

Disorders of the Menstrual Cycle Menorrhagia

- **Menorrhagia (Heavy Menstrual Bleeding):** is defined as excessive menstrual blood loss (over several consecutive cycles) that has a major effect on the woman's quality of life.

Objective definition is blood loss of greater than 80 mL per menstruation.

- **Metrorrhagia:** Regular intermenstrual bleeding
- **Polymenorrhea:** Menses occurring at < 21 day interval

Classification & etiology

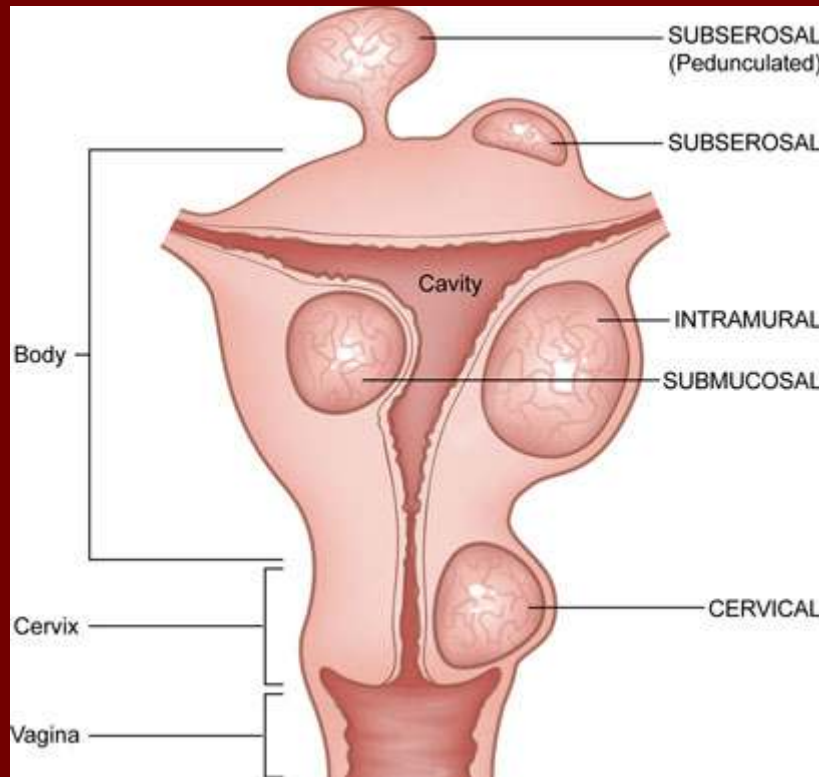
- Idiopathic: no organic pathology can be found, also called **dysfunctional uterine bleeding**.

The principal factors implicated in the pathogenesis of menorrhagia are:

- disordered production of prostaglandins (PGE2 & PGF2a)
- enhanced fibrinolytic activity
- abnormalities of endometrial vascular development.

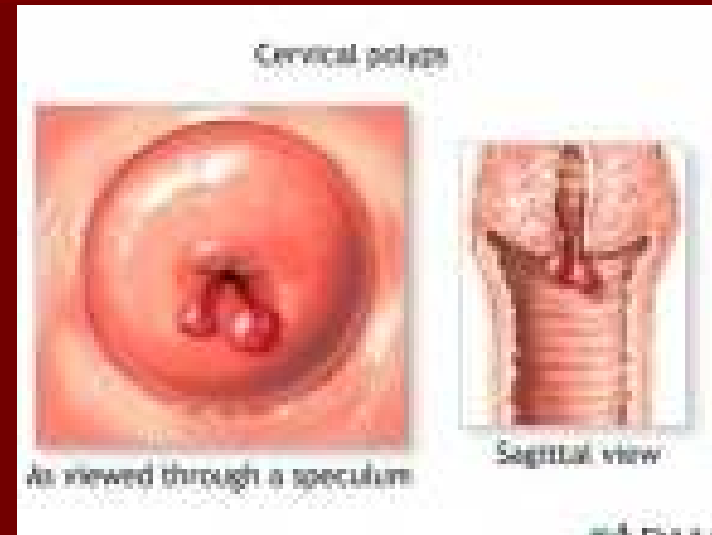
Secondary abnormal uterine bleeding: due to organic pathology:

- Local causes :
 - Uterine fibroid.
 - Adenomyosis.

