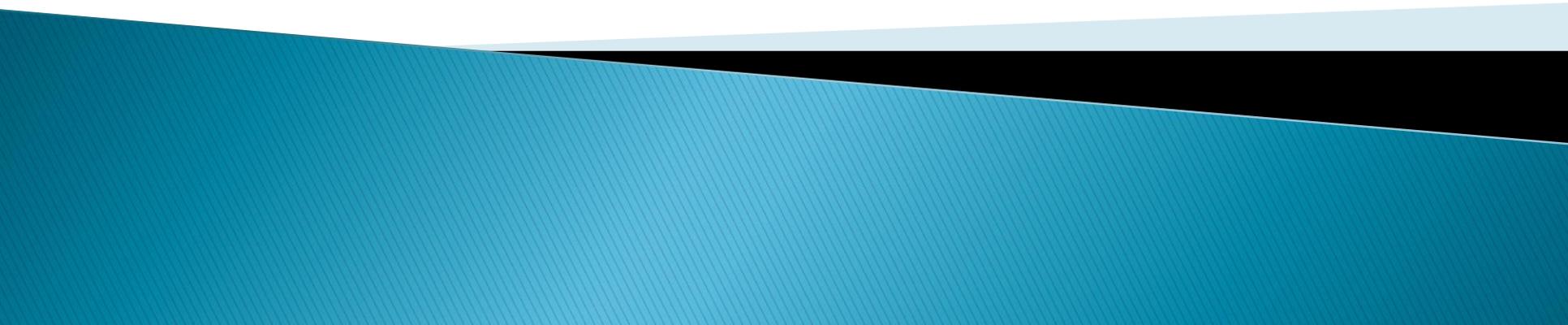


ABNORMAL UTERINE BLEEDING

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**No conflict of interest or
disclosures**



Objectives

- ▶ Review causes of abnormal uterine bleeding:
 - Adolescent
 - Reproductive years
 - Perimenopausal
 - Postmenopausal
- ▶ Review diagnostic workup
- ▶ Review patients needing referral

Definition AUB

- ▶ Heavy menstrual bleeding
 - ▶ Intermenstrual bleeding
 - ▶ Postmenopausal bleeding
- 

ABNORMAL UTERINE BLEEDING

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graph LR; A[ABNORMAL UTERINE BLEEDING] --> B[STRUCTURAL CAUSES]; A --> C[NON-STRUCTURAL CAUSES]; B --- B1[Polyps]; B --- B2[Adenomyosis]; B --- B3[Leiomyoma]; B --- B4[Malignancy]; C --- C1[Coagulopathy]; C --- C2[Ovulatory disorders]; C --- C3[Endometrial]; C --- C4[Iatrogenic]; C --- C5[other];
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The diagram is a flowchart with a central box on the left labeled 'ABNORMAL UTERINE BLEEDING'. Two arrows point from this box to two separate boxes on the right. The top box is titled 'STRUCTURAL CAUSES' and lists four items: Polyps, Adenomyosis, Leiomyoma, and Malignancy. The bottom box is titled 'NON-STRUCTURAL CAUSES' and lists five items: Coagulopathy, Ovulatory disorders, Endometrial, Iatrogenic, and other.

STRUCTURAL CAUSES

Polyps

Adenomyosis

Leiomyoma

Malignancy

NON-STRUCTURAL CAUSES

Coagulopathy

Ovulatory disorders

Endometrial

Iatrogenic

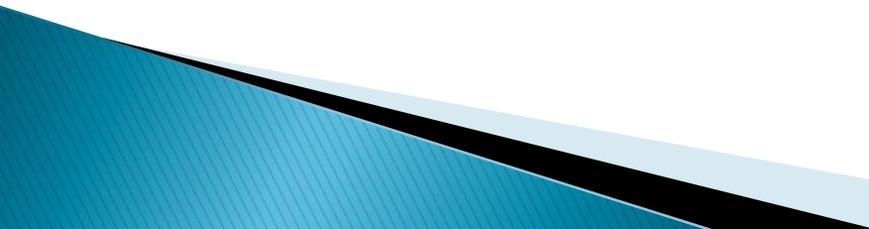
other

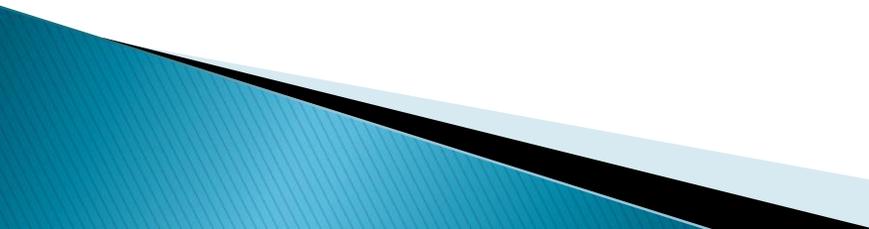
Is she...

- ▶ Adolescent?
 - ▶ Premenopausal?
 - ▶ Perimenopausal?
 - ▶ Postmenopausal?
 - ▶ Obese?
- 

- ▶ 16 yo with menarche at age 13, BMI 20, currently running track with irregular bleeding which is new
 - ▶ Reasonably normal periods until 1 year ago
 - ▶ What would you do?
- 

- ▶ 26 yo with irregular but heavy periods, has never been regular
 - ▶ Trying to conceive for 1.5 years
 - ▶ BMI 49
 - ▶ What would you do?
- 

- ▶ 30 yo with postcoital spotting
 - ▶ Otherwise normal periods but have gotten heavier over the last year
 - ▶ Last Pap smear after her last pregnancy 4 years ago
 - ▶ What would you do?
- 

- ▶ 45 yo with irregular heavy periods getting worse over the last 2 years
 - ▶ Recently evaluated in the ED for heavy bleeding and Hb 8
 - ▶ She has HTN and Type 2 diabetes
 - ▶ BMI 45
 - ▶ What would you do?
- 

