



Endometrial line thickness in different conditions

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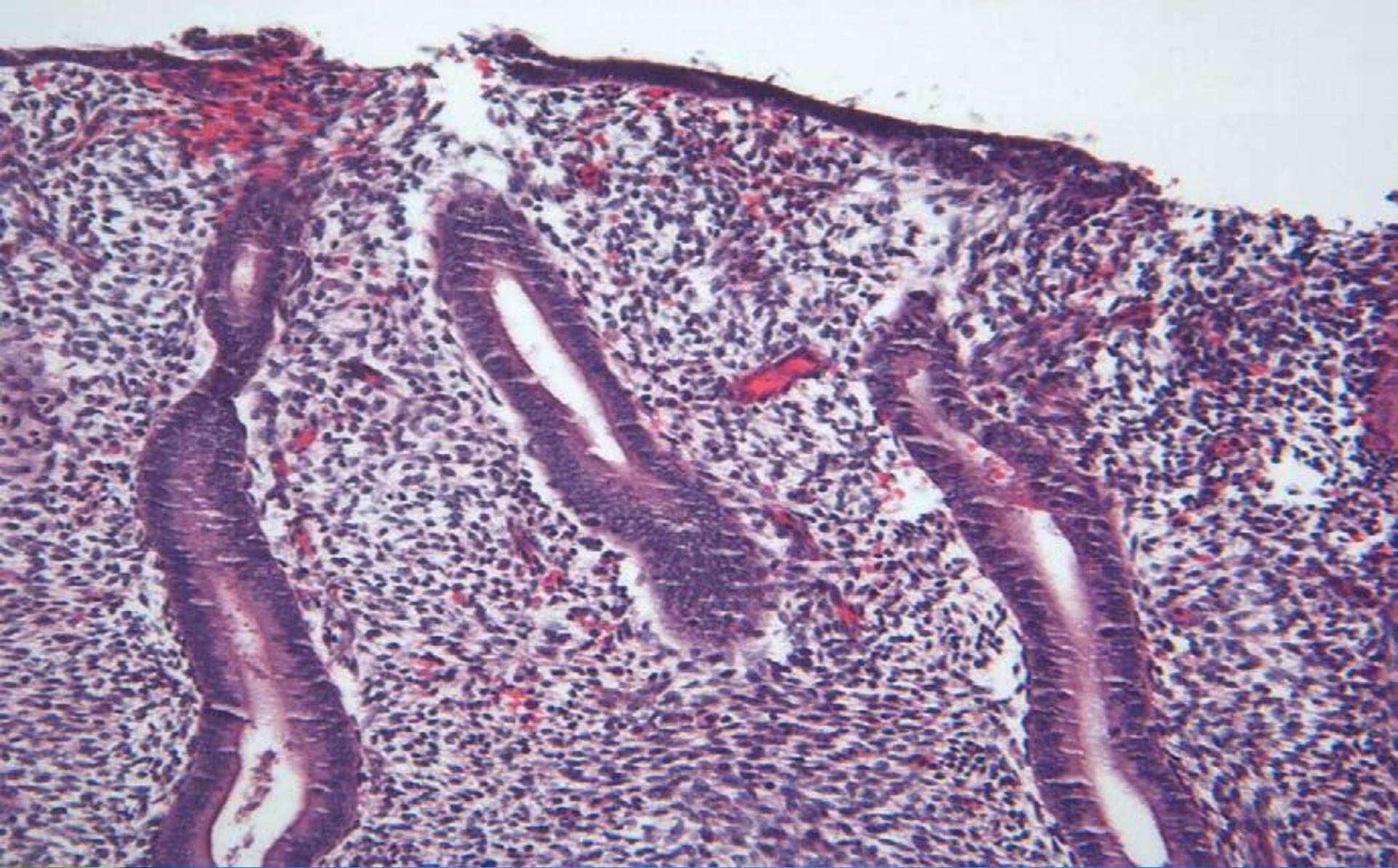
Endometrial thickens in response to

