



# Endometrial line thickness in different conditions

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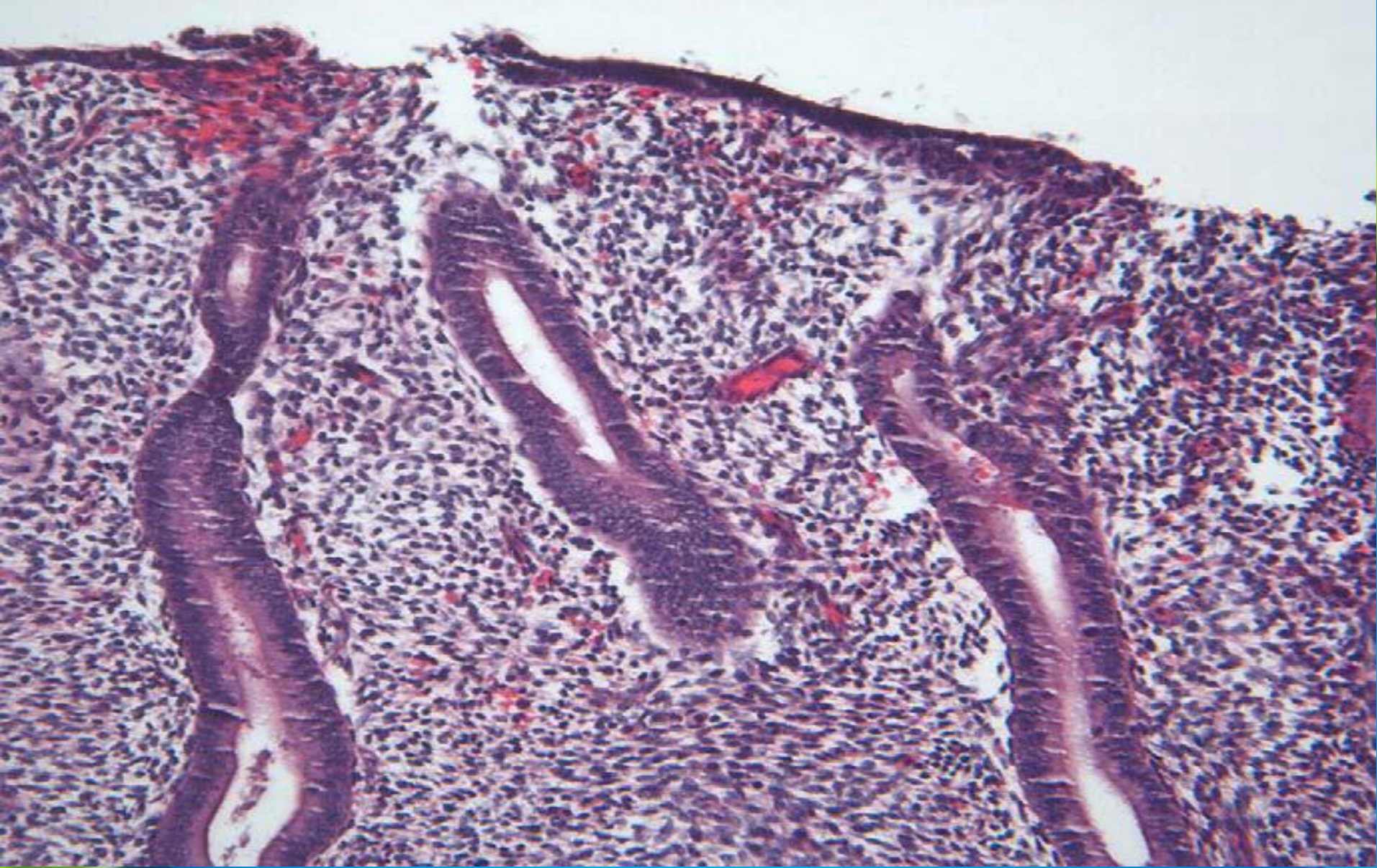
**Endometrial thickens in response to**

**Rising estrogen levels during the menstrual cycle and then shedding endometrial at the times of menses**

The thickens of endometrial  
sometimes measure up to **15 mm**

the early proliferative phase  
(day 6 – 11) : **5 - 7 mm**

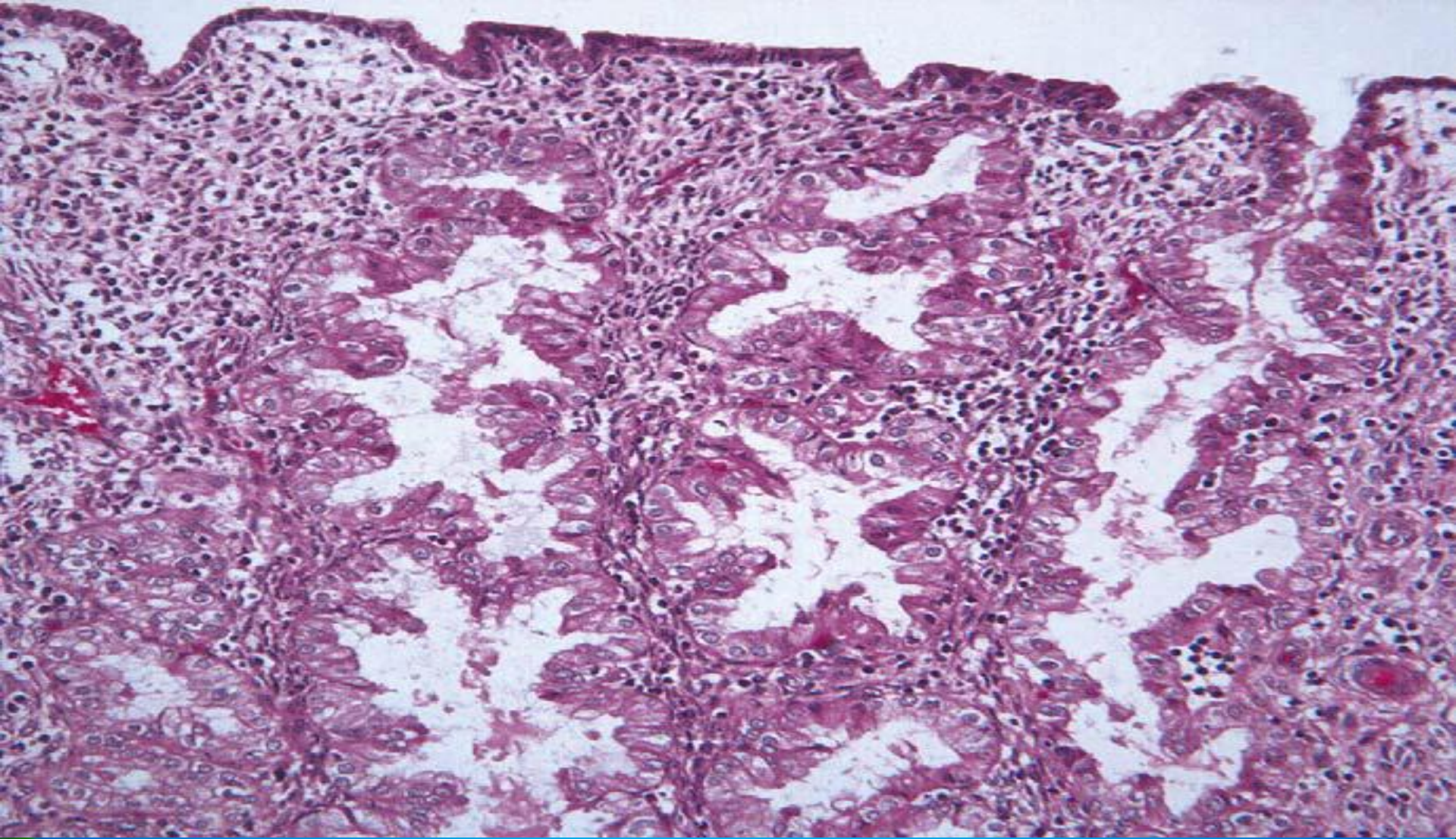
the late proliferative up to **11 mm**



**Proliferative endometrium: Simple tubular endometrial glands are set in a prominent stroma.**

On ultrasound prior to ovulation as  
**1-cm** thick  
it has the appearance of three lines