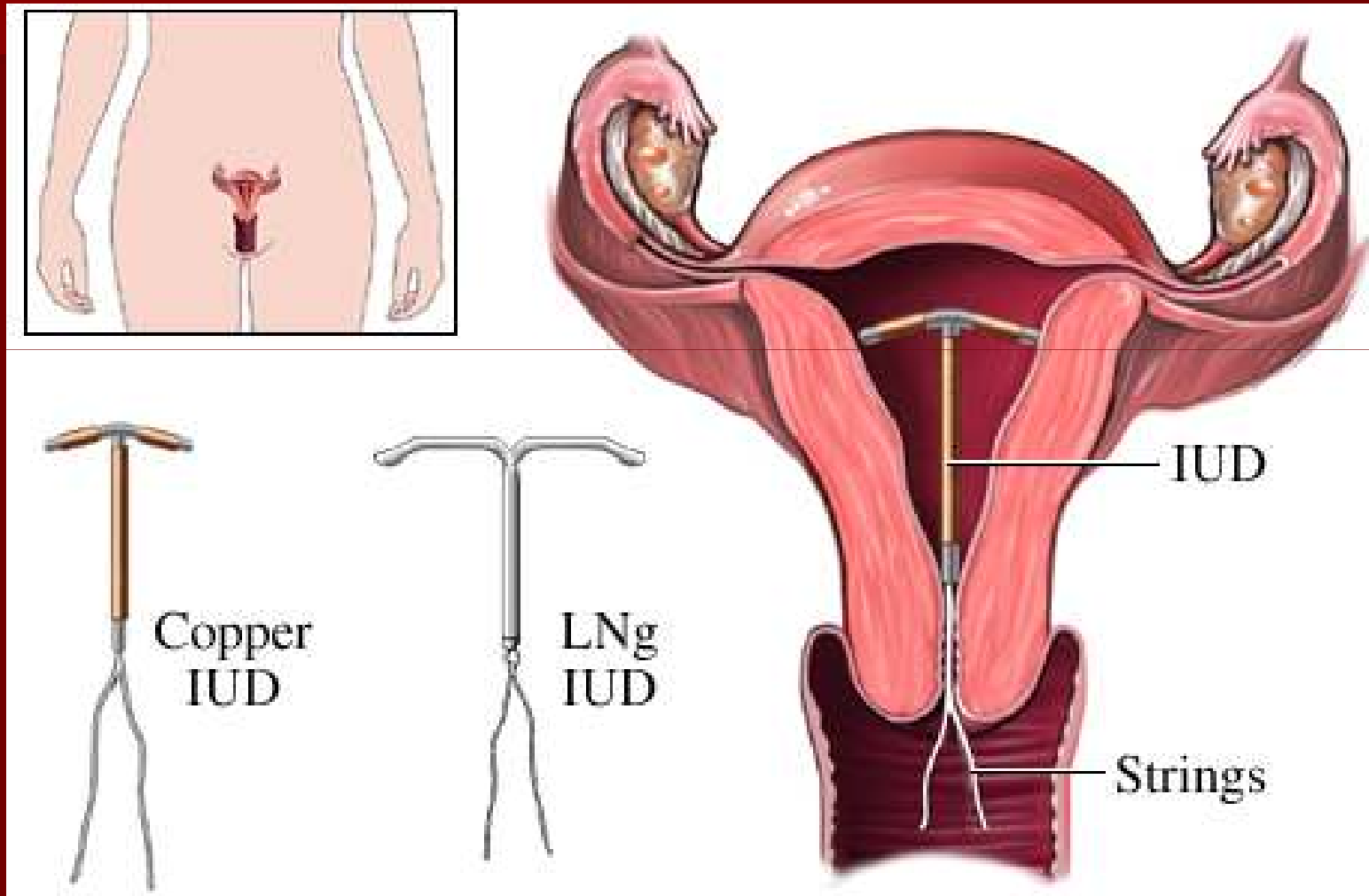


Adenomyosis. Note thickened wall of uterus which can be mistaken for fibroids.

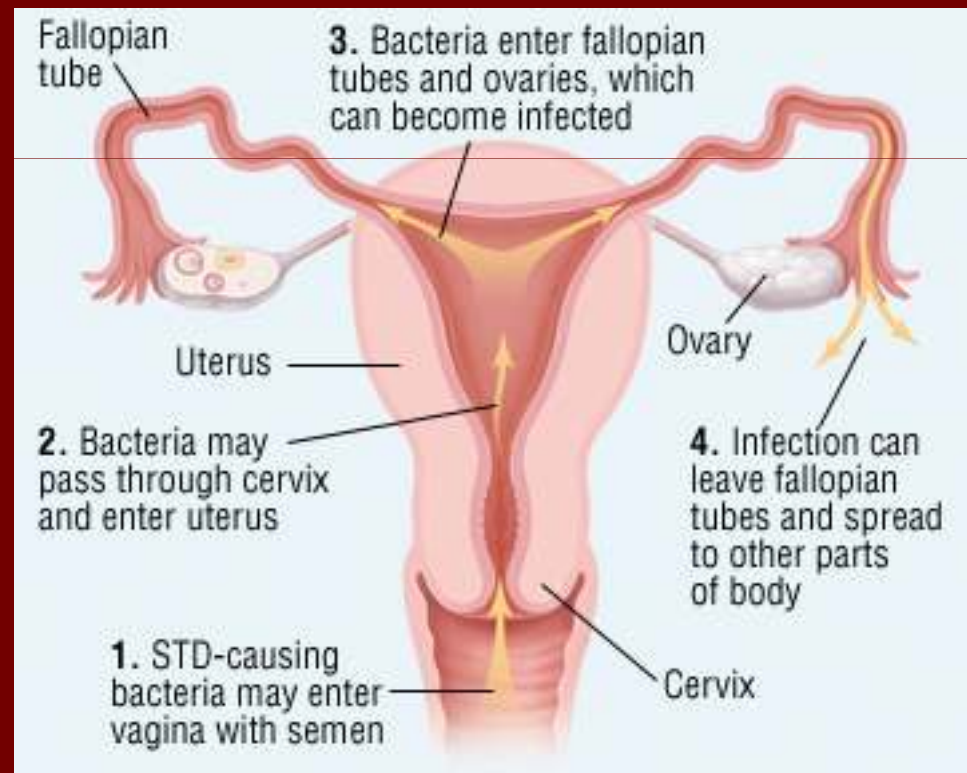
- Endocervical polyp, endometrial polyp or endometrial hyperplasia



Intrauterine contraceptive device.



- Pelvic inflammatory disease (PID): Chlamydial infection is more likely to cause intermenstrual bleeding.
- malignancy .
- Trauma



■ Systemic causes:

Endocrine disorders:

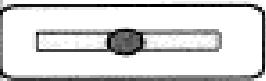
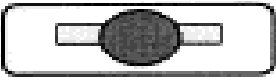



- Hyper or hypothyroidism.
- Diabetes mellitus.
- Adrenal disease.
- Prolactin disorders.