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**

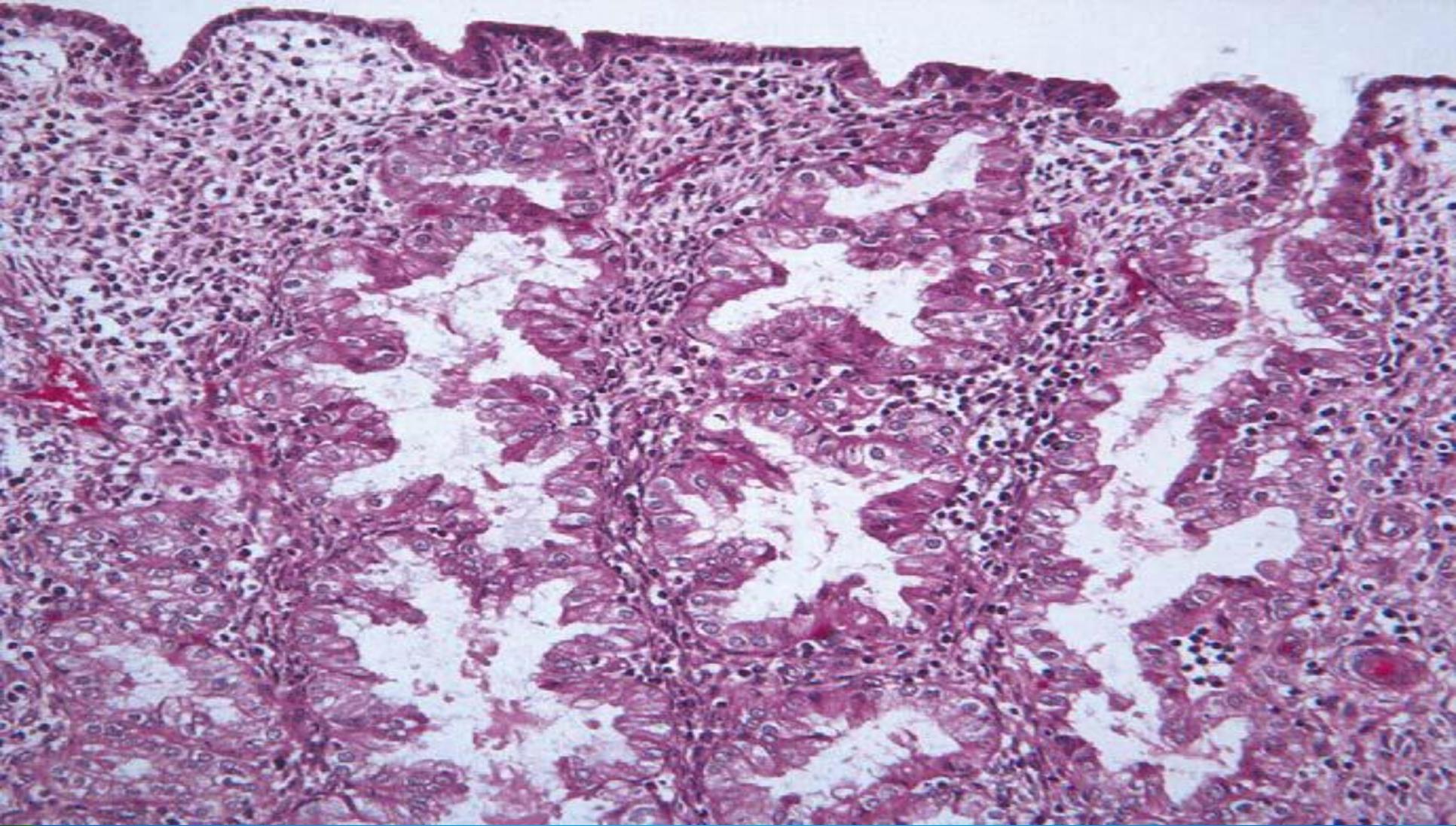
the late proliferative up to **11 mm**



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

B12



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**

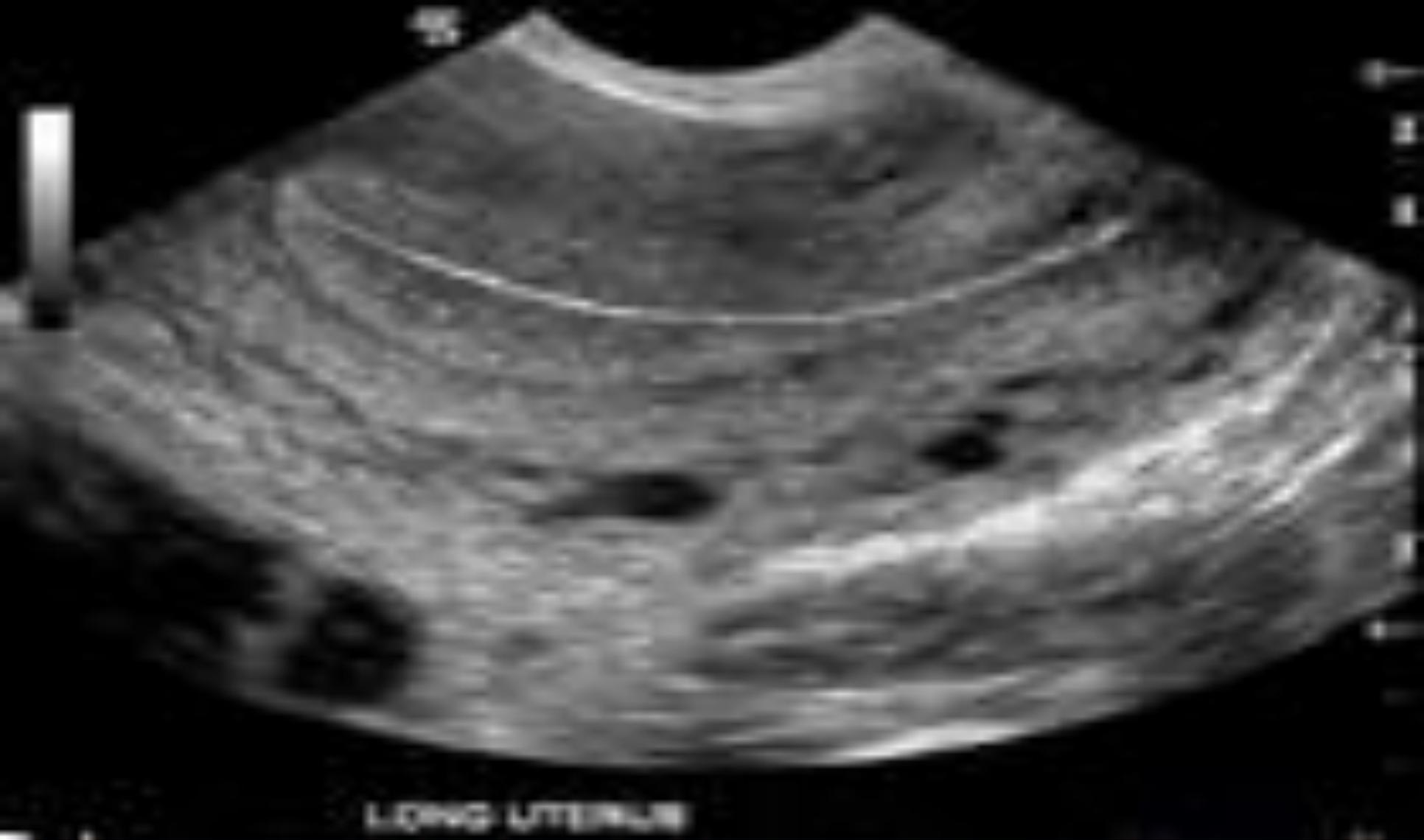
**The line of endometrial appears smooth
with symmetric depth to both sides of the
canal**