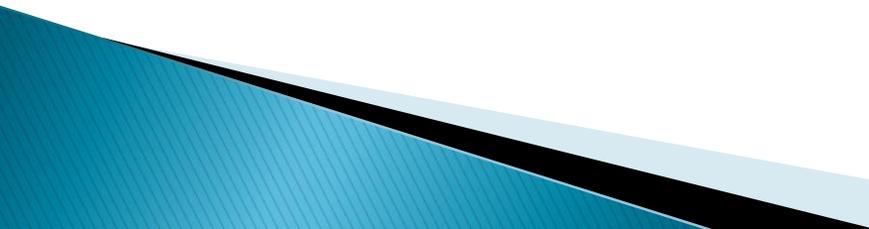
- ▶ 48 yo with increasing bleeding over the last year
 - ▶ Still regular periods
 - ▶ BMI 32
 - ▶ Has urinary urgency
 - ▶ What would you do?
- 

- ▶ 50 yo with heavier periods over the last few years and most recently with periods every 21 days.
 - ▶ She has intermittent hot flashes.
 - ▶ She has a BMI of 28
 - ▶ What would you do?
- 

- ▶ 70 yo with spotting for the last 3 months
 - ▶ BMI of 28
 - ▶ She is otherwise healthy
 - ▶ What would you do?
- 

**First take a history and
then examine the patient
including a pelvic exam**

Adolescent

- ▶ Most common problem is anovulation or oligoovulation
 - ▶ Can be the manifestation of a bleeding disorder
 - ▶ Is she obese and could this be early polycystic ovarian syndrome (PCOS)?
 - ▶ Best treatment would be OCP's or a Levonorgestrol IUD
 - ▶ Risk of developing osteopenia if anovulatory and untreated
- 

- ▶ 16 yo with menarche at age 13, BMI 20, currently running track with irregular bleeding which is new
 - ▶ Anovulatory bleeding due to exercise and breakthrough bleeding
 - ▶ Best treatment would be OCP's or a Levonorgestrol IUD
- 

Reproductive Years

- ▶ Is this a change from prior cycles?
 - ▶ Does she have postcoital bleeding?
 - ▶ Does she have intermenstrual bleeding?
 - ▶ Is she obese?
 - ▶ Is she anemic?
 - ▶ Has she had a recent Pap smear?
- 

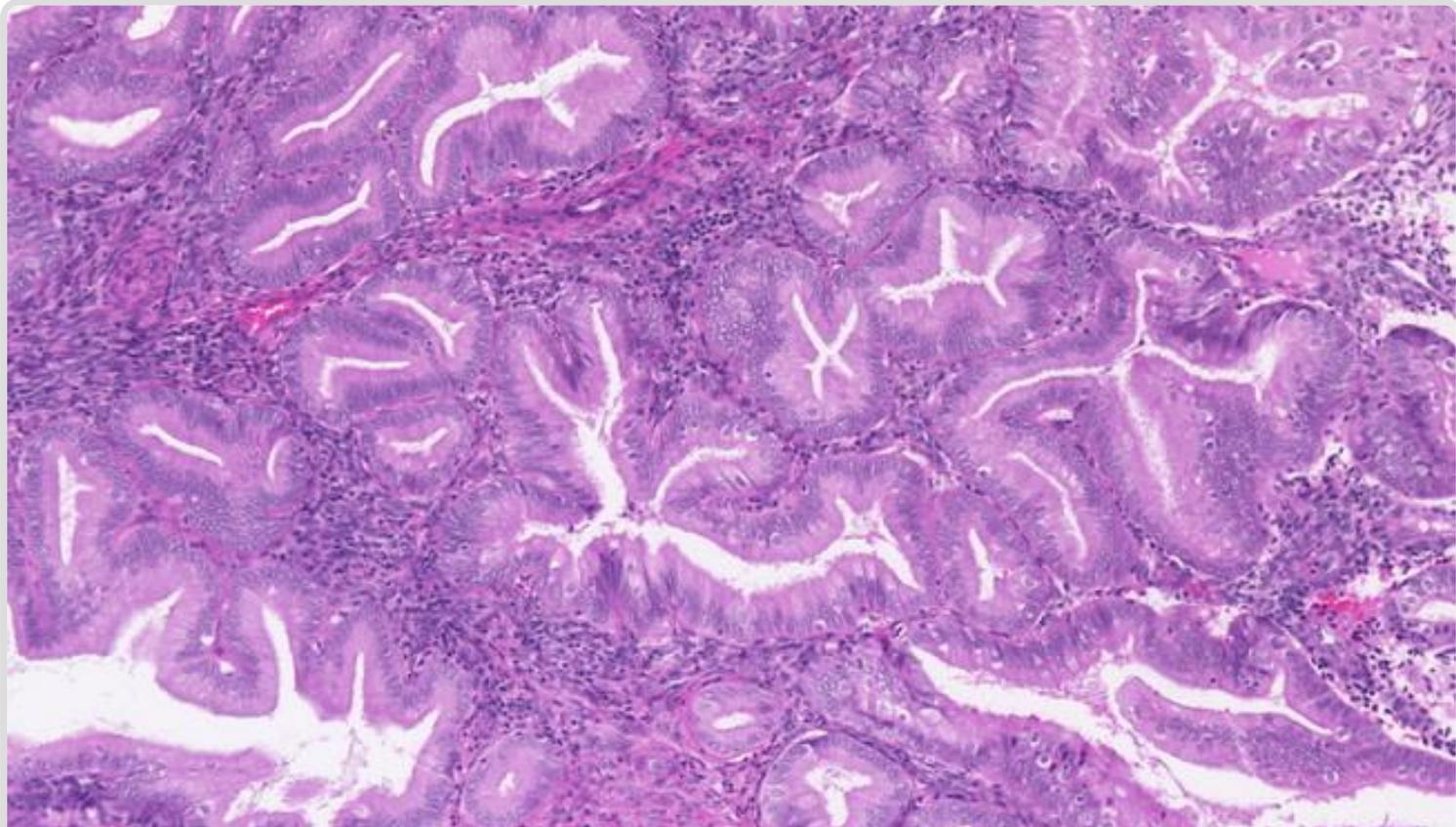
Reproductive years

▶ Differential

- Anovulation (hormonal)
- Inflammatory ie cervicitis
- Endometrial polyp
- Leiomyoma (submucosal)
- Endometritis
- Adenomyosis
- Hyperplasia
- Cancer