- Disorders of haemostasis: mostly found in teen-agers. Examples are von Willebrand's disease & idiopathic thrombocytopenic purpura (ITP).
- Liver disorders.
- renal disease.
- Medication: steroid hormones, neuroleptics & anticoagulant.
- Disorders of pregnancy

Management :

Diagnosis:

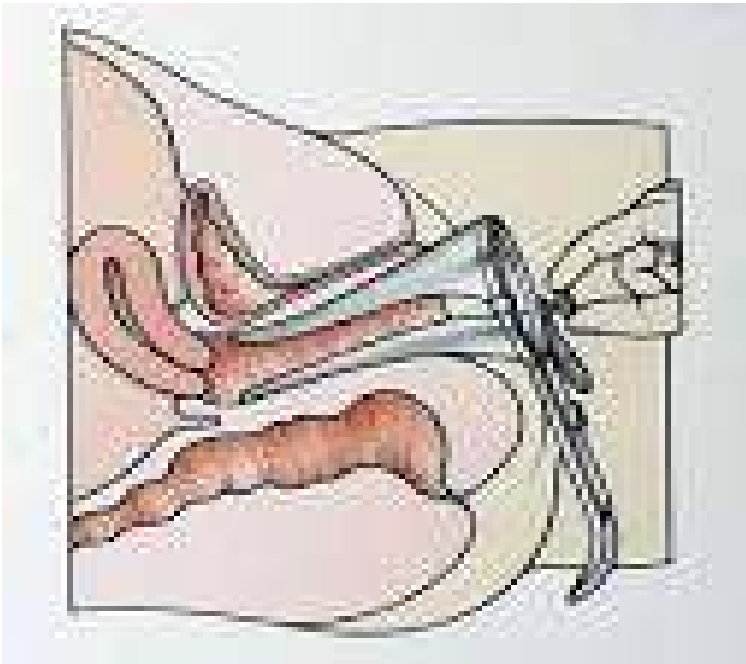
- History:
- pattern of abnormal bleeding, estimation of its severity, the use of menstrual pictogram
- Other cyclical symptoms such as dysmenorrhea, abdominal bloating or psychological disturbance.
- intermenstrual or postcoital bleeding.
- gynecological history including contraceptive use, cervical smear history & any history of sexually transmitted diseases.
- Detailed reproductive history.
- History suggestive of bleeding tendency

NAPKIN	TYPE	Score (mL of blood)
	BRAND	Kotex
	Day time	1
	Night time	1
	Day time	2
	Night time	3
	Day time	3
	Night time	6
	Day time	4
	Night time	10
	Day time	5
	Night time	15

TAMPON	TYPE	Score (mL of blood)
	BRAND	Tampax
	Regular	0.5
	Super	1
	Super Plus	1
	Regular	1
	Super	1.5
	Super Plus	2
	Regular	1.5
	Super	3
	Super Plus	6
	Regular	4
	Super	8
	Super Plus	12

Examination:

- vital signs,
 - general examination for stigmata of systemic illness.
-
- Palpation of the abdomen
 - The vulva should be examined for any signs of bleeding or local infection.
 - Speculum examination of the vagina & cervix ,endocervical swab & cervical smear should be taken if indicated.
 - Bimanual examination to assess for uterine or adnexial enlargement or tenderness.



Performing a Pap Smear

A. Swab or cytobrush obtains ENDOCERVICAL cells.

B. Spatula obtains ECTOCERVICAL cells.

© MedViz Inc. • 800-899-2154
This message indicates that this image is FACT as intended for use in educational, research, medical, legal, or other professional or institutional settings. Consistent with copyright law, the reproduction of this image or its content is allowed for a maximum \$150,000 fine.

Exhibit 597031R-03X



Laboratory Investigation :

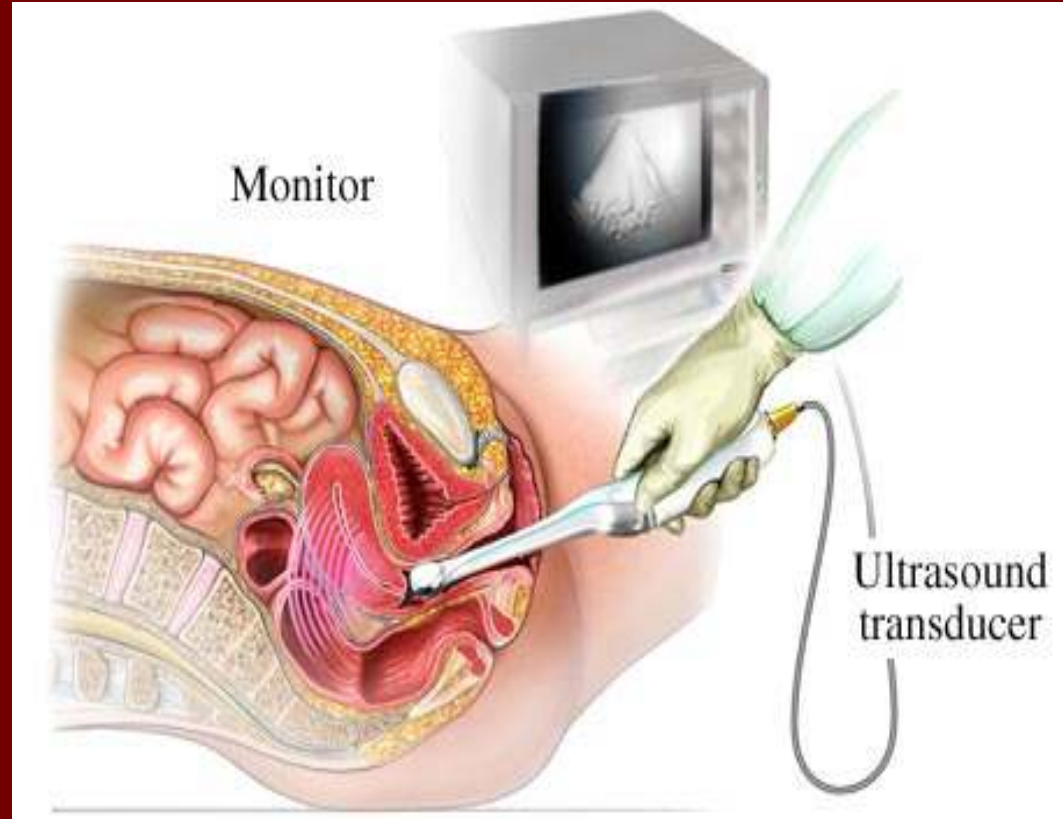
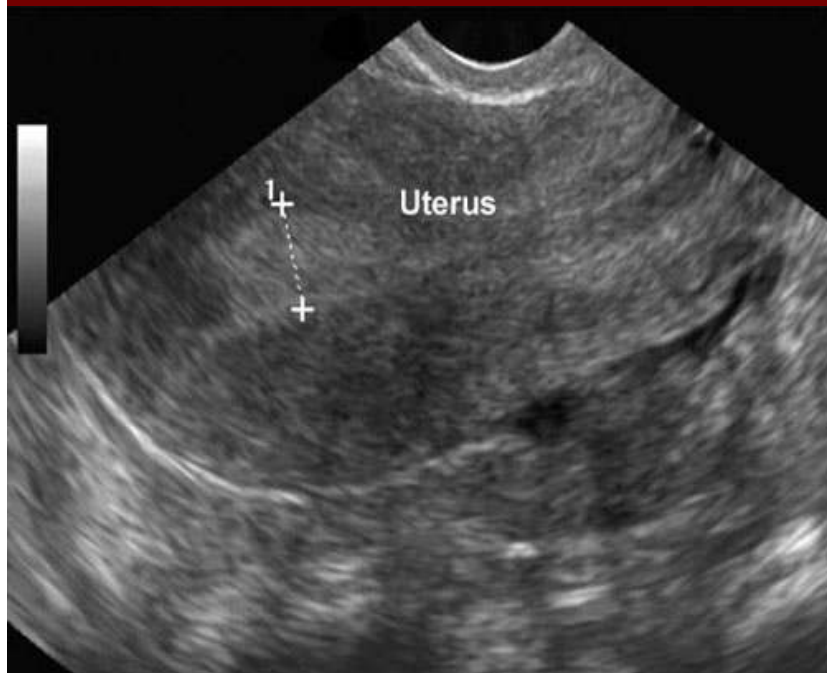
- Full blood count: should be done to all pt with HMB
- If Hx & examination strongly suggest cyclical HMB without underlying pathology in a woman under 45 years, its appropriate to give first line medical treatment without further investigations.
- In older women or younger women in whom medical treatment failed, further investigations are warranted