Measure the Endometrium

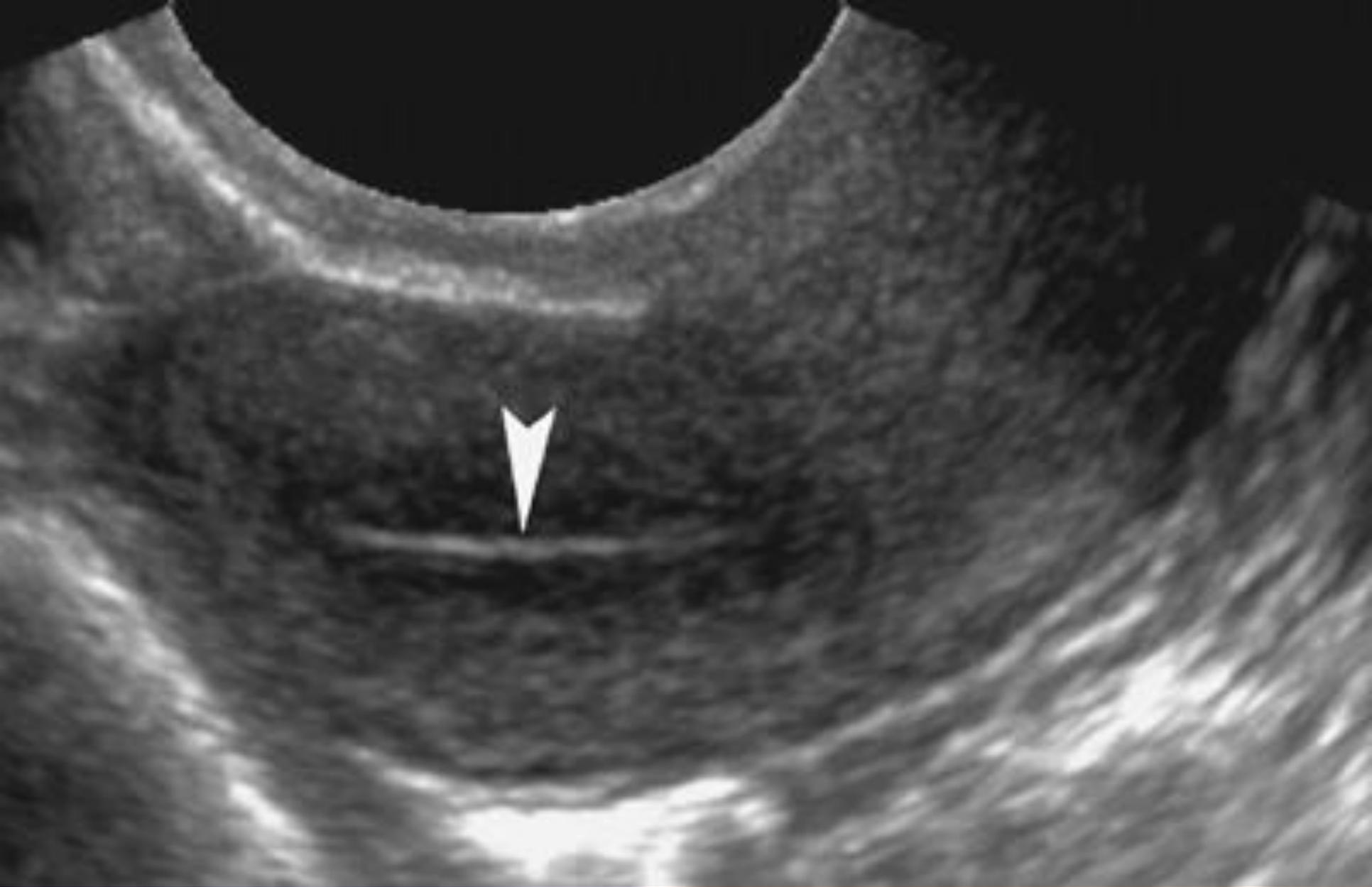


Endometrial Appearance: Proliferative (Follicular)



Endometrial Appearance: Peri-ovulatory





atrophic endometrium

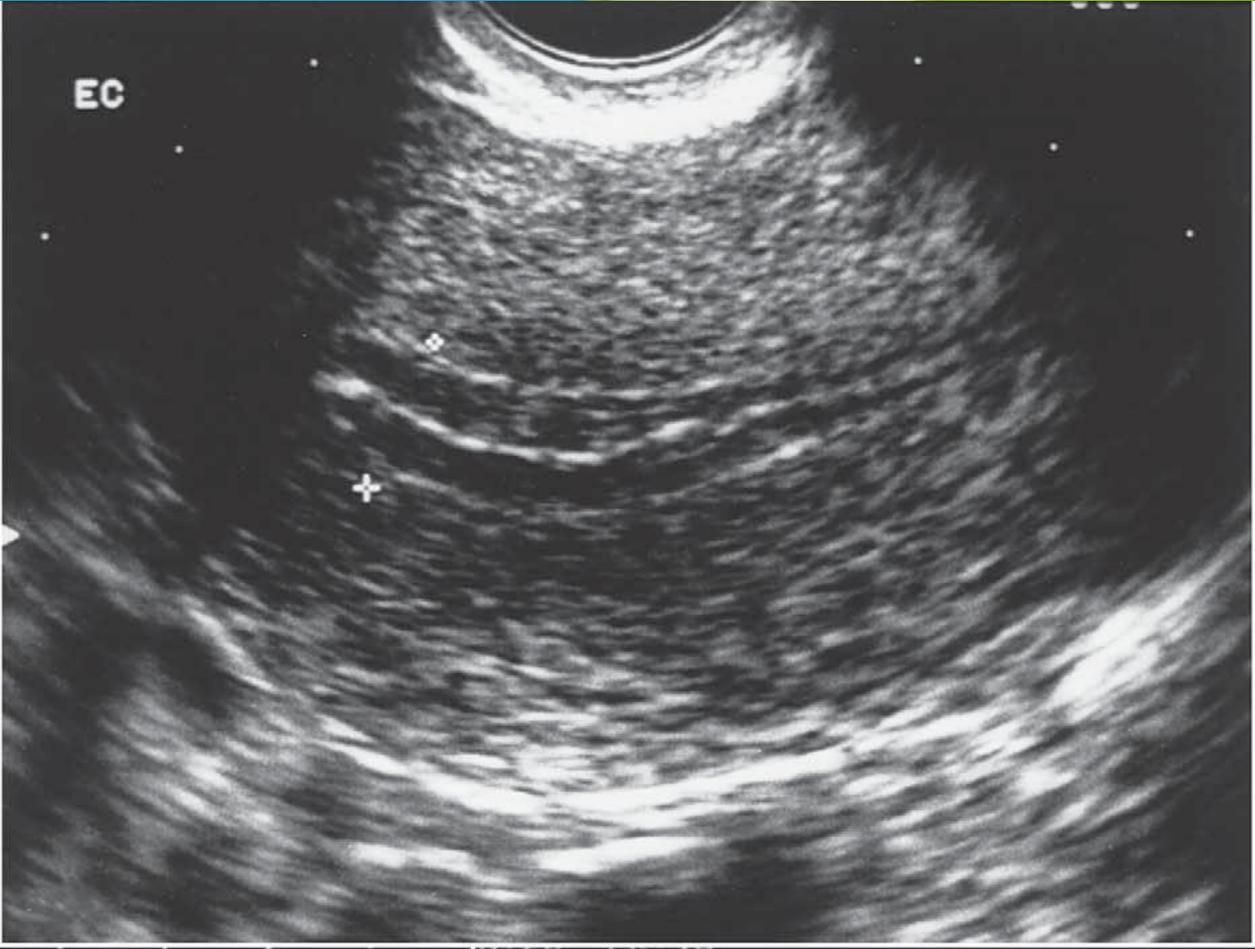
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Ultrasound of the uterus

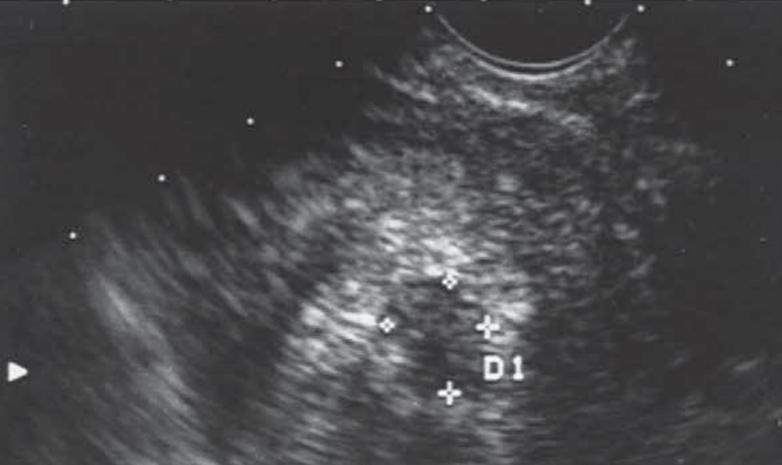
A , the “triple line” indicating the thickness of the endometrium

