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            iii. Onset of menstruation
         c. Cervix
      3. Vagina
   B. Mammary Gland

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Learning Objectives

1. Identify the layers in the wall of the uterine tube, know the functions of the component cells, and recognize the different tubal regions.

2. Recognize the layers of the uterine wall, the functional significance of their components, and their changes during the menstrual cycle.

3. Recognize histological feature of the cervix, ectocervix, and vagina.

4. Understand the structure of the mammary gland and how it changes during puberty, pregnancy, and lactation.
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Keywords

basal layer  lactiferous duct
 cervix       mammary gland
cervix        myoepithelial cells
endocervix    myometrium
endometrial glands perimetrium
endometrium   uterus
fibrous support tissue vagina
functional layer
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Slide 19: Oviduct, Masson Trichrome

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Slide 19: Oviduct, Masson Trichrome

- **mucosa**: simple columnar epithelium and thin lamina propria
- **muscularis**:
- **serosa**:
Slide 19: Oviduct, Masson Trichrome

- **Ciliated cells**: Cilia help sweep fluid toward uterus
- **Secretory peg cells**: Non-ciliated; secrete nutritive film
- **Lamina propria**
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Examine slides 59 and 60 of the oviduct to identify the following structure:

- mucosa
- muscularis
- serosa

How do the structures compare from one slide to the other?
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Slide 1: Uterus, Trichrome

[Image of a histological section of the uterus showing the endometrium, myometrium, and perimetrium]
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Slide 1: Uterus, Trichrome

endometrial (uterine) glands

endometrium

mucosa with simple columnar epithelium and thick underlying lamina propria containing glands

myometrium
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Menstrual Cycle

1) Menstrual Phase
   Slide 81

2) Proliferative Phase
   Slide 80
   Slide 83

3) Secretory Phase
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   Slide 84
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Slide 80: Endometrium, H&E

endometrium

myometrium

perimetrium
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IV. Summary

Slide 80: Endometrium, H&E

- Few glands in endometrium
- Lots of space between glands

endometrial glands

myometrium
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Slide 82: Endometrium, H&E
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Slide 82: Endometrium, H&E

- more numerous, jagged glands
- presence of thin-walled, blood-filled lacunae in stroma

vascular lacunae

endometrial glands
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Slide 81: Endometrium, H&E
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Slide 81: Endometrium, H&E

- blood in stroma, not in lacunae
- thick, well-developed functional layer
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Slide 133: Cervix, H&E

- Cervical glands
- Transition of epithelium
- Stratified squamous epithelium
- Cut edge
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Slide 108: Mammary Gland, H&E
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Slide 108: Mammary Gland, H&E

- fibrous support tissue
- lactiferous duct
- secretory acini (lobules)
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Slide 108: Mammary Gland, H&E

myoepithelial cell inside basement membrane
secretory acini and ducts are both composed of two layers of cells: the luminal epithelial cells and the basal myoepithelial cells
Common Confusion: Seminal vesicle vs. Ampulla (of Oviduct)

**Seminal vesicle**: secretory gland of male reproductive tract, producing majority of seminal fluid volume; consists of single tube coiled upon itself; joins with vas deferens to form ejaculatory duct.

Look for: (1) glandular with the appearance of multiple lumens as result of coiling of tube; (2) highly-folded mucosa, often having fine "honeycomb" appearance; (3) non-ciliated pseudostratified columnar epithelium with lipid droplets in cytoplasm giving "foamy" appearance; (4) lipofuscin pigment is often seen in mucosa.

**Ampulla of oviduct (uterine tube, Fallopian tube, or salpinx)**: tube leading from ovary to uterus; tube transmits ovum to uterus and is the usual site of fertilization, usually in the ampulla.

Look for: (1) single lumen tube w/ mucosa surrounded by muscularis and serosa continuous with broad ligament; (2) mucosal folds often appear “thicker” than in seminal vesicle due to more lamina propria in the folds; (3) ciliated simple columnar epithelium and non-ciliated “peg cells” present in mucosa; (4) size of muscularis changes with region of oviduct, generally thin in ampulla and thick in isthmus.
### Lab 22 - Characteristics of uterine wall throughout menstrual cycle

<table>
<thead>
<tr>
<th>Time (Days) of Cycle</th>
<th>Influencing Hormones</th>
<th>Thickness of Endometrium</th>
<th>Endometrial Glands</th>
<th>Vasculature</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Proliferative phase</strong></td>
<td></td>
<td></td>
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<tr>
<td><strong>Secretory phase</strong></td>
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<tr>
<td><strong>Menstrual phase</strong></td>
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</table>