The following investigations are done only if the history is suggestive

- Serum β hCG: if any possibility of pregnancy.
- Thyroid function test.
- Coagulation screen / bleeding time.
- Endocervical & high vaginal swab
- Renal / liver function test.

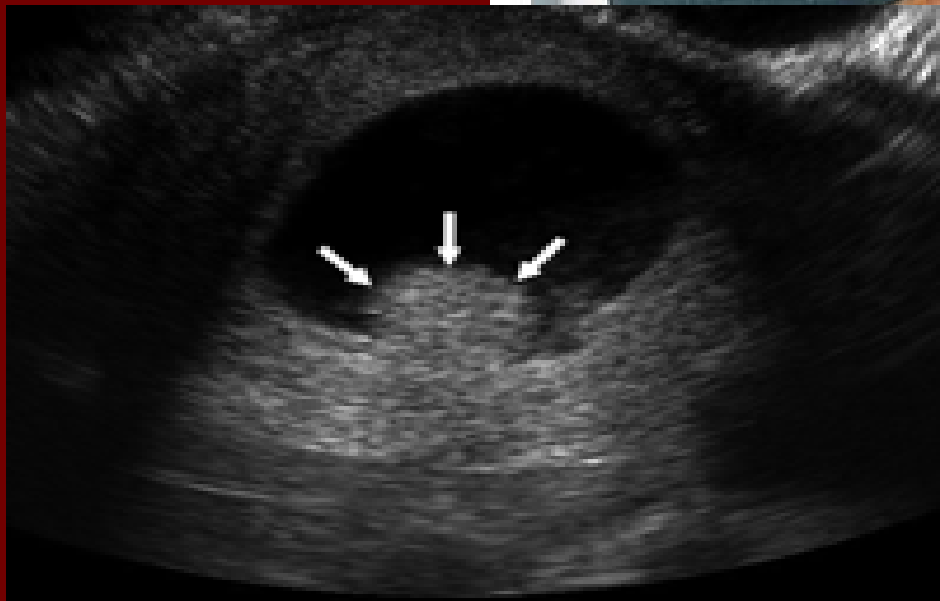
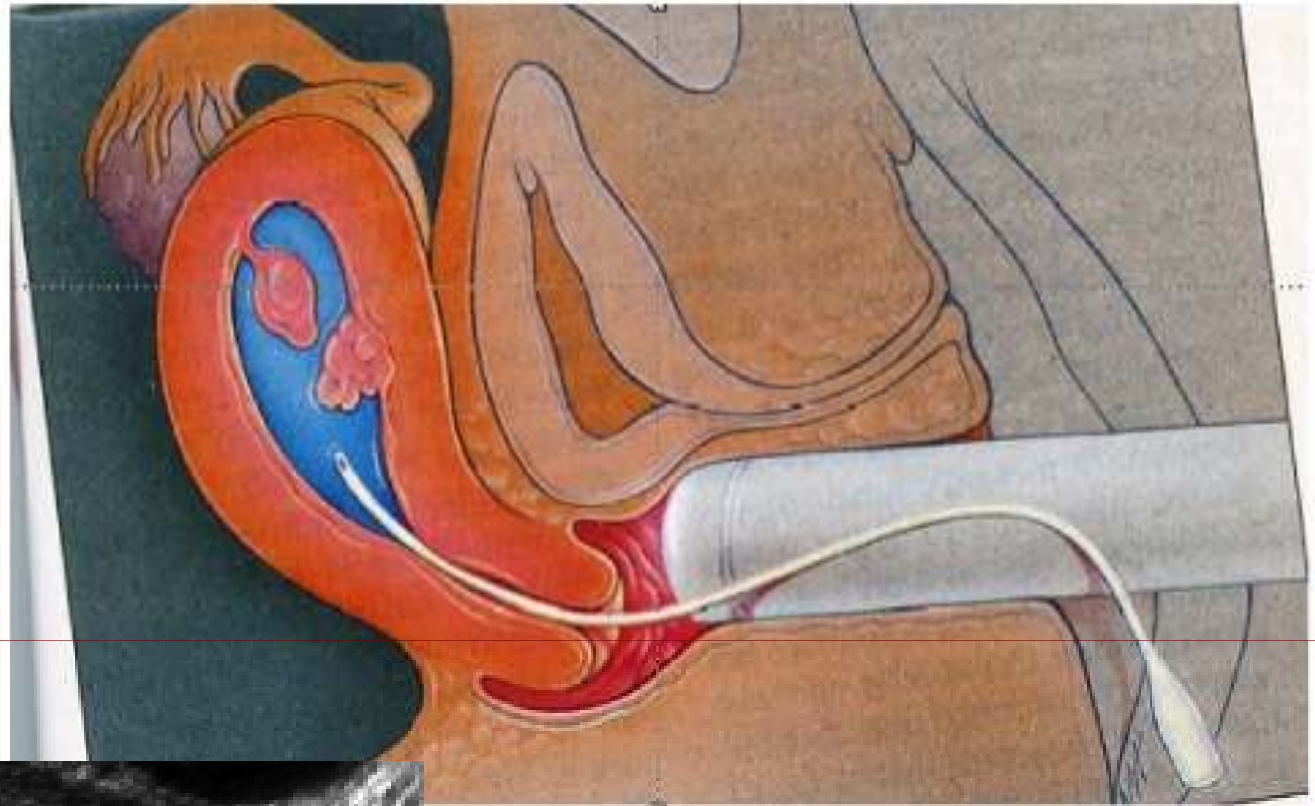
- **Imaging Technique:**