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



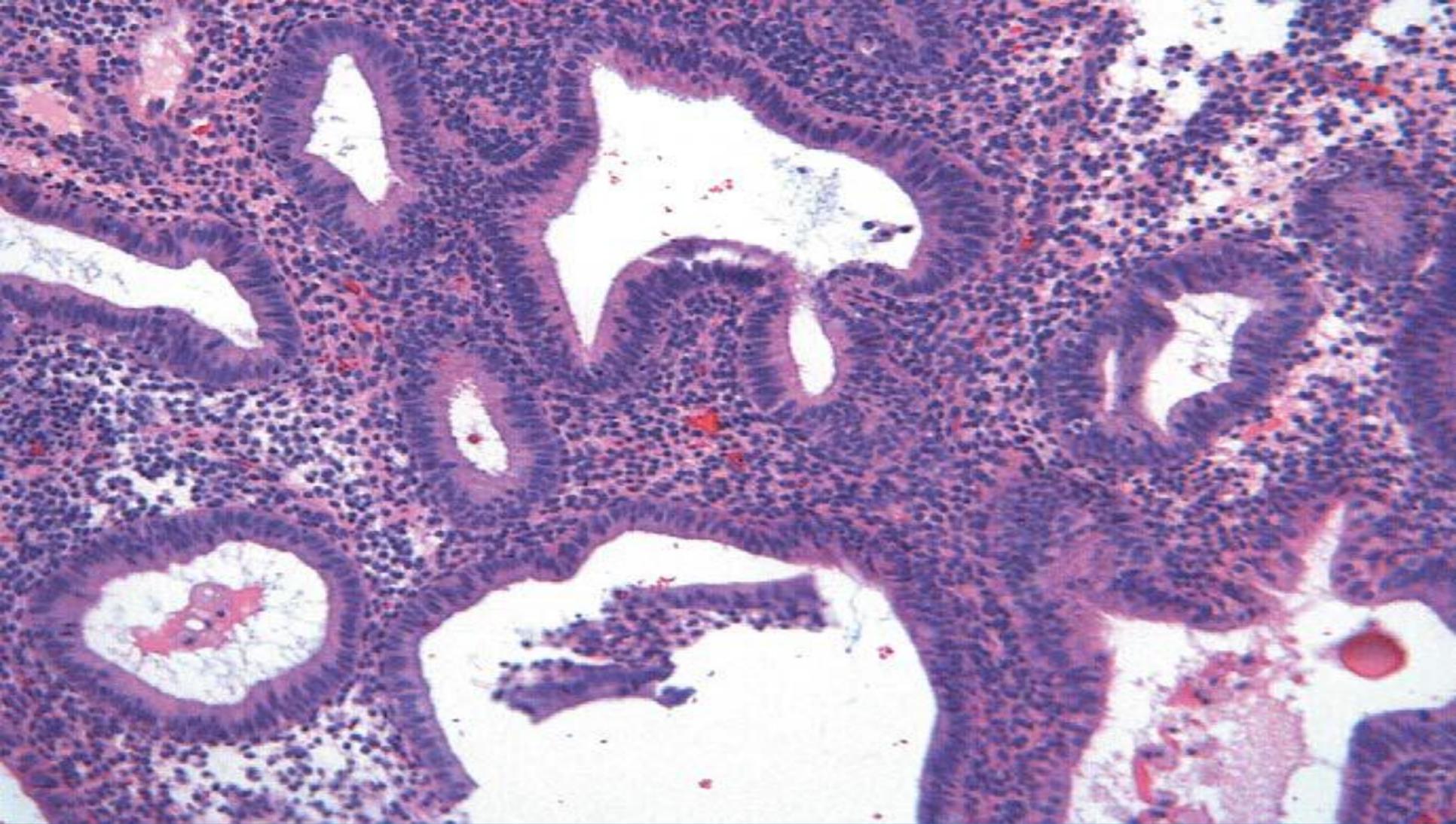
In the endometrium, excess estrogen

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

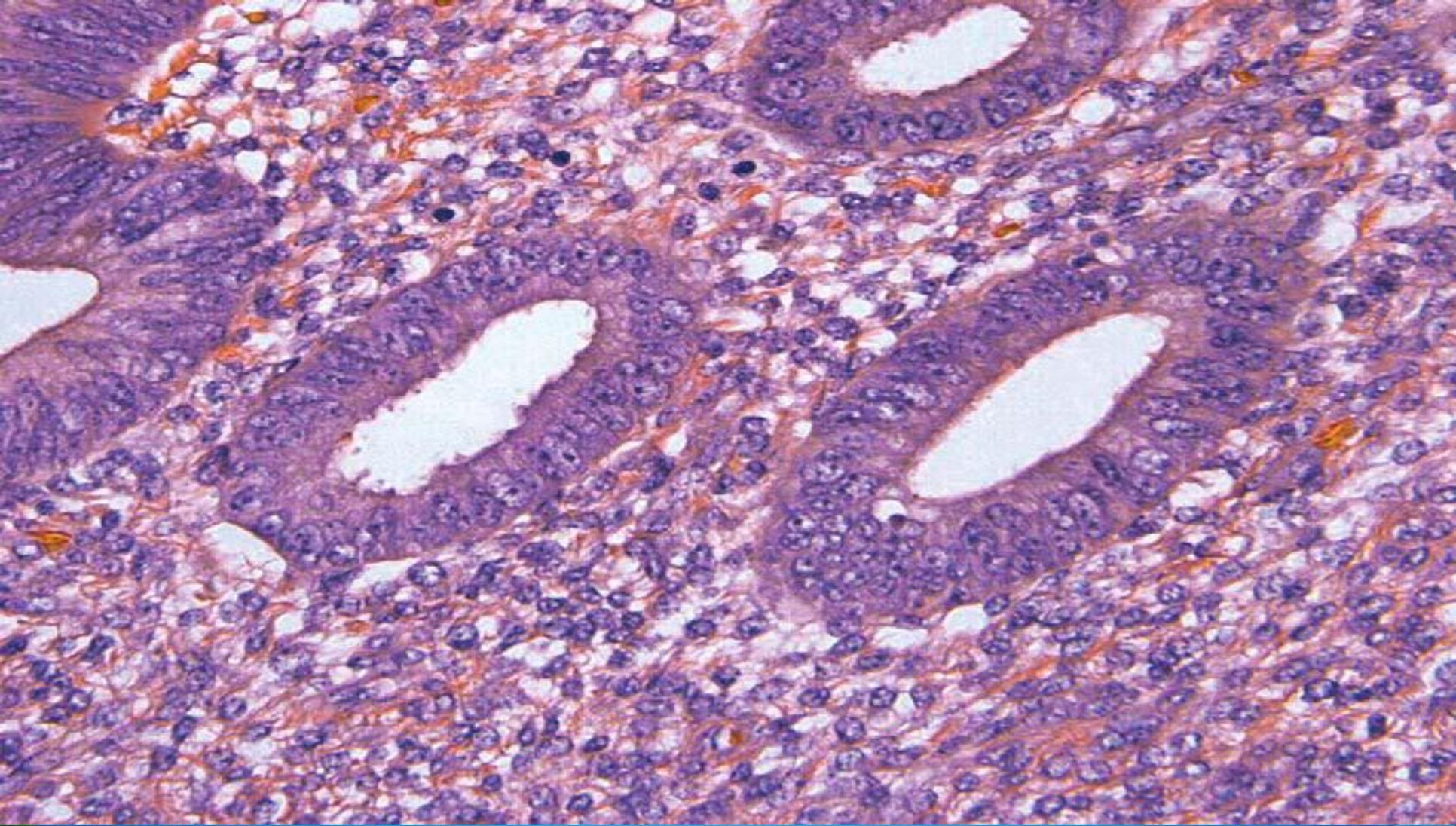
**that is associated with risk of breast and
endometrial carcinomas**