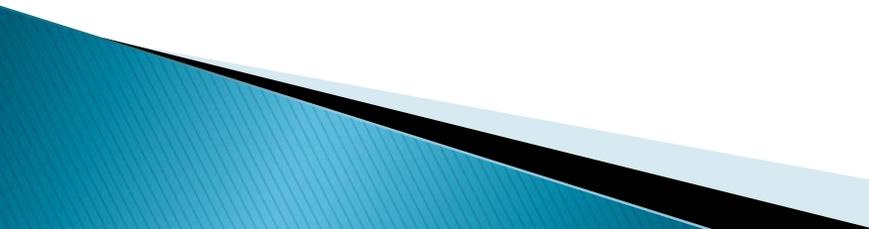
- ▶ 26 yo with irregular but heavy periods, has never been regular
 - ▶ Trying to conceive for 1.5 years
 - ▶ BMI 49
- 

Hyperplasia with atypia



- ▶ Endometrial biopsy shows endometrial hyperplasia with atypia, cannot rule out adenocarcinoma
- ▶ Best treatment: hysterectomy vs conservative treatment + weight loss: IUD, GnRh agonist, aromatase inhibitor

Reproductive years and Obesity

- ▶ Most common cause is PCOS and morbid obesity
 - ▶ Endometrial biopsy shows endometrial hyperplasia with atypia, cannot rule out adenocarcinoma
 - ▶ Hyperinsulinemia, high androstendione, anovulatory
- 

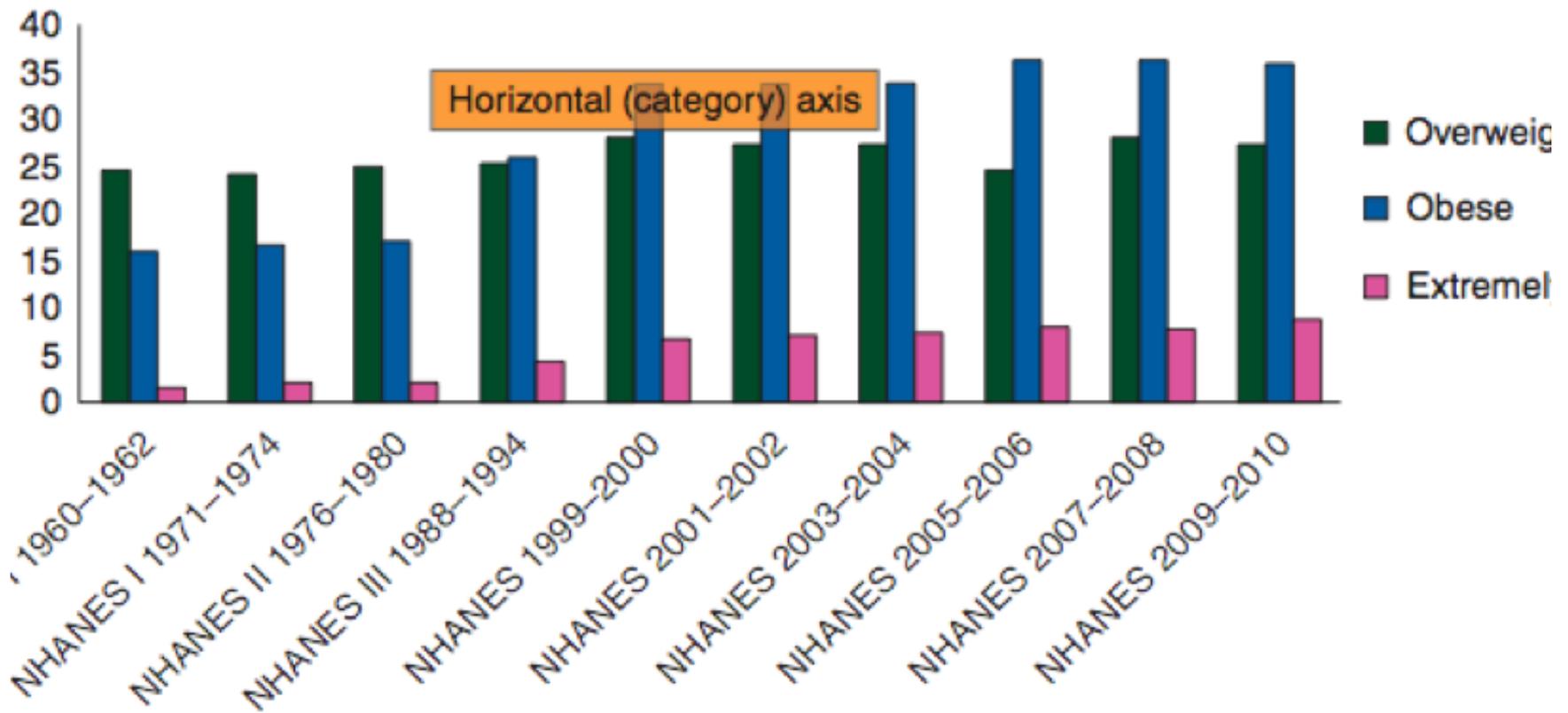
BMI trumps age in decision for EMB

- ▶ Retrospective cohort study reported a 4.9% incidence of endometrial complex hyperplasia, complex atypical hyperplasia, or cancer in premenopausal women with AUB who underwent EMB
- ▶ Obese women were 4 times more likely than normal weight women to have complex hyperplasia or cancer.
- ▶ 41 women (4.9%) were diagnosed with endometrial complex hyperplasia, complex atypical hyperplasia, or cancer.
- ▶ OR with obesity 3.76 (1.3–10.8)