During the secretor phase,  
endometrial thickness as much as **15 mm**



**Secretory endometrium: Endometrial glands are present with a saw-tooth pattern. Each gland is an individual unit set in endometrial stroma. The epithelium has intracytoplasmic glycogen secretion that is eventually extruded into the gland lumen.**

**By then end of menstruation**

**the endometrium should measure**

**approximately 2 to 4 mm thick**



SAG UT

GE

Cervix

Myometrium

Cephalad

Endometrium

Uterine body

Uterine fundus

CN0  
7cm  
DR66  
G 60

Arcuate vessel

Loops of bowel

+5:10:29  
00

x 5.3mm



**In ultrasonography  
A normal uterine cavity should be expand  
symmetrically**

**The line of endometrial appears smooth  
with symmetric depth to both sides of the  
canal**



## Measure the Endometrium

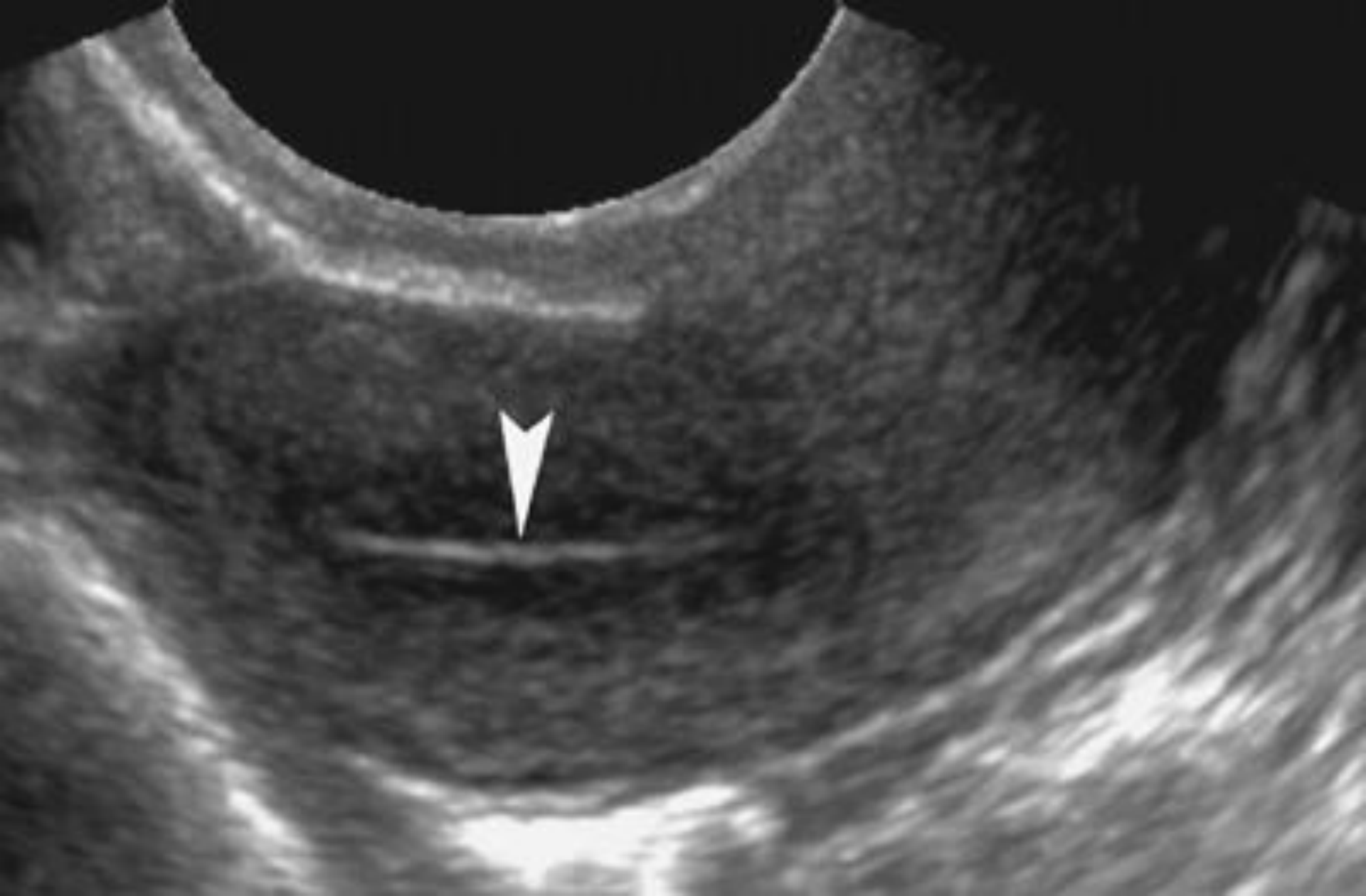


**Endometrial Appearance: Proliferative (Follicular)**



## Endometrial Appearance: Peri-ovulatory





**atrophic endometrium**

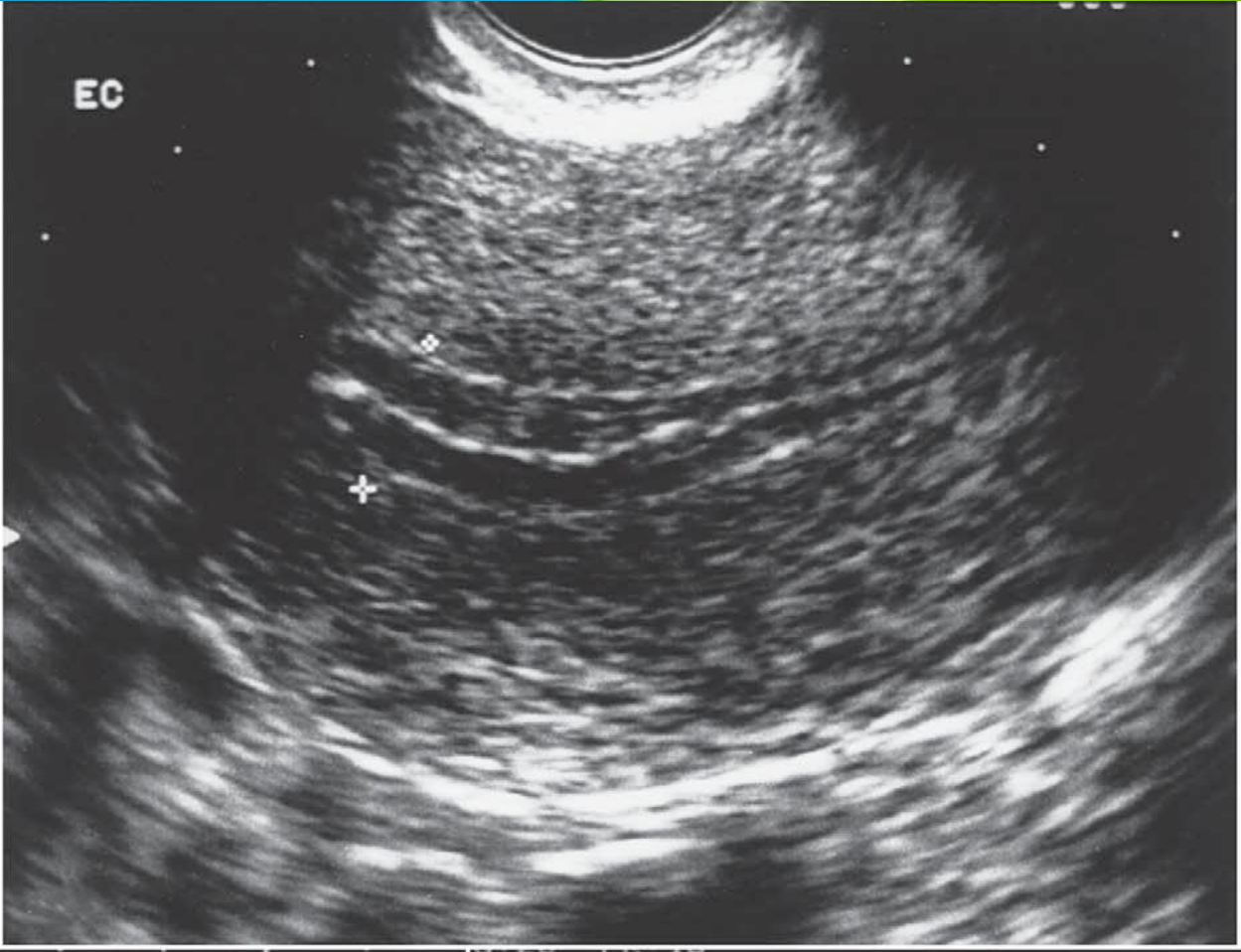
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## **Ultrasound of the uterus**

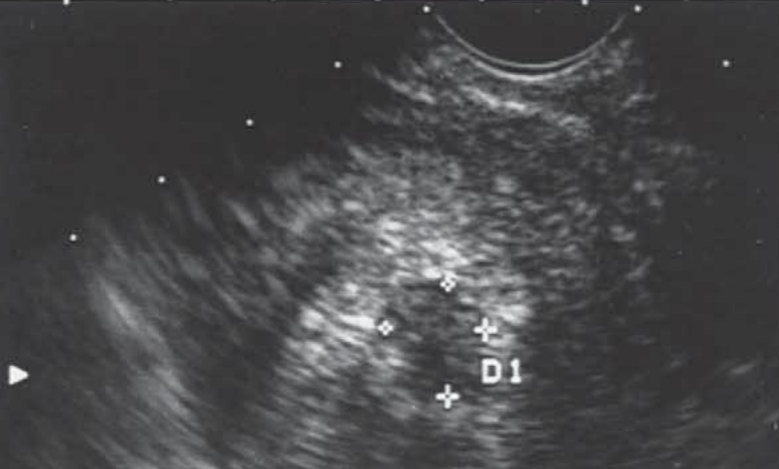
**A , the “triple line” indicating the thickness of the endometrium**