- Ultrasound is the first-line diagnostic tool for identifying structural abnormalities. Transvaginal ultrasound, indicated when the uterine size by examination is more than 10 weeks

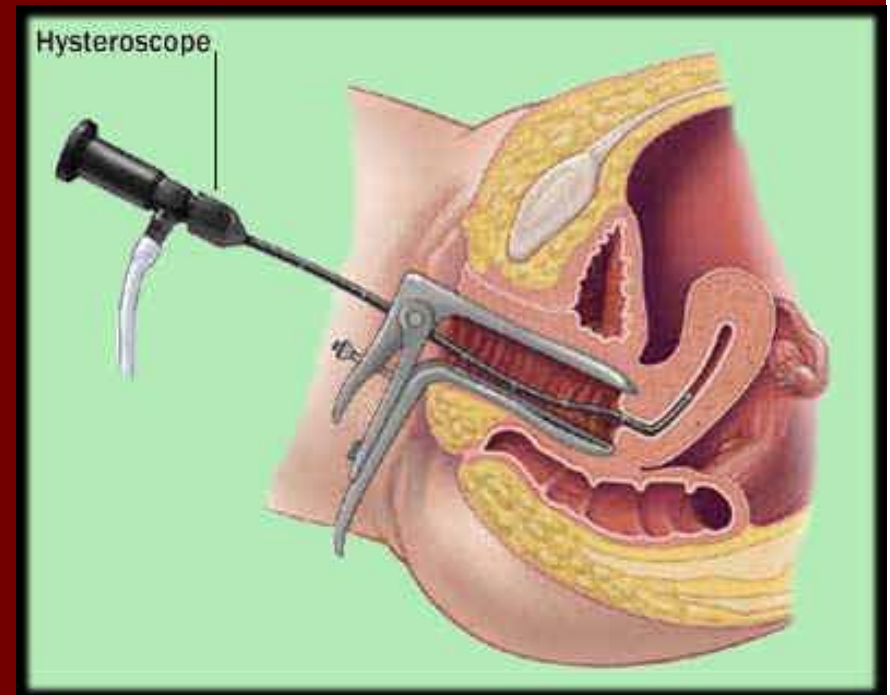
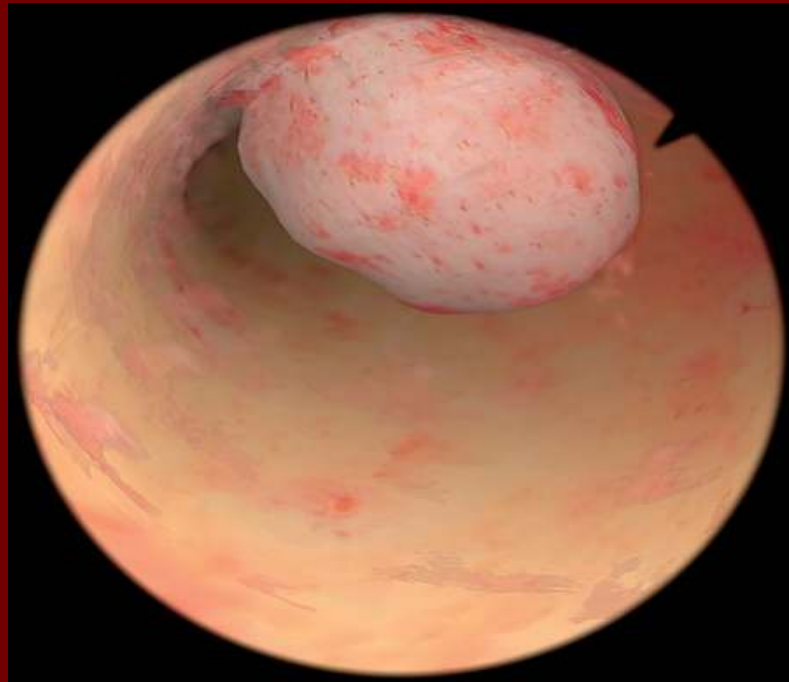


- Saline sonohysterography: ultrasound-based technique of saline infusion is useful to delineate the uterine cavity when hysteroscopy is not available.
- Saline infusion sonography should not be used as a first-line diagnostic tool.