Risks for Endometrial Cancer

- ▶ Age
- ▶ Obesity,
- ▶ Nulliparity,
- ▶ Infertility
- ▶ Late-onset menopause.
- ▶ Family history of hereditary nonpolyposis colorectal cancer
- ▶ Diabetes and hypertension
- ▶ Smoking and use of OCP are protective

Increase in Obesity



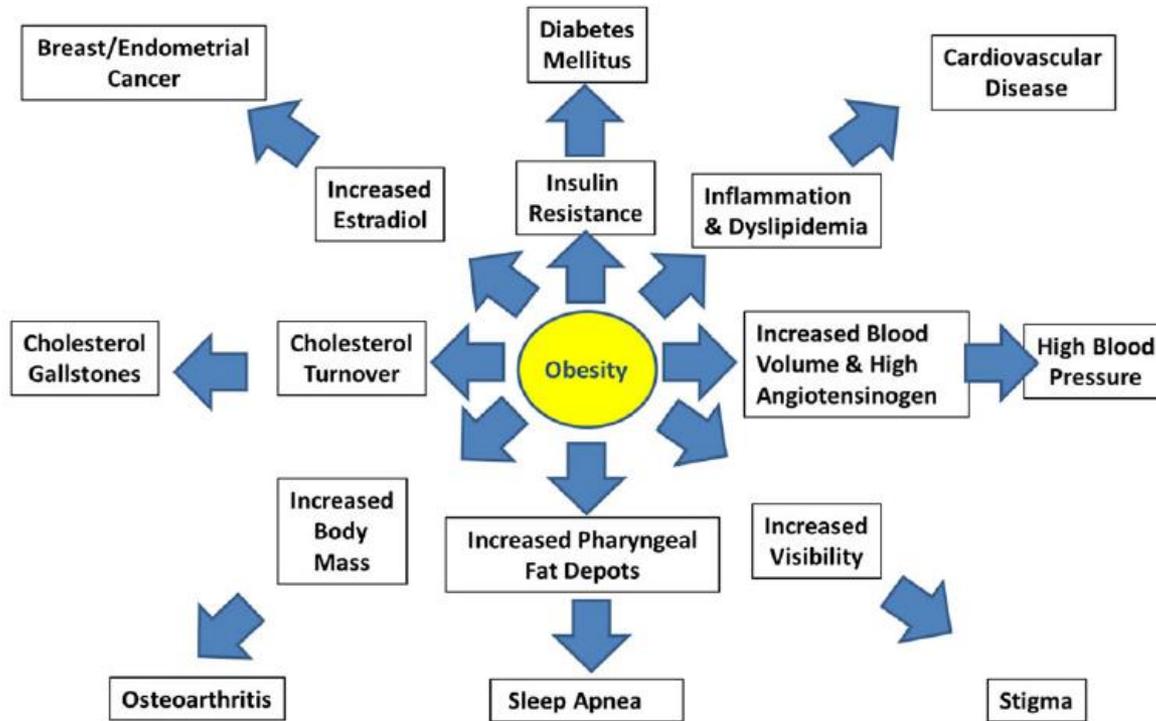
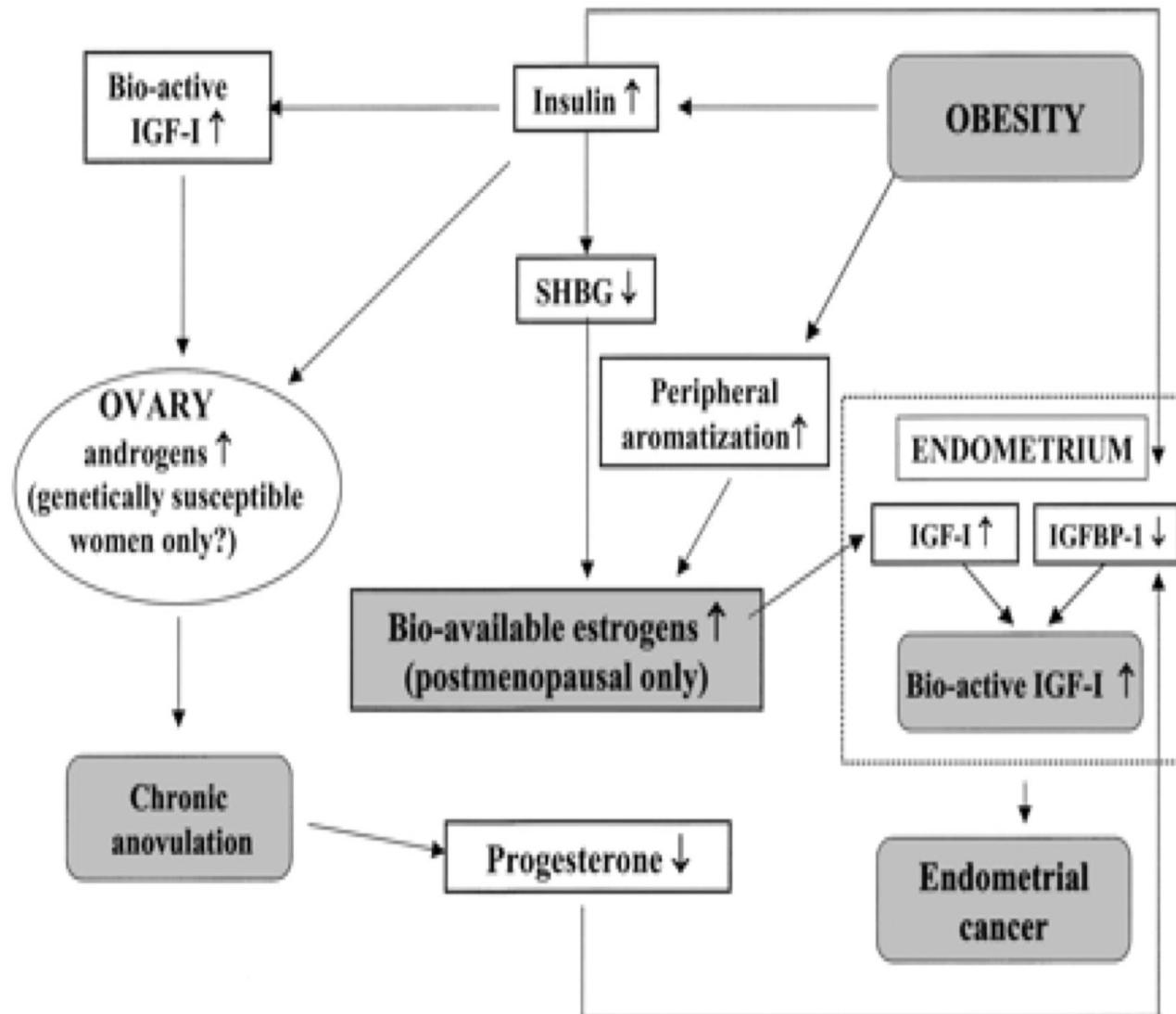