**B, a “thickened endometrium” of  $>10$  mm**

**C, Saline instillation of the endometrial cavity notes a well-defined submucous fibroid**



YH: 1 EHH: 2/2 SCC: 1





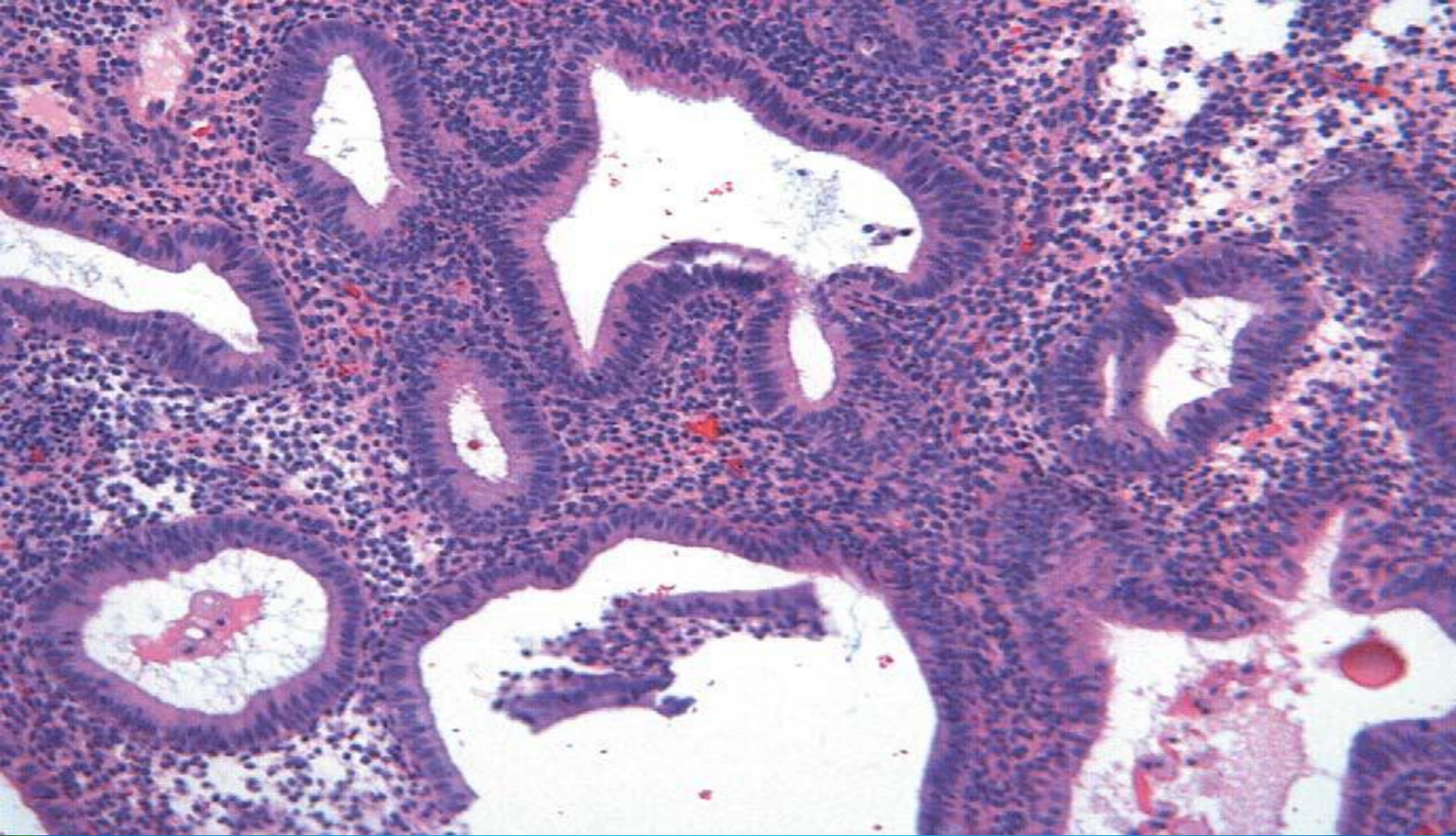
**In the endometrium, excess estrogen**

**stimulus proliferation, which may result in  
endometrial thickening**

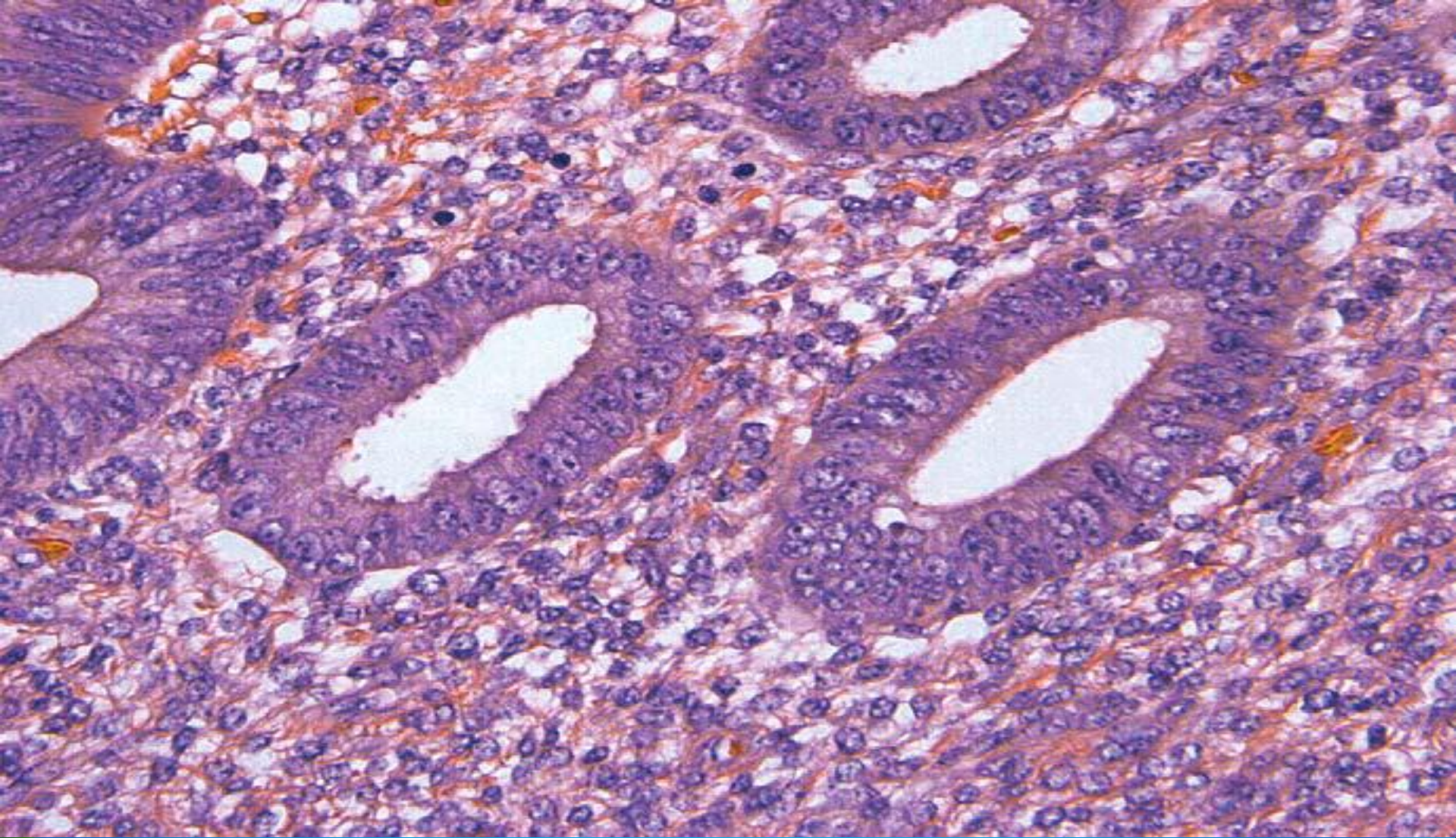
**that is associated with risk of breast and  
endometrial carcinomas**

## **Cause of excess estrogen:**

- **Tumor of the ovarian that produces excess estrogen**
- **Estrogen replacement therapy**
- **Tamoxifen in breast cancer**
- **Obese women make excess estrogen in fat**



**Simple hyperplasia without atypia: The endometrium shows an increase in the glandular epithelium that are often cystic, There is abundant stroma, so that the gland:stromal ratio is little altered from normal**



**Simple hyperplasia with atypia: an increased gland:stromal ratio with simple glands , the glands are lined by epithelium with atypical nuclei .**

**SHG is typically used in standard transvaginal ultrasonography Saline infusion**

**in which fluid is instilled into the uterine cavity does not show the endometrium well**

**1- without endometrial pathology defined on routine transvaginal but strong clinical suspicion of an abnormality**

**2-SHG can distinguish between atrophy and an anatomical lesion which may require biopsy**

improves sonographic detection endometrial pathology, such as

- polyps
- fibroids
- endometrial atrophy
- endometrial adhesions (or scarring)
- malignant lesions/masses
- congenital defects