Saline-Infused Ultrasound

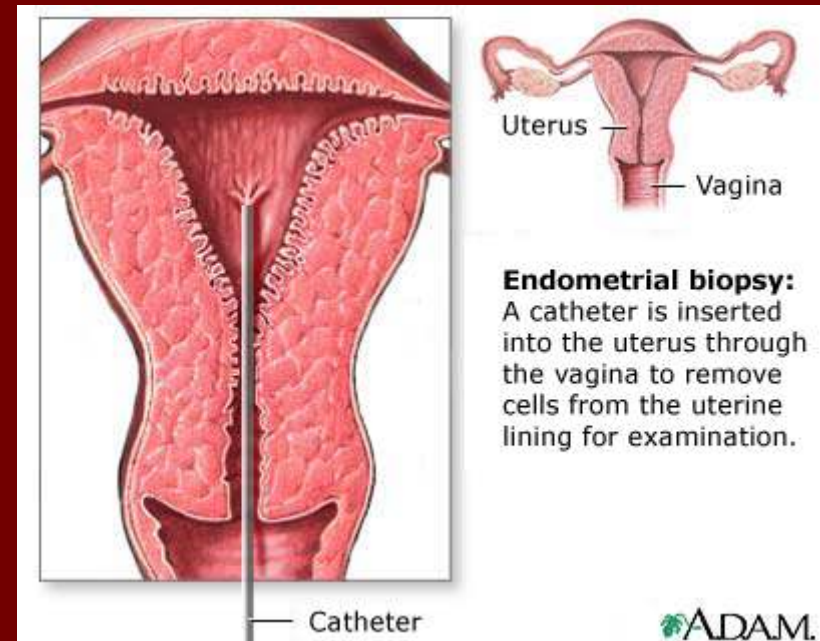


Hysteroscopy: should be used as a diagnostic tool only when ultrasound results are inconclusive. Ideally performed during the proliferative phase of the cycle when the endometrium is at its thinnest.



Endometrial sampling (biopsy): to exclude endometrial cancer or atypical hyperplasia.

- Aspiration technique: out-patient procedures providing rapid screening test.
- Dilatation & curettage
- Hysteroscopically directed endometrial biopsy: when the transvaginal ultrasound is abnormal.



Treatment:

acute bleeding: the main priorities of treatment involve:

- Resuscitation.
- Correction of anaemia.
- Arresting ongoing bleeding.

If an underlying cause is found, treatment should be directed towards the cause.

If the bleeding is dysfunctional, the treatment depends on the patient's age, reproductive wishes & severity of symptoms.

Medical treatment:

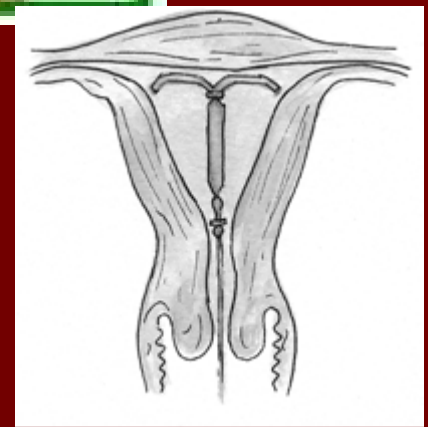
■ Non-hormonal therapy:

- Non-steroidal anti-inflammatory drugs NSAID: antiprostaglandins act by inhibiting cyclo-oxygenase enzyme thereby reducing local prostaglandin levels. Reduce the menstrual loss by 30% , reduce dysmenorrhea. Example is mefenamic acid.
- Antifibrinolytics: e.g, tranexamic acid. Reduce menstrual blood by 50%, used during menstruation only & is contraindicated in patients with history of thromboembolism.

Hormonal therapy:

- Combined oral contraceptive pills: for women require contraception & for whom hormonal agents are acceptable. It reduce menstrual blood loss, control irregularities, & relieve menstrual pain.

- Levonorgestrel-Intrauterine system: In addition to its contraceptive benefit, it cause a mean reduction in menstrual blood loss of about 95% by 1 year after insertion. It was suggested as an alternative to surgical treatment. However its side effect of causing irregular menses for the first 3-6 months after insertion should be discussed with the patient.



- Synthetic progestogens: e.g, norethisteron, used from day 5 of the cycle for 21 days. They are not effective in treatment of menorrhagia & are more useful for irregular uterine bleeding .

Second line drugs:

- Danazol: derivative of testosterone, act as a competitive inhibitor of sex steroids, reduce the menstrual blood loss by 60%. androgenic side effects like weight gain, hirsutism , acne & voice changes.
- Gonadotrphin releasing hormone (GnRH) analogues: induce medical menopause by suppressing gonadotrophin release from the pituitary, so should not be used (without add back therapy) for longer than 6 months because of the risk of osteoporosis.
- Gestrinone: is a synthetic derivative of 19-nortestosterone with antiestrogenic, antigestagenic & androgenic activity, cause a marked reduction in menstrual blood

Surgical Treatment: reserved for those in whom medical treatment has failed & has completed their family size.