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

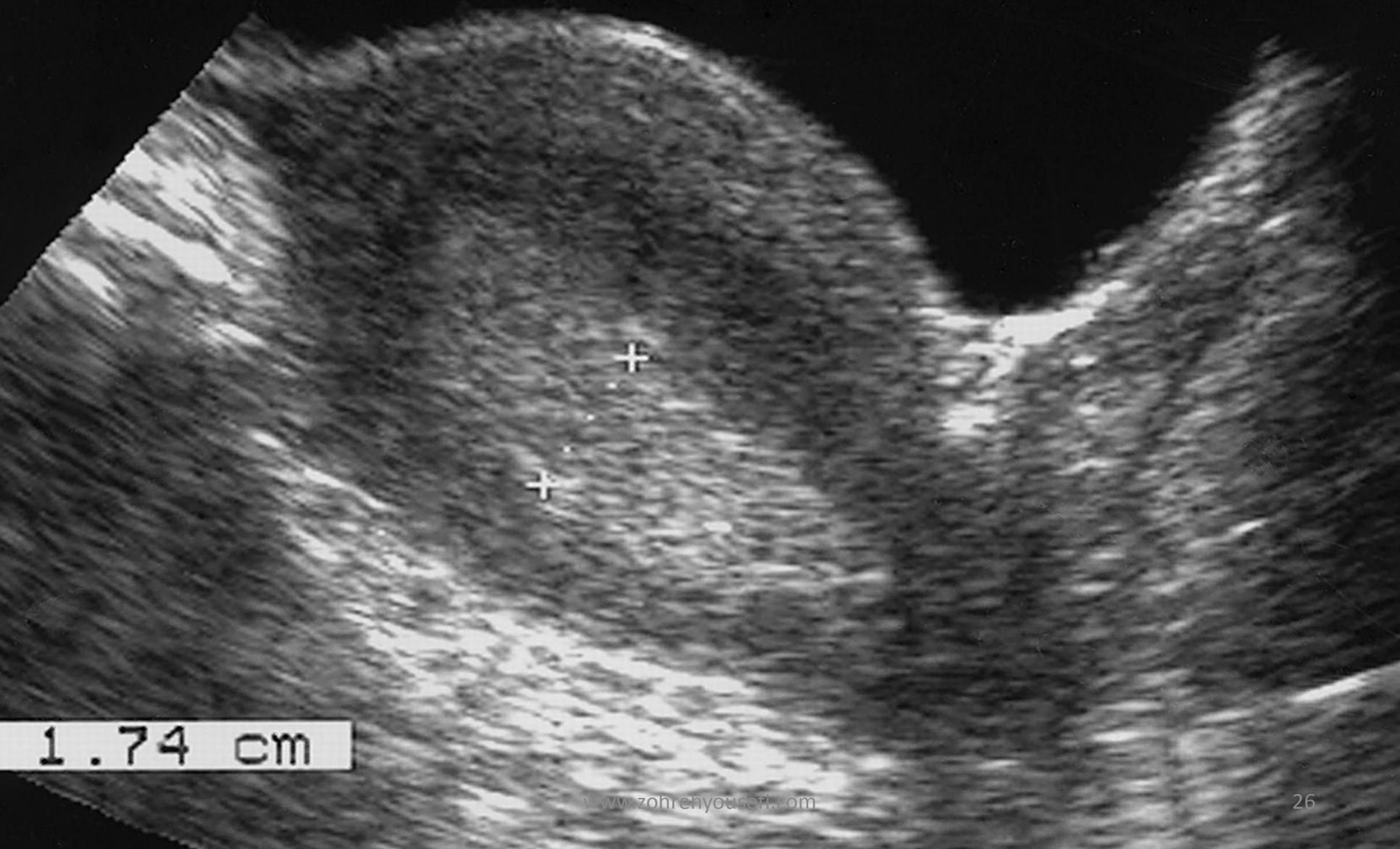
Yet preserves the endometrial-myometrial interface