**Polyps are often soft and pliable and may present as single or multiple lesions**

**Can be seen in postmenopausal patients usually arise from the fundus and may be sessile or pedunculated**

**May harbor malignancy which may only be microscopic provides diagnosis**

**The typical sonographical appearance of an endometrial polyp is**

**A well-circumscribed homogeneous lesion that is isoechoic to the endometrium**

**Yet preserves the endometrial-myometrial interface**

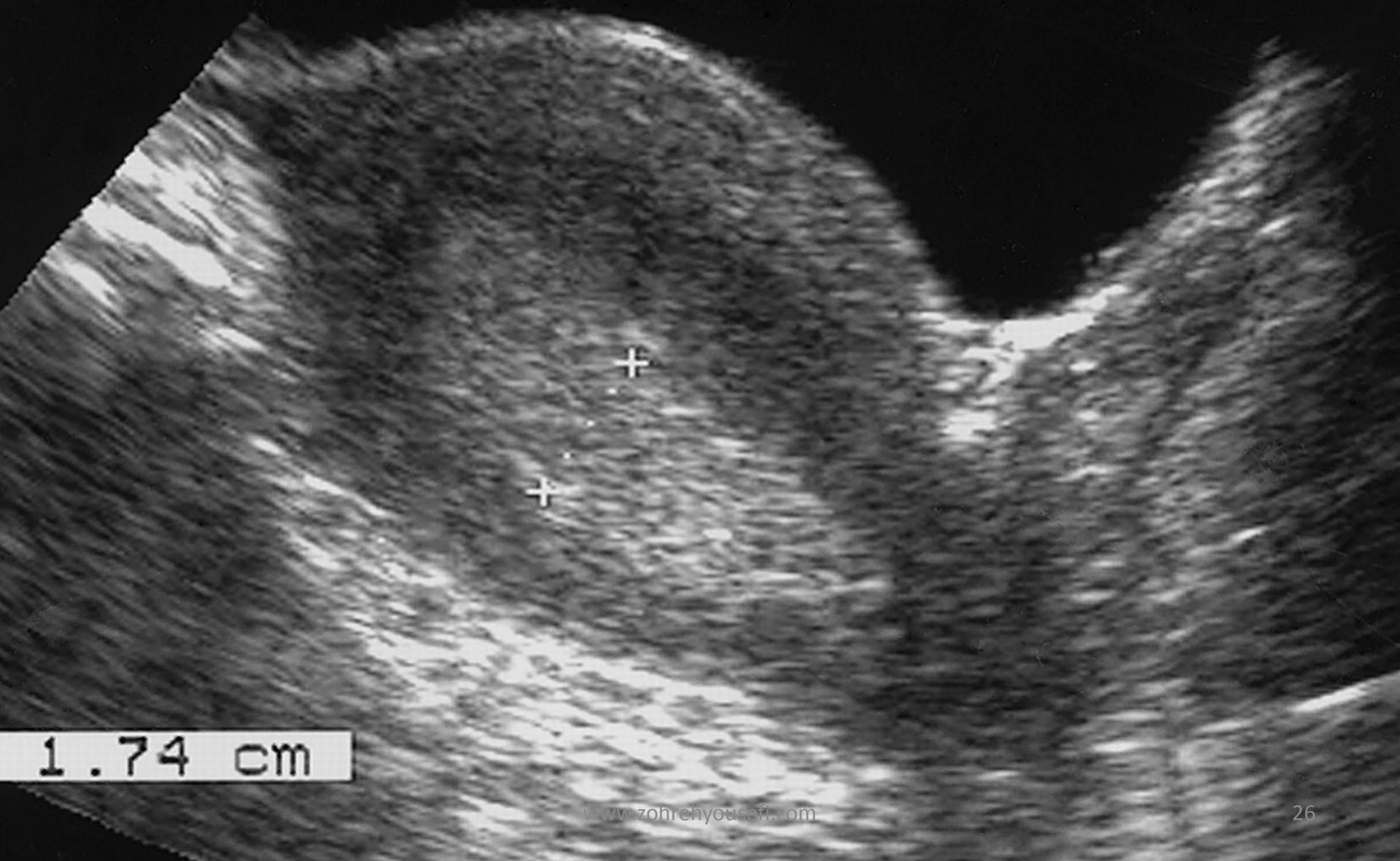


TRANS

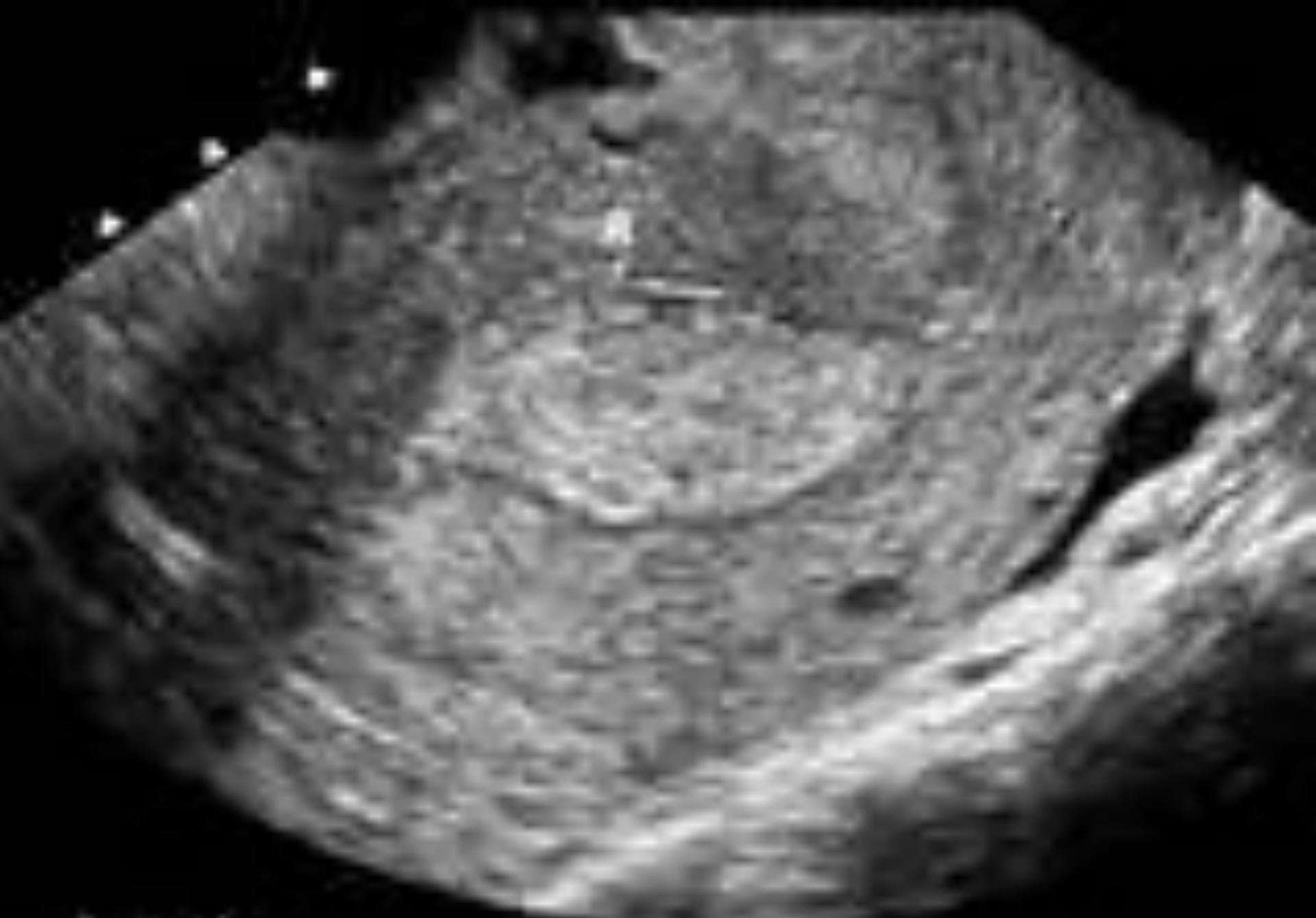
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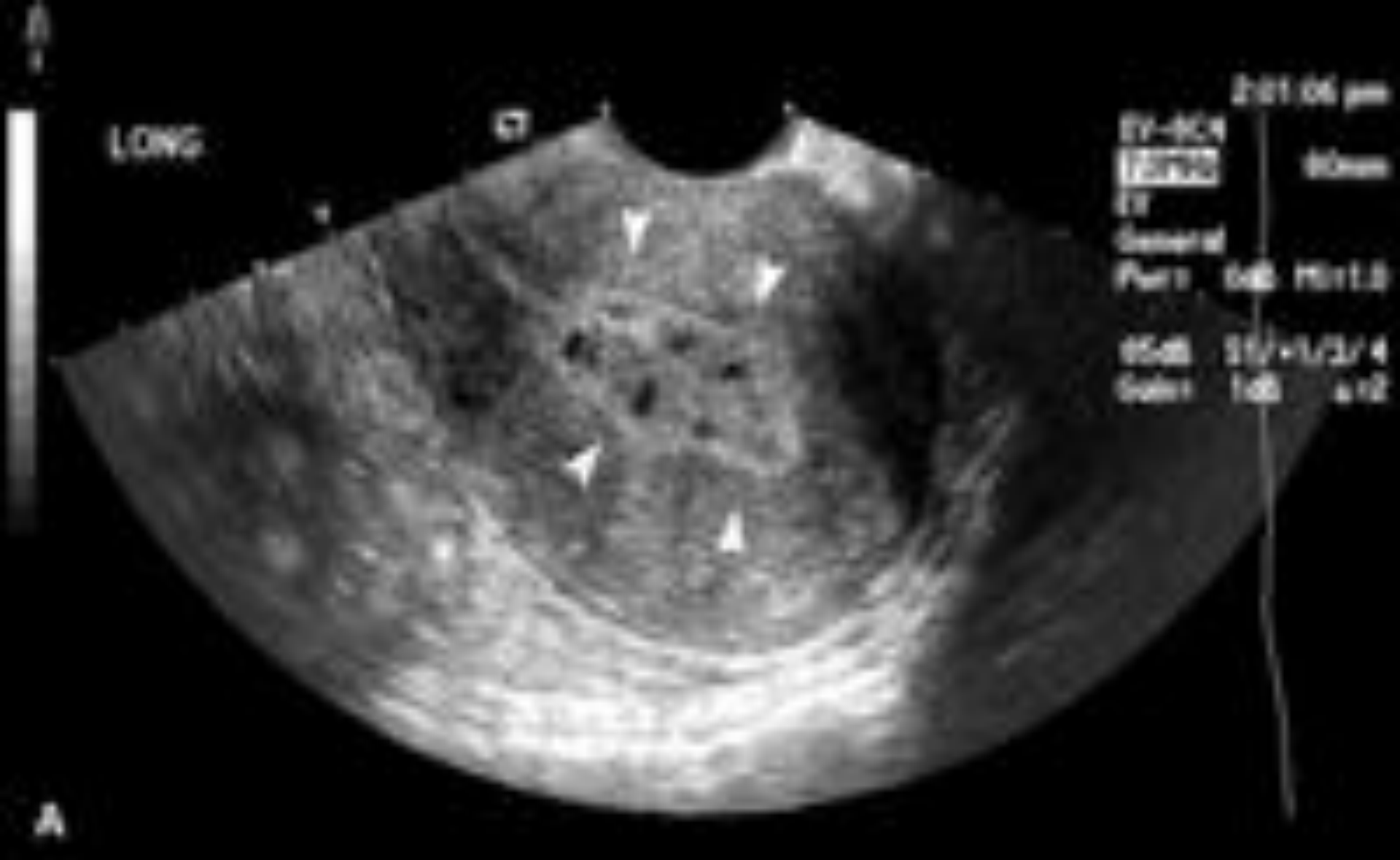
G UT