- **endometrial ablation:** destruction of the endometrial lining of the uterus to sufficient depth including the basal layer prevents regeneration of the endometrium by inducing changes similar to those seen in Asherman syndrome

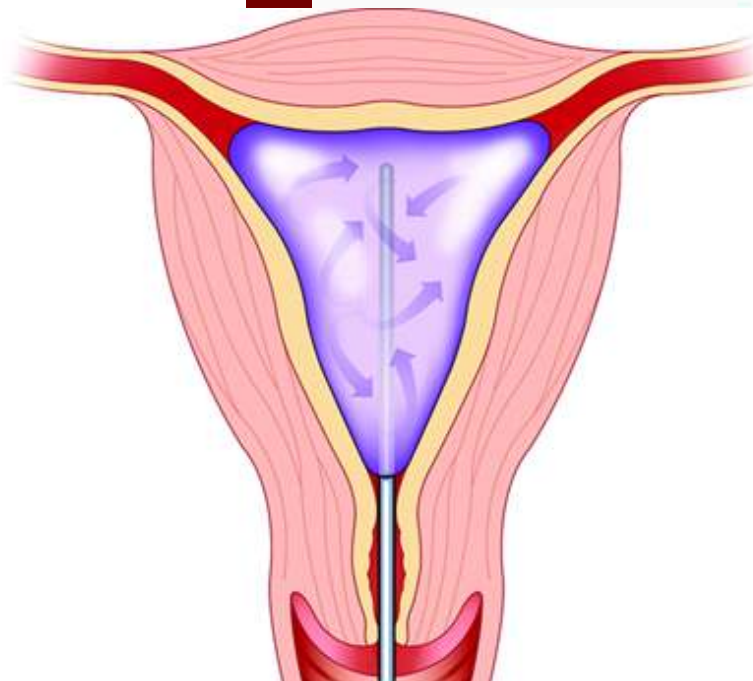
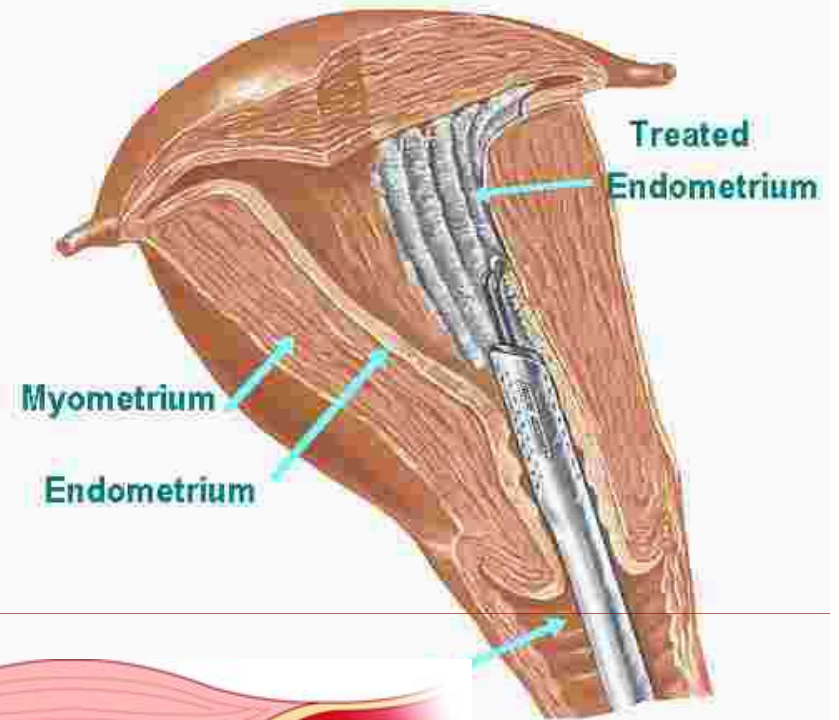
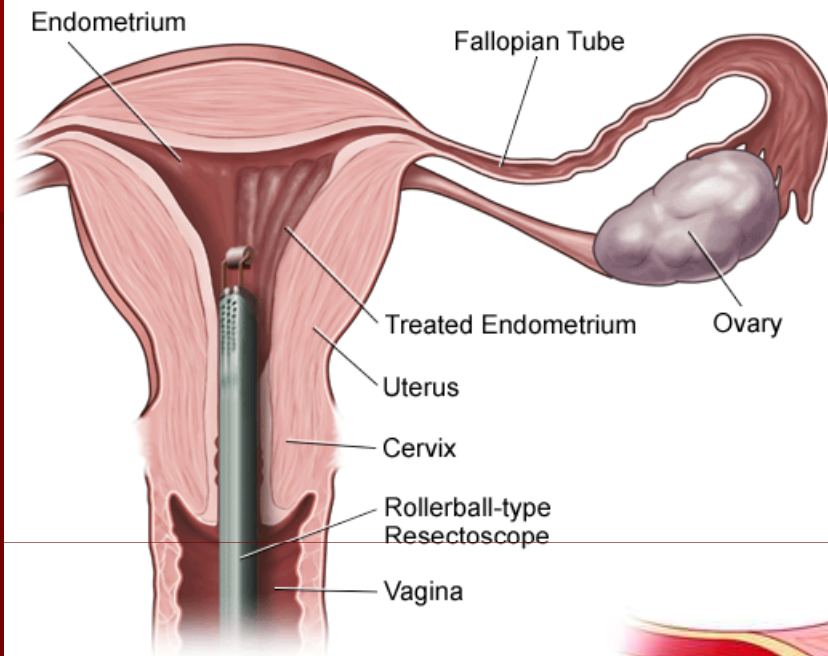
Methods performed under direct visualization at hysteroscopy:

- Laser
- Diathermy
- Transcervical endometrial resection

Methods performed non-hysteroscopically(i.e. without direct visualization of the endometrial cavity at the time of the procedure):

- Thermal balloon uterine therapy
- Microwave ablation
- Heated saline

Example of Endometrial Ablation

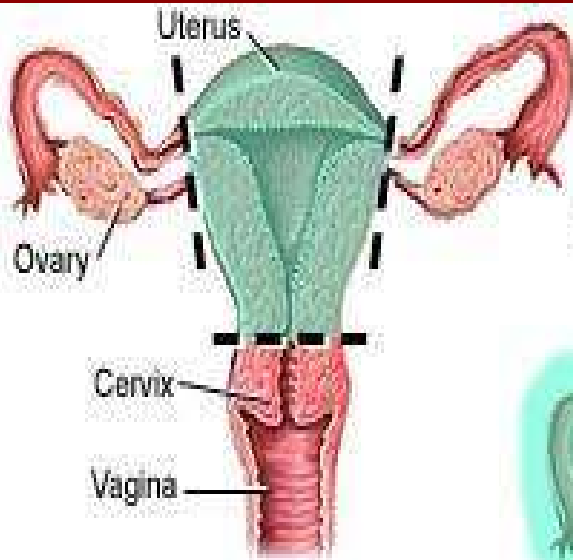


- the patient can return home the same day.
- The mean reduction in endometrial blood loss is 90%.
- Complications include uterine perforation, haemorrhage & fluid overload.