Figure 5 A model showing the relation of obesity in the centre and the diseases with which it is associated. The intermediate boxes show the pathophysiological factors that are principally involved with the development of disease; many of these pathophysiological factors may interact and be involved in more complex causal pathways, but potential interactions have been omitted for clarity. [Colour figure can be viewed at wileyonlinelibrary.com]

Obesity

- ▶ Danaei et al. estimated that 20% of all deaths in the United States are caused by obesity and physical inactivity combined
- ▶ Hyperestrogenism, inflammation, and insulin resistance that is caused by obesity creates a metabolic state that drives tumorigenesis
- ▶ Increased sex hormone production from adipose tissue causes unopposed estrogen stimulation of the endometrial lining



- ▶ 30 yo with postcoital spotting
 - ▶ Otherwise normal periods but have gotten heavier over the last year
 - ▶ Last Pap smear after her last pregnancy 4 years ago
- 

30 yo with postcoital bleeding



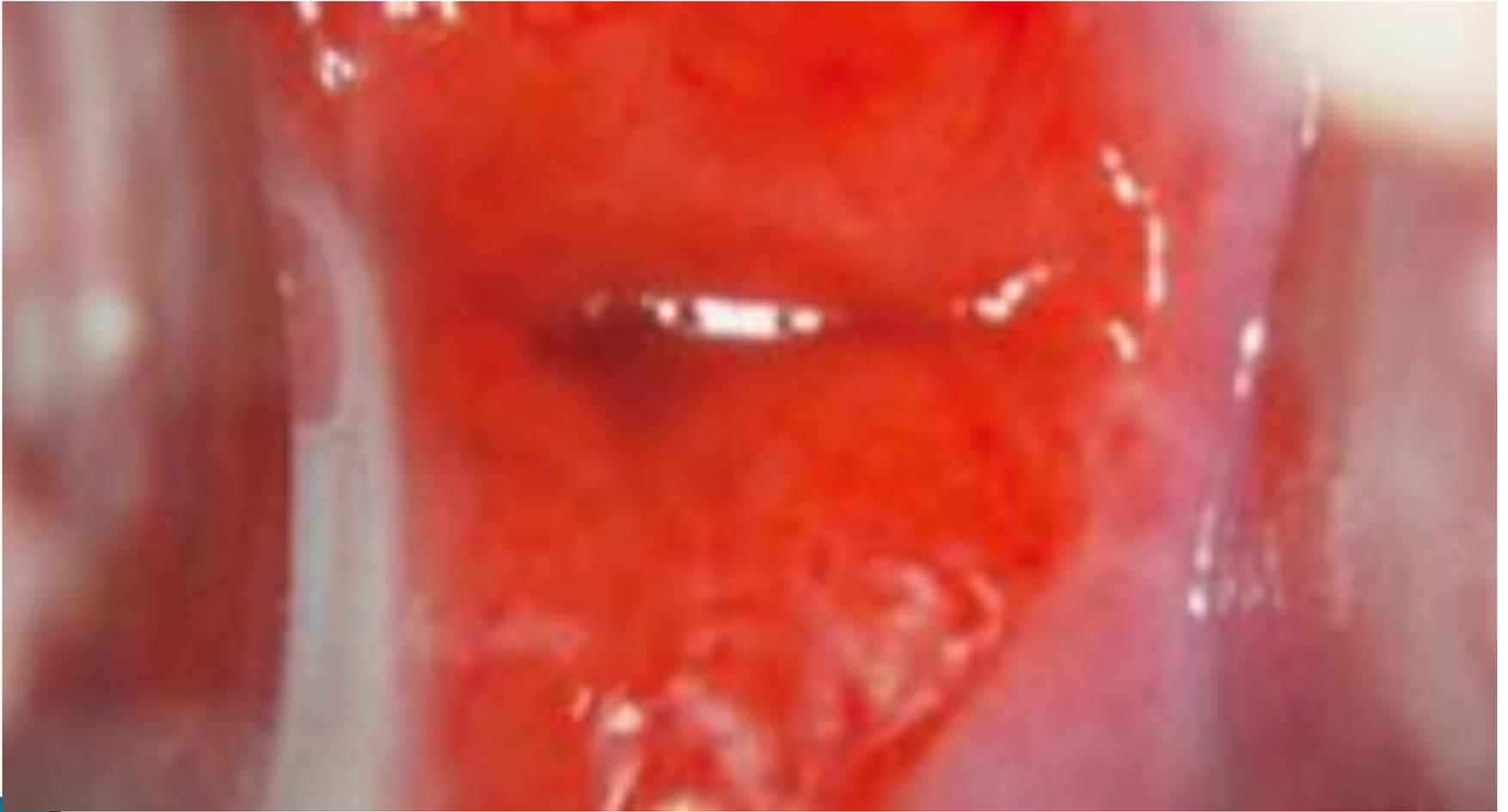
30 yo with postcoital bleeding



Cervicitis



Ectropion

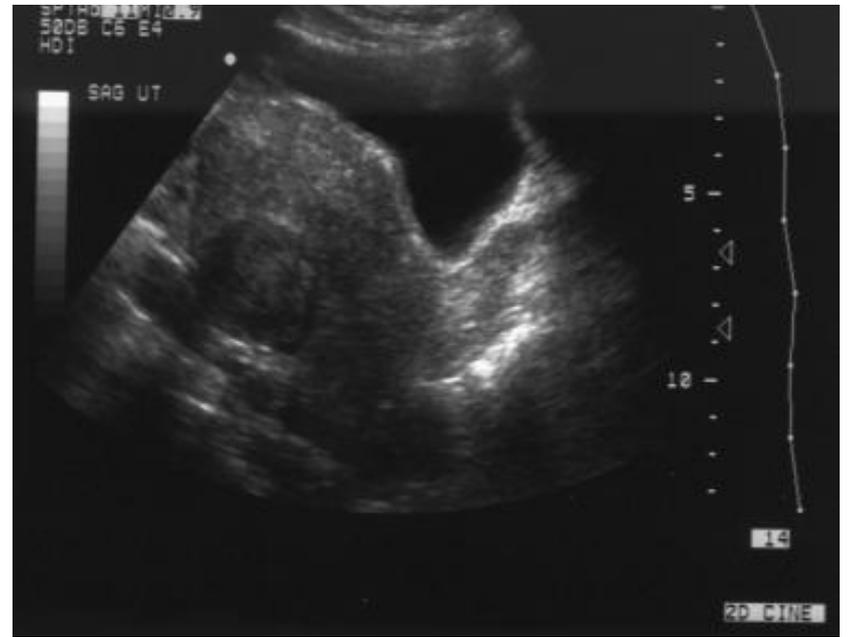


Cervicitis

- ▶ Due to STD:
 - chlamydia,
 - Gonorrhoea
 - Trichomonas
 - Herpes
 - HPV
- ▶ Can be confused with ectropion
- ▶ Allergic

- ▶ 48 yo with increasing bleeding over the last year
 - ▶ Still regular periods
 - ▶ BMI 32
 - ▶ Has urinary urgency and pelvic pain
 - ▶ Physical exam reveals a mass just below the umbilicus
- 

Ultrasound

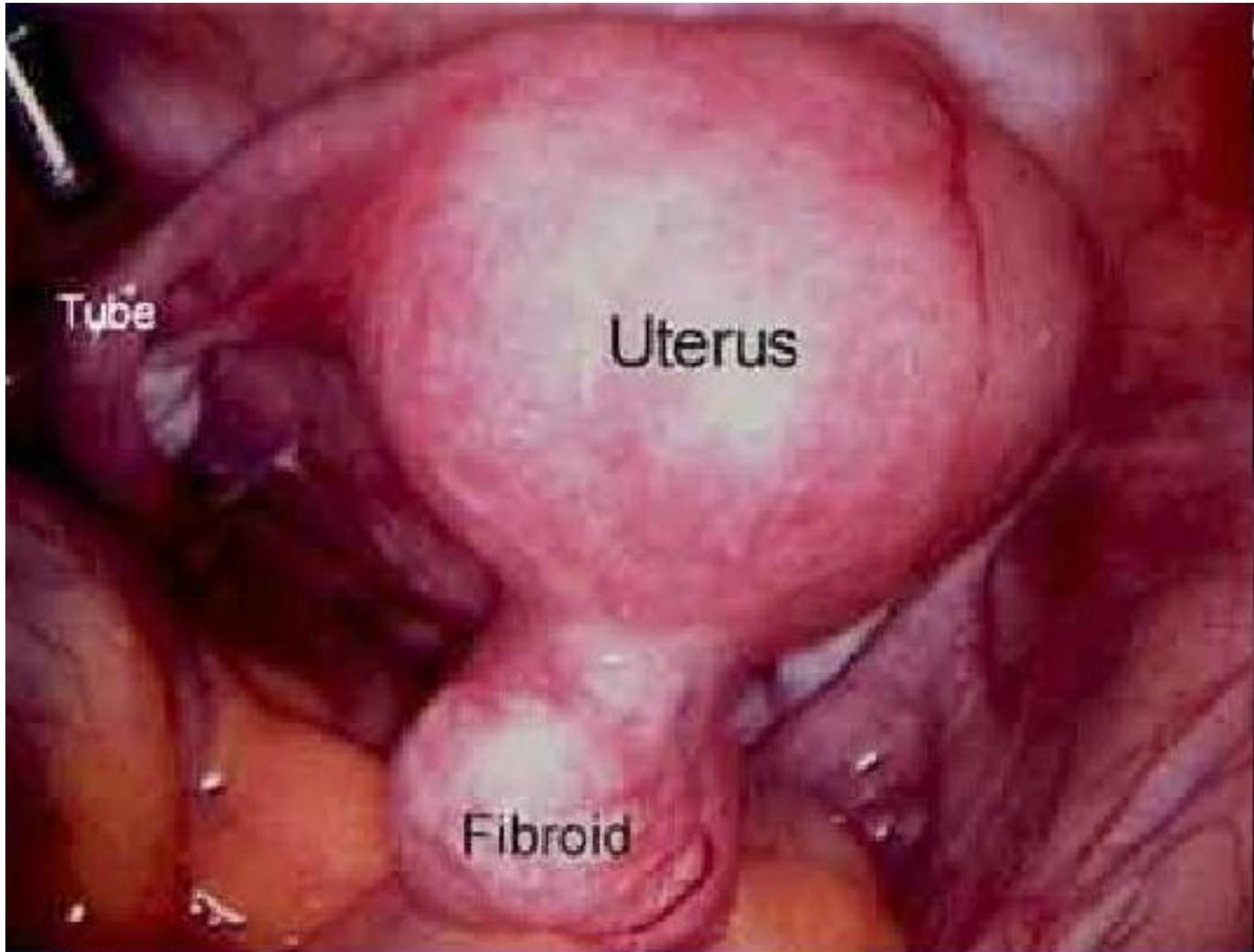


Transabdominal sagittal sonogram shows a heterogeneous but

[View Media Gallery](#)