1.74 cm



#41. 48cm



**Endometrial hyperplasia shows diffuse endometrial thickening and multiple cystic areas**

**Submucosal leiomyomas typically as well-circumscribed hypoechoic masses that distort the endometrial-myometrial interface and refractile shadowing on ultrasound**

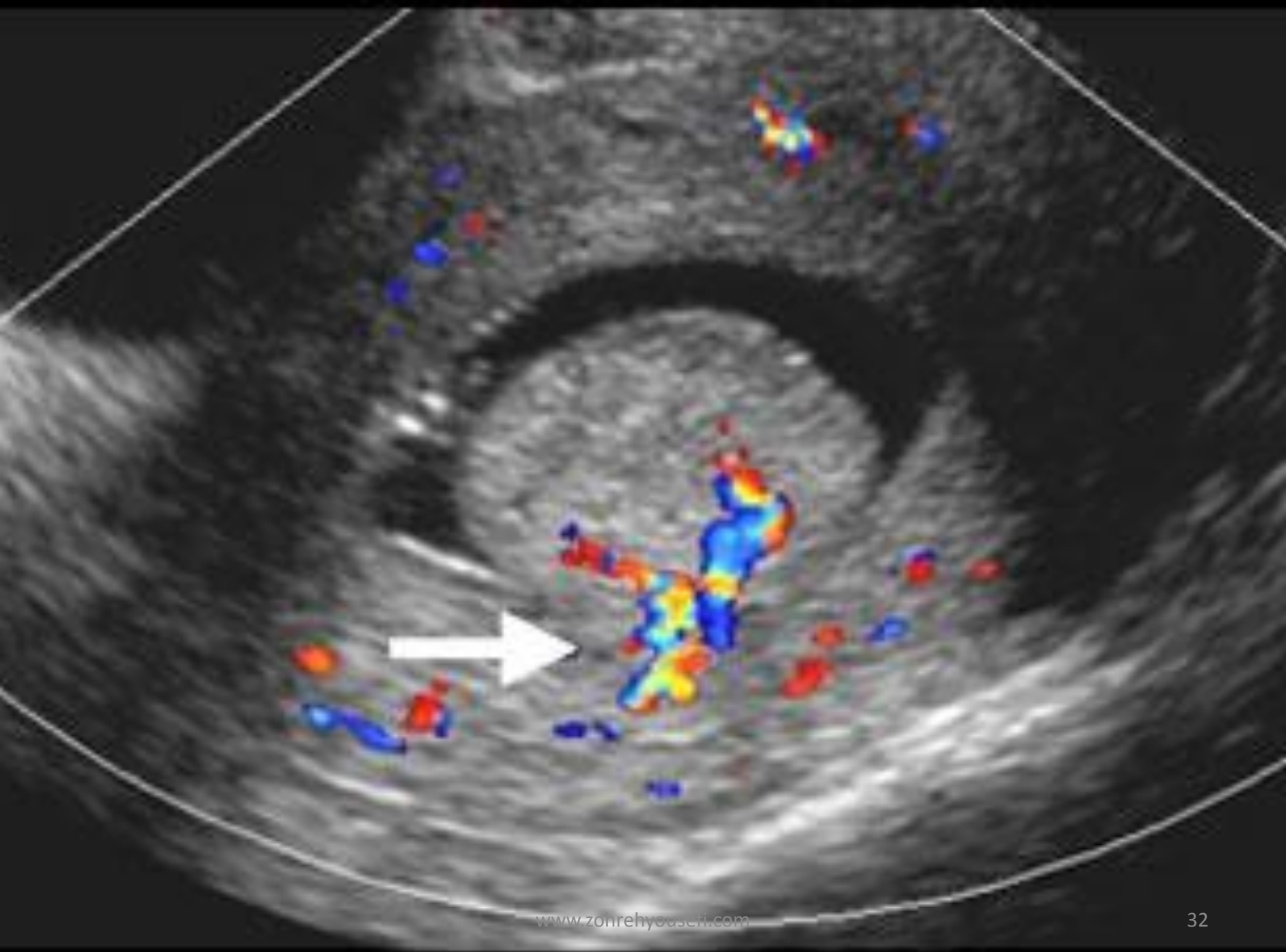
# SONOHYSTEROGRAM



SAGITTAL SONOGRAPHIC VIEW OF A UTERUS WITH A SUBMUCOSAL LEIOMYOMA

**Using Doppler ultrasound interrogation,  
a feeding vessel often can be seen**

**The finding is nonspecific  
in that atypical fibroids or endometrial cancer  
can demonstrate this appearance**