TRANS

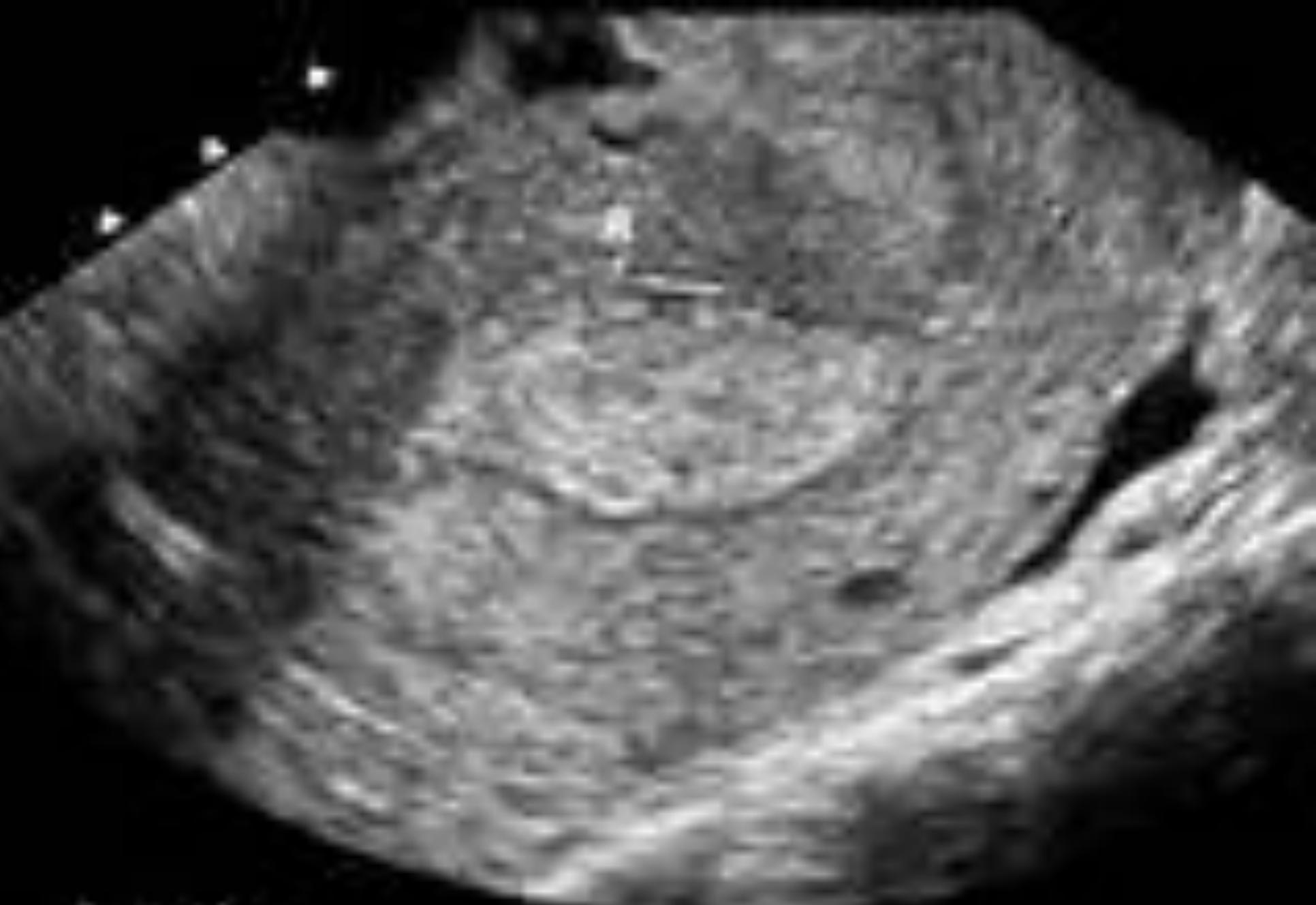
A



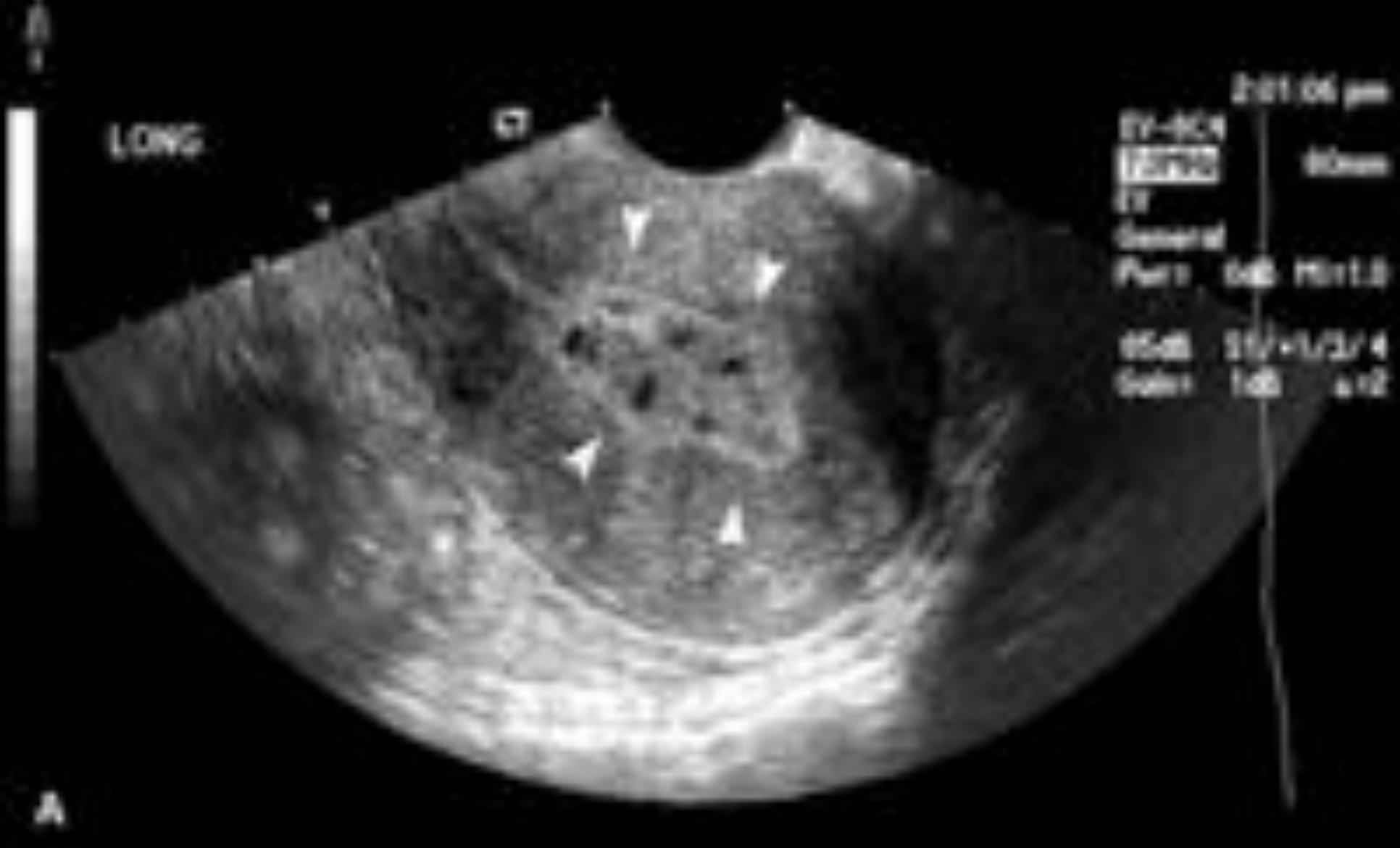
G UT



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

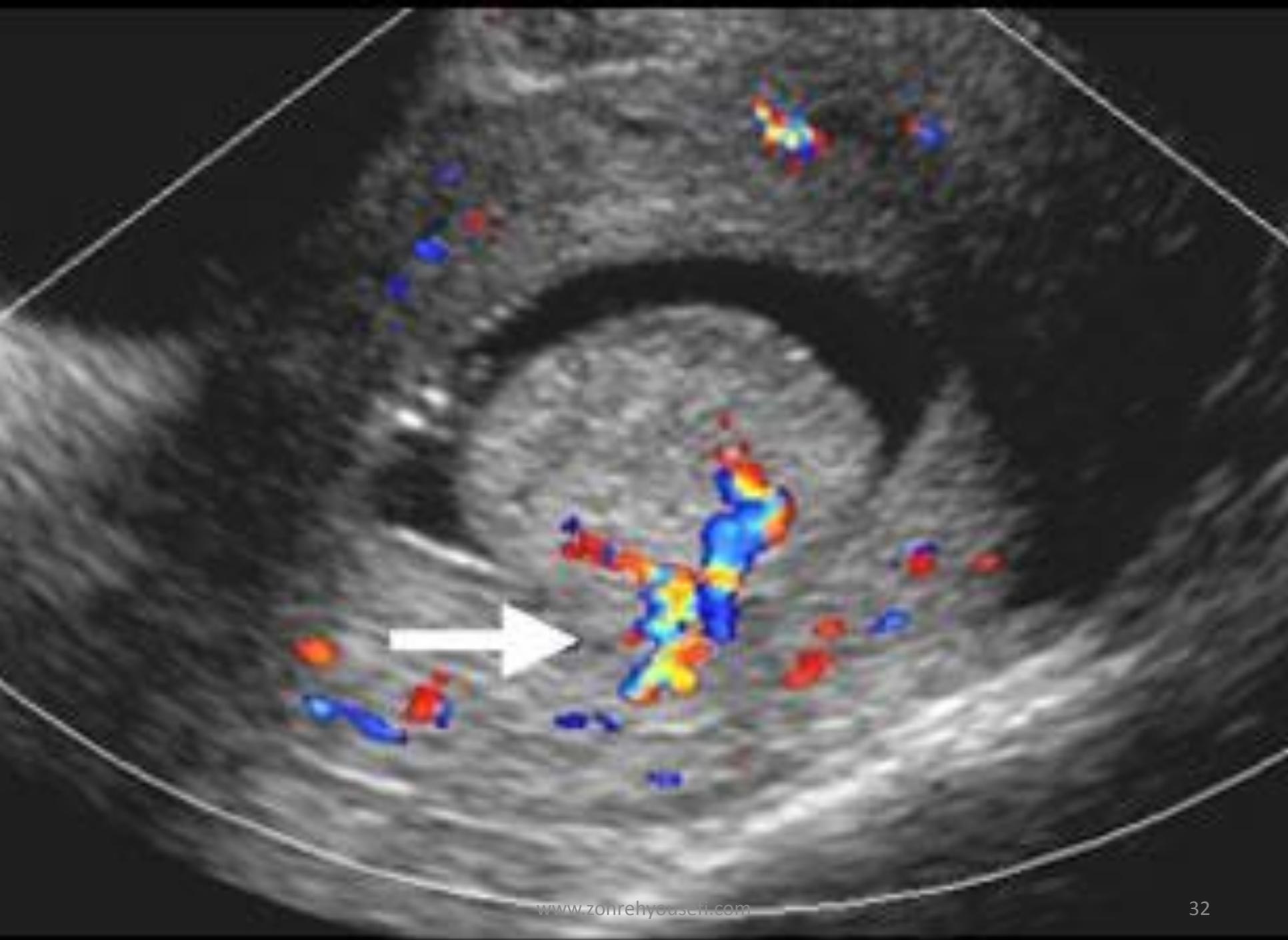
SONOHYSTEROGRAM



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:

