes in bleeding may indicate uterine perforation.**

Clinical recommendations

✓	**If perforation is suspected, an ultrasound scan +/- plain abdominal and pelvic X-ray should be arranged as soon as possible in order to locate the device. Emergency contraception and pregnancy testing should be considered, and ongoing contraception provided.**
✓	**Following confirmed or suspected uterine perforation, the GDG suggests waiting at least 6 weeks before inserting a subsequent IUC. Referral to a specialist service, where ultrasound is available, is suggested for the subsequent insertion.**

JİNEKOLOJİK ENDOSKOPİ PLATFORMU

6. MİNİMAL İNVAZİV JİNEKOLOJİK CERRAHİ KONGRESİ

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TEŞEKKÜRLER

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