## **Complications of SHG include:**

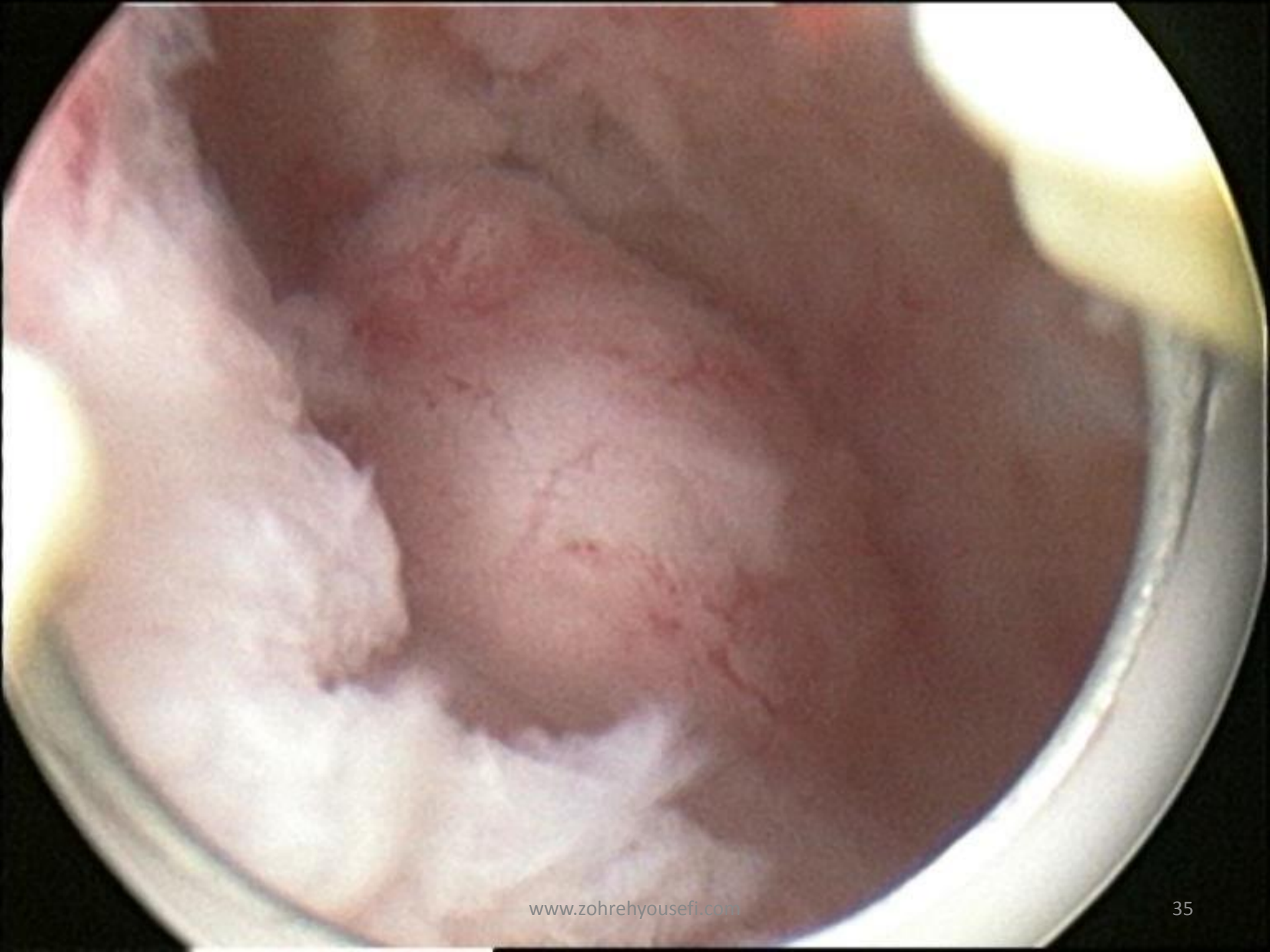
- **pelvic pain**
- **vagal symptoms**
- **nausea**
- **post procedure fever**
- **failure to complete the procedure in**
- **patient noncompliance**

## **Hysteroscopy**

**inspection of the uterine cavity by endoscopy  
with access through the cervix**

**hysteroscopy is minimally invasive procedures  
vision directed biopsy  
has enhance accuracy in diagnosis**

**It allows for the diagnosis of intrauterine  
pathology and serves as a method for surgical  
intervention**



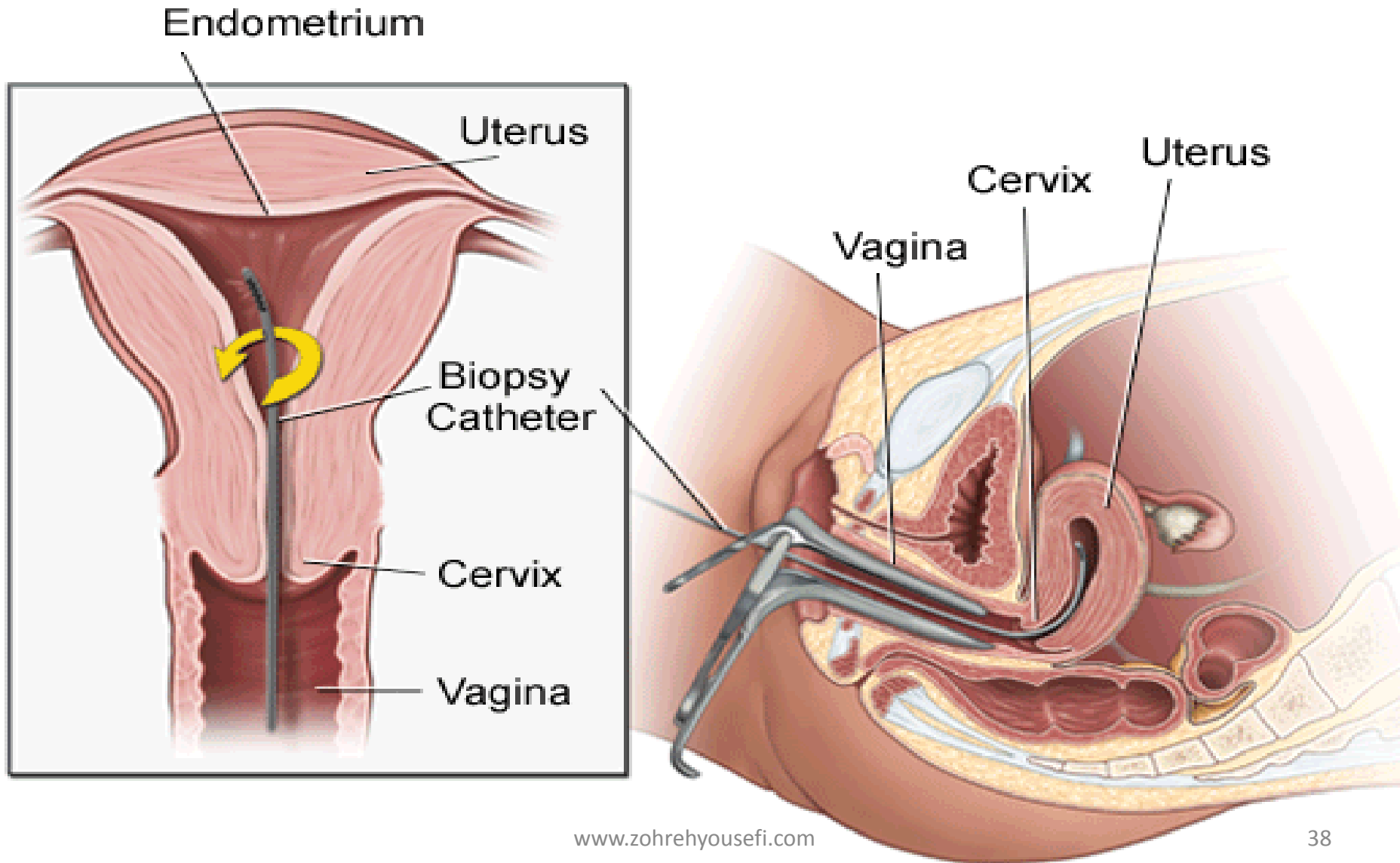
## **Complications of hysteroscopy are rare and include:**