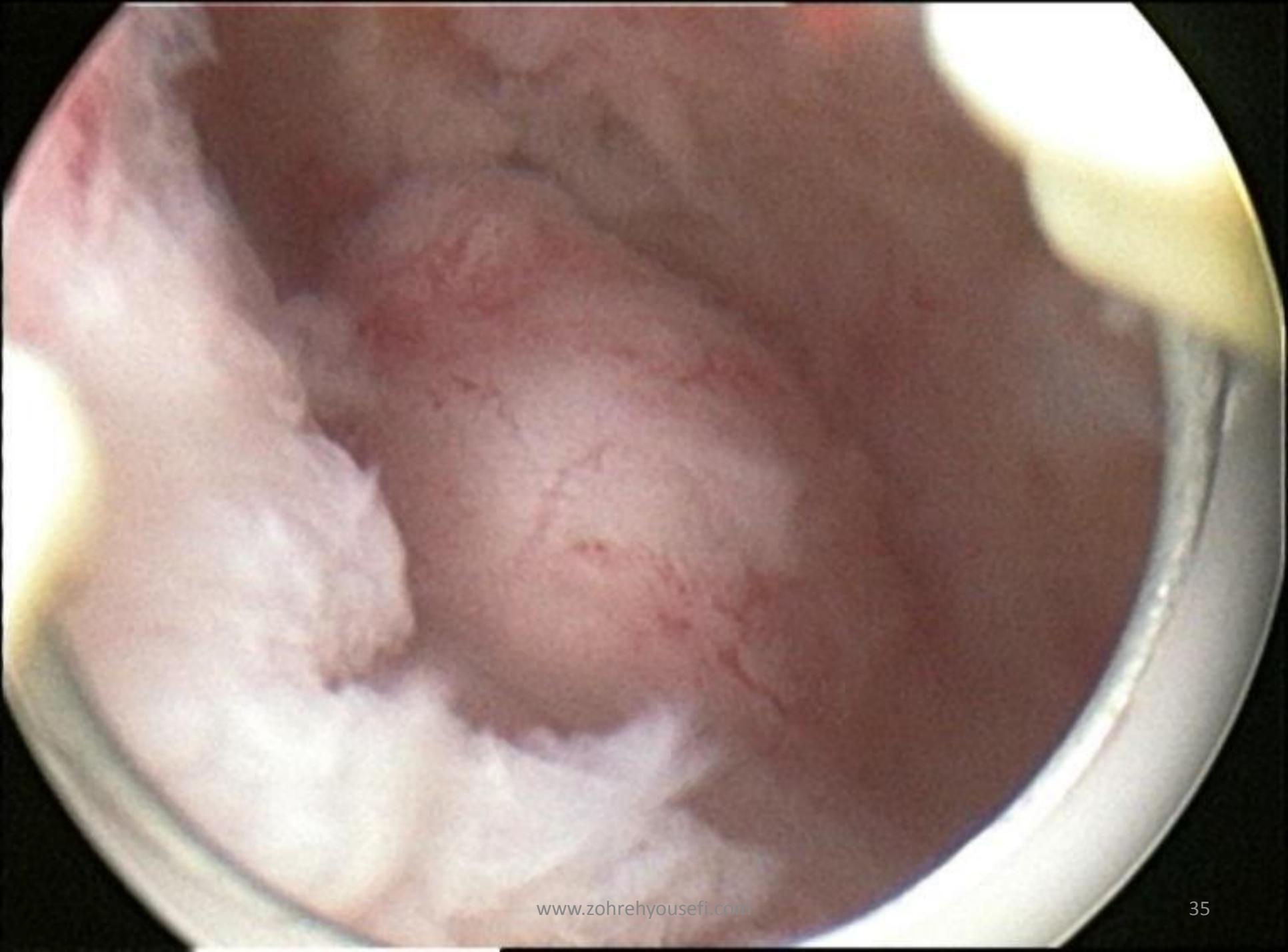
- **pelvic pain**
- **vagal symptoms**
- **nausea**
- **post procedure fever**
- **failure to complete the procedure in**
- **patient noncompliance**