Pelvic MRI





Tube

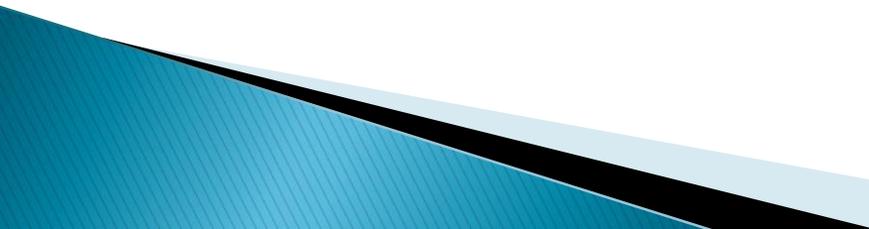
Uterus

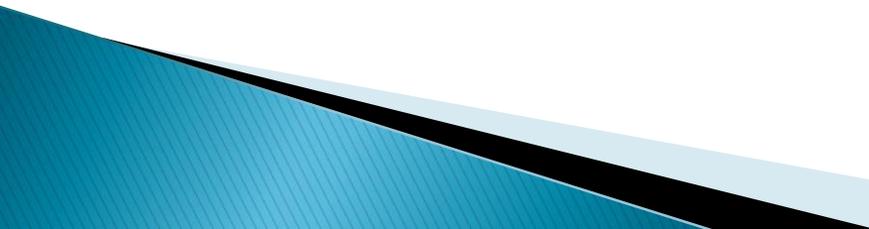
Fibroid



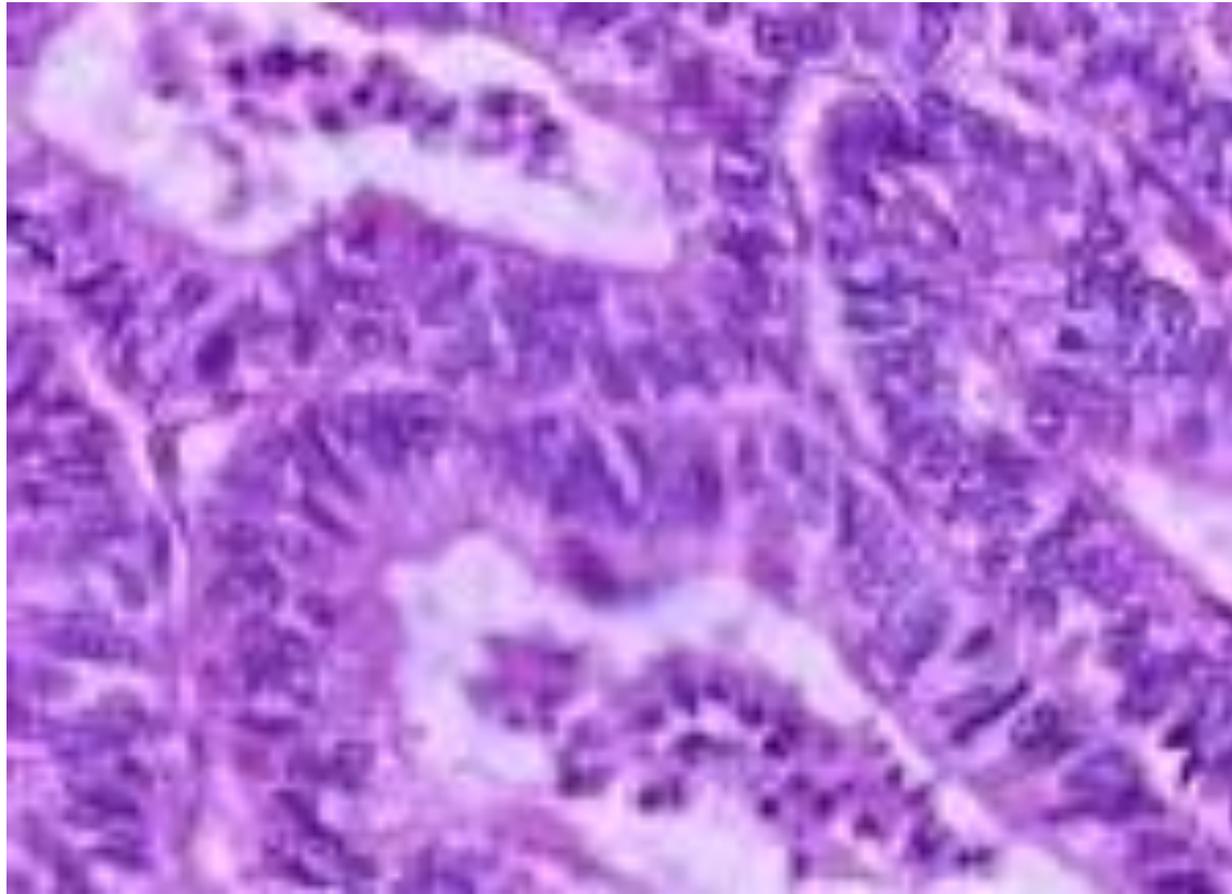


Differential diagnosis

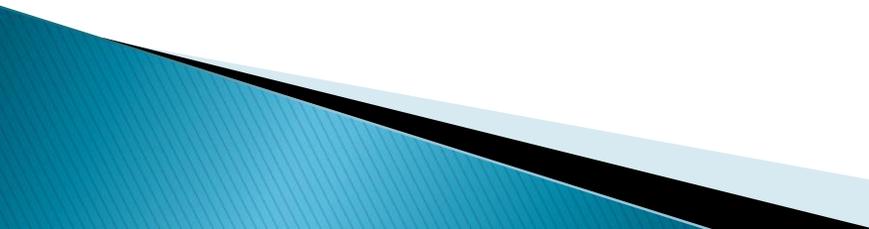
- ▶ Leiomyoma
 - ▶ Adenomyosis
 - ▶ Endometrial polyp
 - ▶ STUMP tumor (Smooth muscle tumor of uncertain malignant potential)
 - ▶ Low grade endometrial sarcoma
 - ▶ High grade endometrial sarcoma
 - ▶ Carcinosarcoma
 - ▶ Leiomyosarcoma 3–7 / 100,000
 - ▶ Ovarian cancer
- 