- perforation of the uterus**
- bleeding**
- infection**
- damage to the urinary or digestive tract**
- medical complications**
- reactions to drugs**
- or anesthetic agents**

## **The indications for endometrial sampling:**

- **distinguish anovulatory from ovulatory bleeding**
- **evaluation of postmenopausal bleeding**
- **exclude a hyperplastic condition or carcinoma**
- **If the patient does not respond to medical therapy**
- **identify endometrial polyps or submucosal myomas**
- **Follow-up for premalignant changes**
- **endometrium treated with hormones**

# Endometrial Biopsy



➤ **complications of endometrial sampling**

**iatrogenic uterine perforation &**

➤ **small bowel associated with elective abortion**

➤ **incomplete evacuation**

➤ **Asherman's Syndrome**

➤ **Thin and unresponsive endometrium**

**In pre menopausal patient according to the stage of the menstrual cycle, its significantly varies**

**In post menopausal woman, the endometrial thickness does not vary much from month to month**





**Endometrial Appearance: Immediately post-menses or post-menopausal**

**Thin endometrium may be defined as an endometrial thickness of less than 8 mm**

**Atrophic endometrium  
endometrium less than 4 - 5 mm  
post-menopausal  
prolonged oral contraception  
hypo-oestrogenic state :  
ovarian dysfunction  
Tamoxifen use**

**Tamoxifen may be associated with  
endometrial proliferation  
hyperplasia and uterine carcinoma**

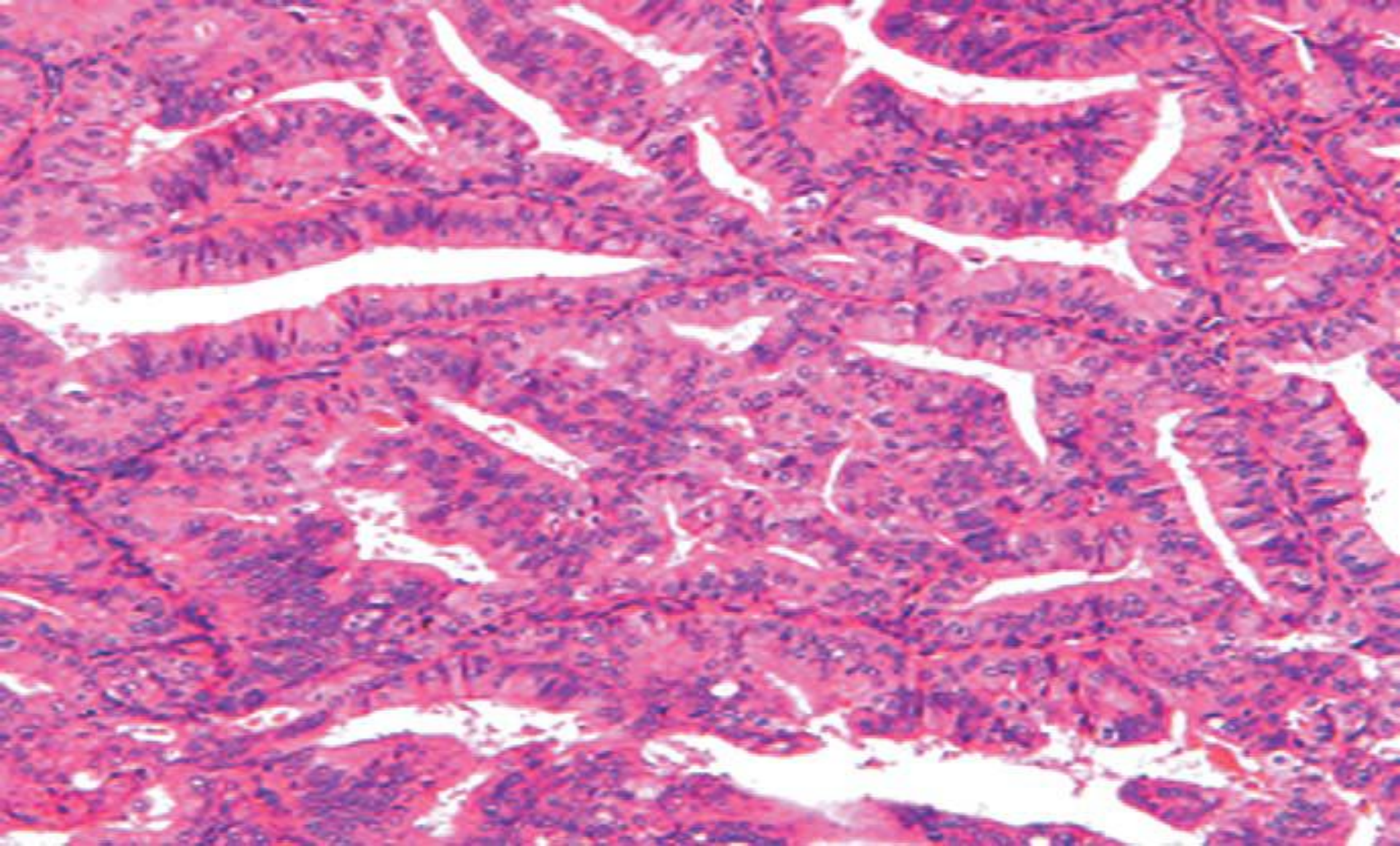
### **Polyp formation**

**Tamoxifen-related polyps are generally  
larger and differ from non-tamoxifen-related  
polyps**

**in histologic characteristics**

**large polyp with multiple cystic areas**

# **Endometrial Carcinoma**



**Well-differentiated endometrioid adenocarcinomas a “back to back” glandular arrangement with little intervening stroma. The glands are lined by tall columnar tumor cells**



Thank  
You