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**



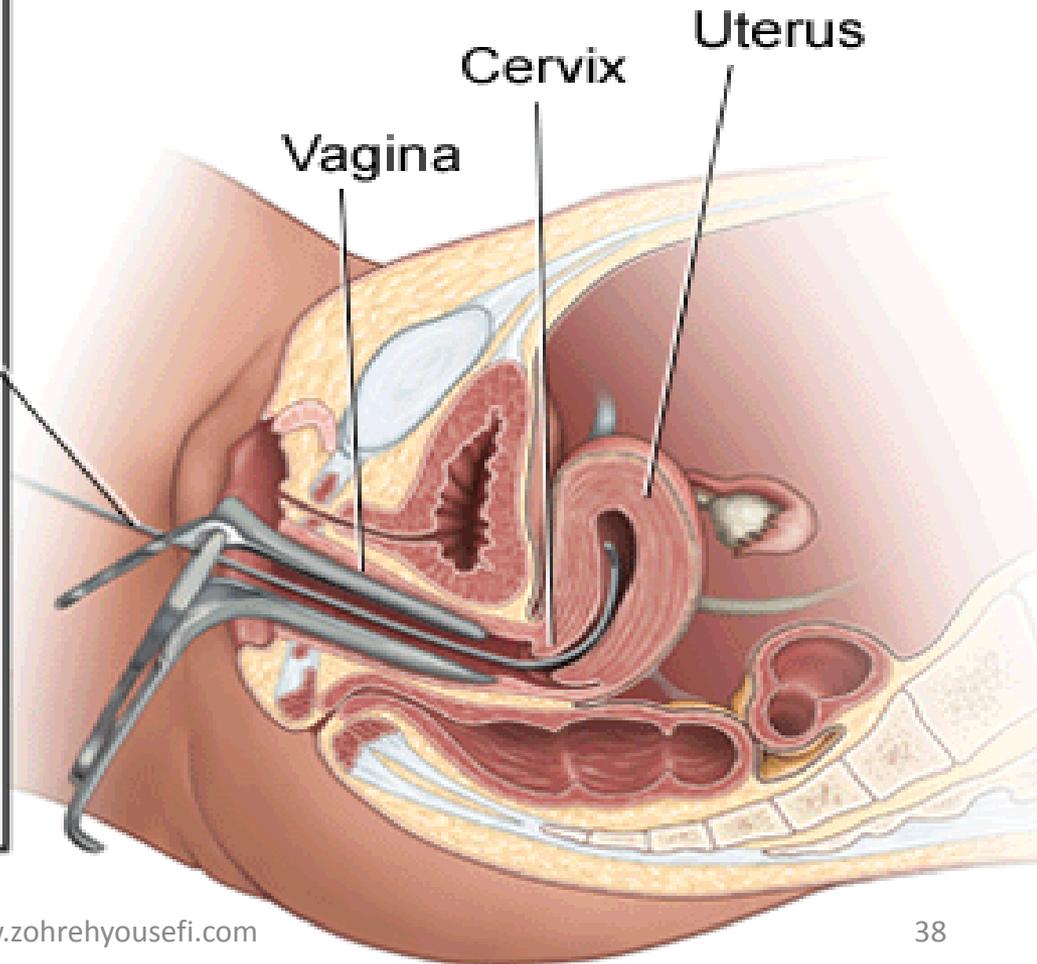
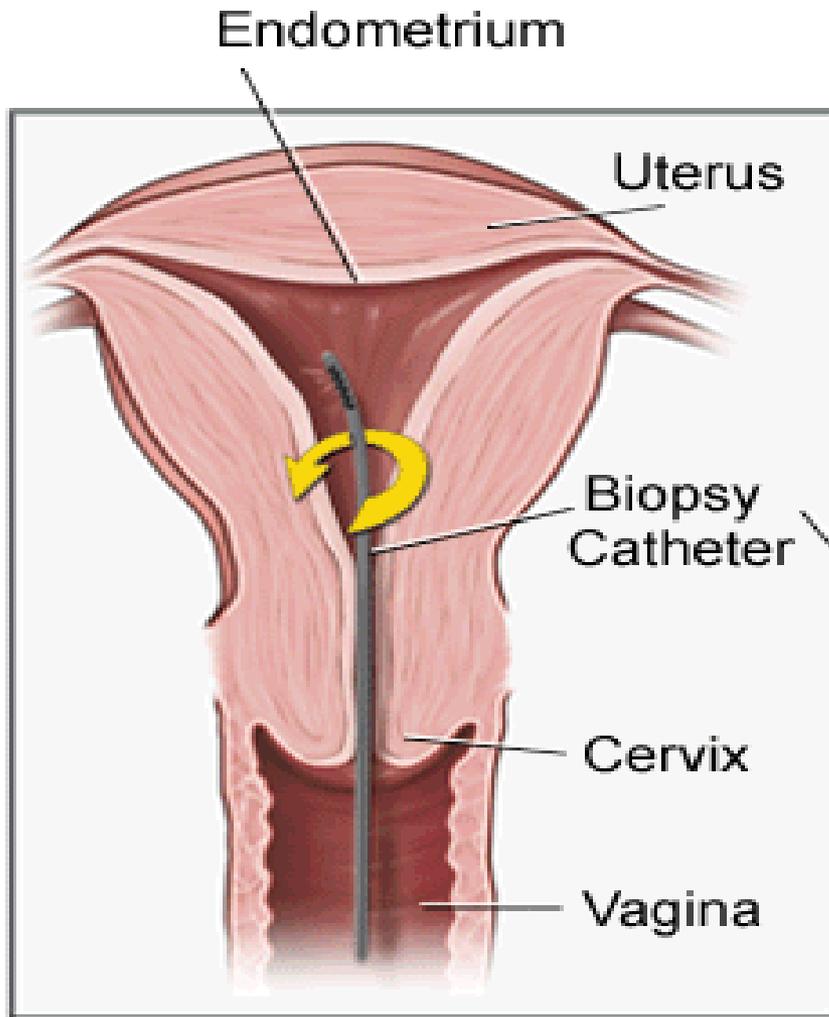
Complications of hysteroscopy are rare and include:

- 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**

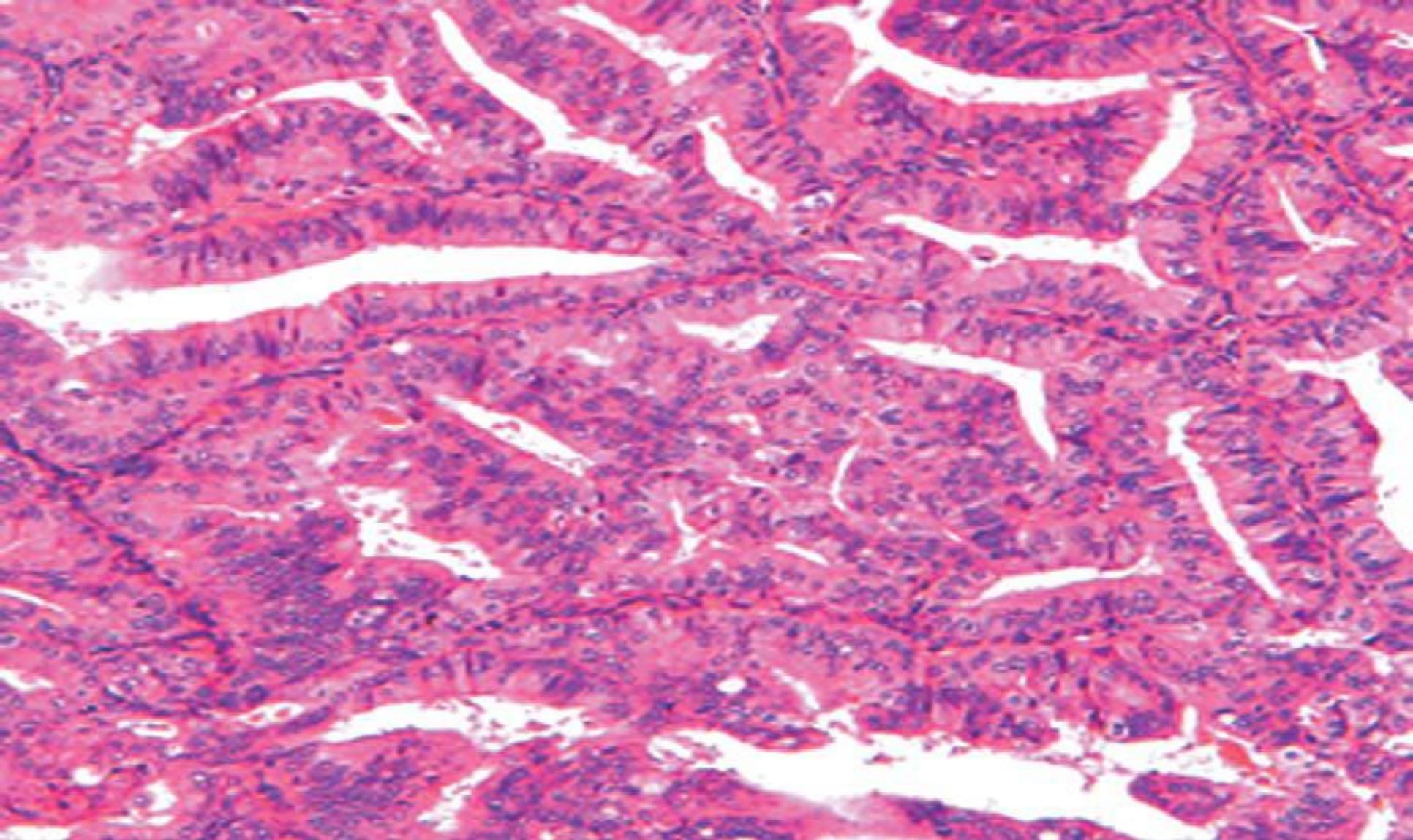
Polyp formation

**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