- ▶ 45 yo with heavy periods and irregular
 - ▶ She has HTN and Type 2 diabetes
 - ▶ BMI 45
 - ▶ She has been evaluated in the ED with heavy bleeding and a Hb of 8
- 

Endometrial Cancer



- ▶ She had an EMB showing Grade I adenocarcinoma
 - ▶ Best treatment: referral to gyn oncology and hysterectomy +/- staging
 - ▶ Encourage weight loss and exercise as this is the best treatment for her hyperinsulinemia, obesity and her hyperestrogenic state
- 

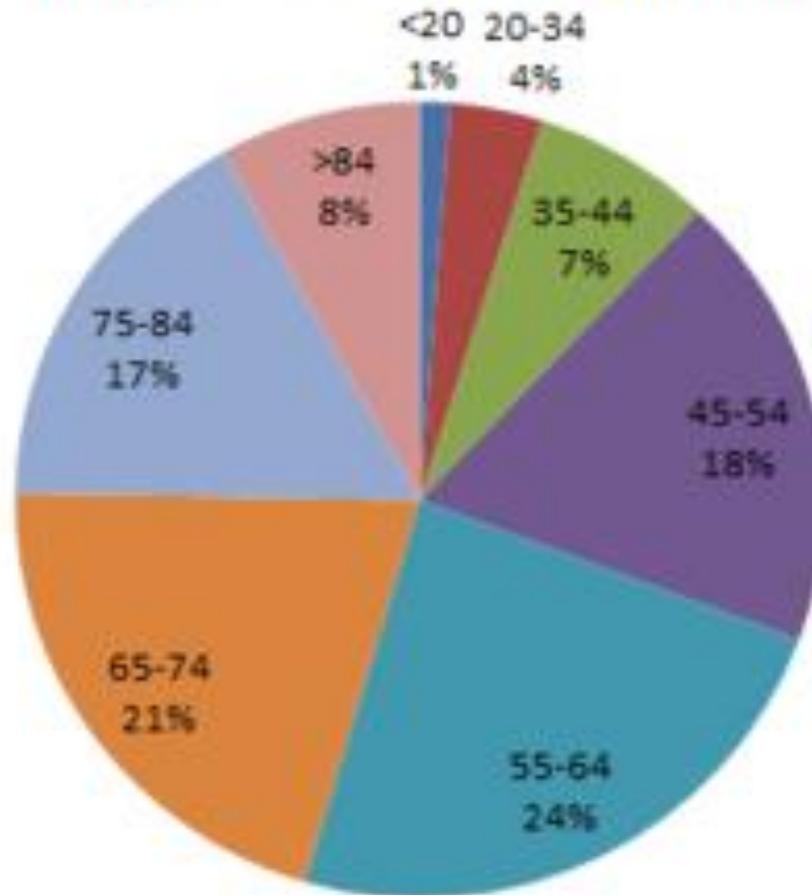
- ▶ 50 yo with heavier periods over the last few years and most recently with periods every 21 days.
 - ▶ She has intermittent hot flashes.
 - ▶ She c/o fullness in her pelvis
 - ▶ Her mother died of breast cancer at 44
- 

Perimenopause

- ▶ Pattern of bleeding?
- ▶ Has it changed?
- ▶ Is she obese?
- ▶ Family h/o breast, colon, or gyn cancer?
- ▶ Differential
 - Anovulatory bleeding
 - Polyp
 - Atrophy
 - Hyperplasia
 - Cancer



Percentage of Ovarian Cancer Cases Diagnosed by Age Group

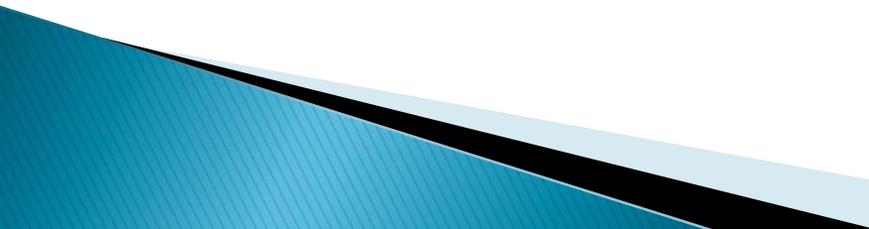




- ▶ Referral to gynecologic oncology
 - ▶ Surgery cytoreductive vs neoadjuvant chemotherapy
 - ▶ Referral to genetics for genetic panel testing.
 - ▶ If BRCA1 / 2+ is candidate for multiple PARP inhibitors recently approved
- 

- ▶ 70 yo with spotting for the last 3 months
 - ▶ BMI of 28
 - ▶ She is otherwise healthy
- 

Post Menopausal

- ▶ Never normal
 - ▶ Polyp: endometrial or endocervical
 - ▶ Hyperplasia w/wo atypia
 - ▶ Cancer: endometrial, cervical, vaginal, vulvar, ovarian
 - ▶ Atrophy
 - ▶ Endometritis
- 

Vulvar Cancer



Vaginal Cancer



Differential diagnosis

- ▶ Cervix
 - ▶ Vagina
 - ▶ Vulva
 - ▶ Fallopian tubes
 - ▶ Ovarian pathology.
 - ▶ The origin of bleeding can also involve nongynecologic sites, such as the urethra, bladder, anus/rectum/bowel, or perineum.
- 

- ▶ Examine the patient
 - ▶ Biopsy if obvious lesion
 - ▶ Referral to gynecology or gynecologic oncology
- 

Conclusions

- ▶ Adolescent, young reproductive age, older reproductive age, perimenopausal, postmenopausal all have different differentials
 - ▶ What are the patterns of bleeding?
 - ▶ Are they obese?
 - ▶ Do they have postcoital bleeding?
 - ▶ Do they have other symptoms?
 - ▶ Do they have a strong family history of cancer?
- 

