

## CHAPTER 2

### ENDOMETRIUM: HISTOPATHOLOGICAL PERSPECTIVE

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#### **How does gland formation (adenogenesis) occur in endometrium ?**

Uterine adenogenesis is the term used to describe the formation of uterine glands from the epithelial lining of the uterus that begins prenatal period in humans. In other species, the overt development occurs postnatally and has been described through a 3 step the sequence:

1. Differentiation and budding of the glandular epithelium.
2. Invagination and tubular coiling of the epithelium.
3. Branching of the glandular elements and their expansion throughout the endometrial stroma toward the myometrium.

Epithelial-mesenchymal interaction take places through Wnt signalling during this process:

- **Wnt7a** - expressed in the luminal epithelium
- **Wnt5a** - expressed in the mesenchyme

In mice, this development sequence occurs between postnatal day 5 to 7 and involves Wnt up regulation of lymphoid Enhancing Factor 1. Postnatally both prolactin and estradiol-17 beta (and their receptors) regulate gland development. There are some gland species gestational differences, in both sheep and pigs the glands provide additional histotrophic support by undergoing extensive hyperplasia and hypertrophy.

#### **What are the components of Noyes criteria for endometrial dating?**

The classic manuscript of Noyes et al., established criteria for dating endometrium with microscopic findings such as mitosis and pseudostratification of nuclei, basal vacuolation in gland epithelia, secretion, stromal edema, predecidual reaction, stromal mitosis and leucocytic infiltration. Accordingly an accurate dating of the endometrial mucosa may be done by the pathologists.

## **What are the characteristics of the postmenopausal endometrium?**

When there is no estrogenic stimulus, the endometrium is composed only of basalis. The endometrial mucosa is usually thin, glands do not exhibit proliferative activity and vary from entirely of small widely spaced atrophic tubules to cystically dilated glands (cystic atrophy or senile cystic atrophy). A mixture of small tubules and cystically dilated glands is common. The stroma may be densely cellular and composed of ovoid- to spindle-shaped cells with scant cytoplasm, or has a more fibrous appearance. The stroma tends to become more hypocellular and fibrous progressively by age.

## **What are the characteristic of the chronic endometritis ?**

The diagnosis of chronic endometritis requires the presence of plasma cells, since lymphocytes including lymphoid aggregates are a normal component of the endometrial mucosa. However, in acute forms of endometritis, plasma cells may be absent or few in number. Plasma cells are usually most numerous just deep to the surface epithelium and surrounding endometrial glands. Squamous, ciliated eosinophilic, and other forms of epithelial metaplasia can occur, and there may be mild nuclear atypia.

## **What are the characteristic endometrial changes in Asherman's syndrome?**

In Asherman's syndrome there is focal or diffuse fibrosis and loss of distinction between the functionalis and basalis layers of the endometrial mucosa. The endometrium may be composed of a monolayer of epithelium with underlying fibrous tissue, and adhesions may form across the cavity. The endometrial stroma may show calcifications and, on rare occasions bone formations. The endometrial glands are typically sparse and inactive and may be cystically dilated.

## **References**

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