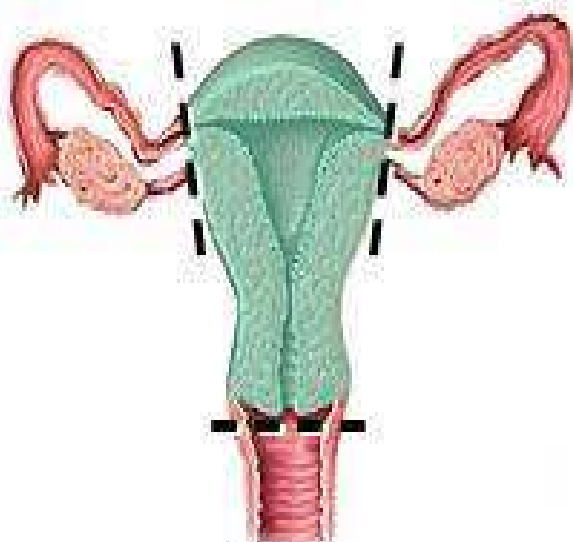
- Hysterectomy: definitive cure of menorrhagia.
- It can be total when the uterine cervix is also removed or subtotal.
- often accompanied by removal of the ovaries (bilateral oophorectomy), the main advantage of which is reduced risk of ovarian cancer, also it is of benefit in women with pelvic pain or severe premenstrual syndrome.

Modes of hysterectomy:

- Abdominal hysterectomy
- Vaginal hysterectomy
- Laparoscopically assisted hysterectomy

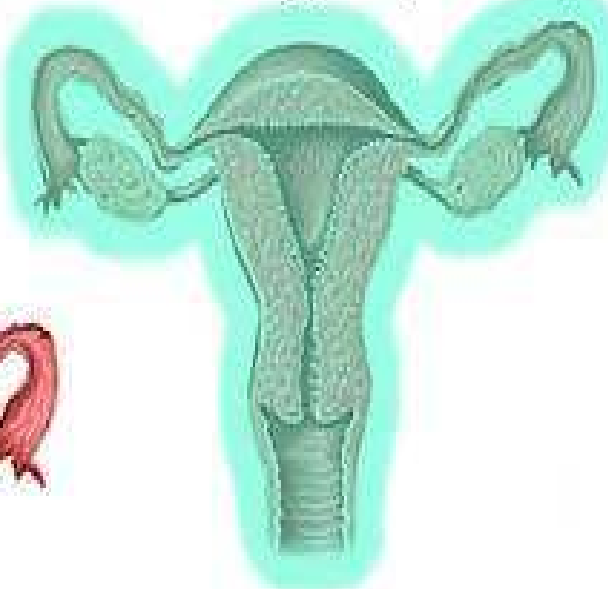


Partial

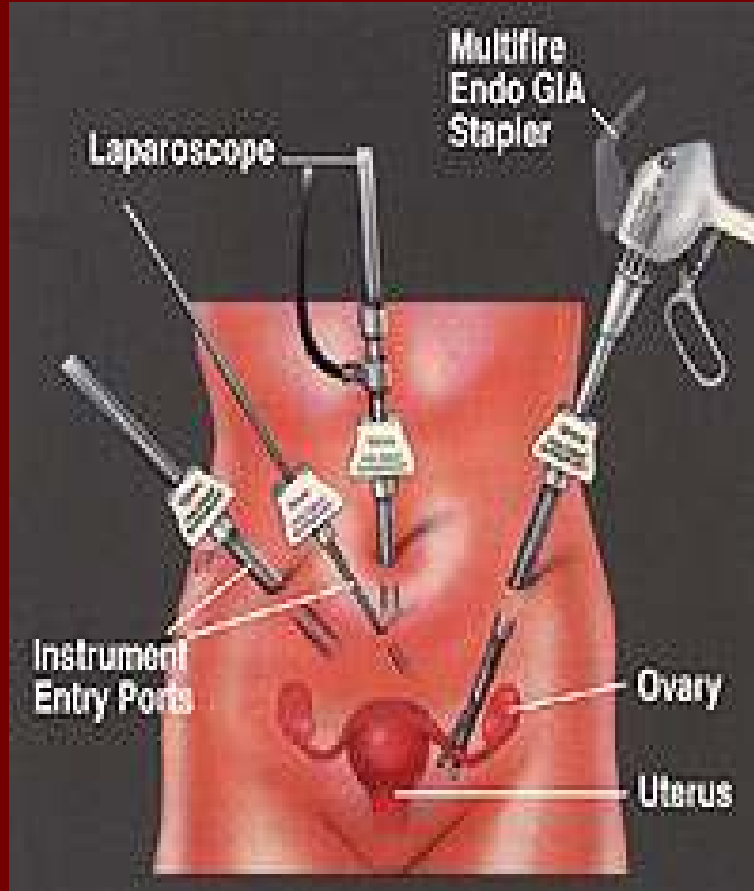


Total

A hysterectomy removes the uterus and may also remove the cervix (total) and the vagina (radical)



Radical



A BIG

THANK

YOU!

CatBirdCarroll

