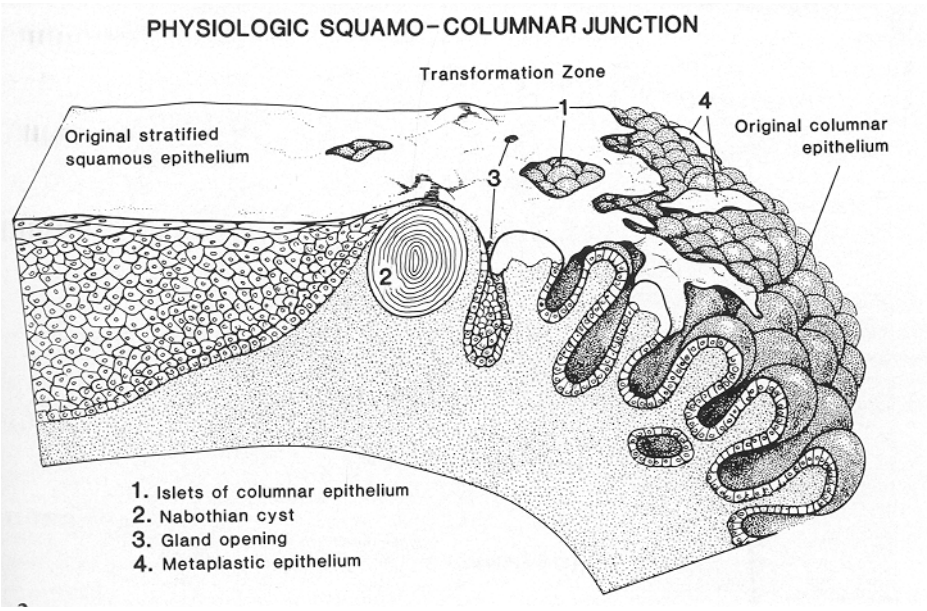
1. Know the definitions ectropion and transformation zone.
2. Know the common sexually transmitted diseases and their features.
3. Be familiar with human papillomavirus and it significance in cervical lesions.
4. Know the risk factors for cervical carcinoma.

Basic Pathology: pp. 684-689
Please see figure 19-5 in your book for development of transformation zone.



definitions: ectropion - the downward growth of endocervical mucus-secreting columnar epithelium below the ectocervical os. This is the result of normal changes in adult women
transformation zone - the area where remodeling occurs continuously with regrowth of the squamous cell epithelium to the original external os (figure 19-5).
Nabothian cyst - mucous-containing distended cysts in the transformation zone which are formed by regenerating squamous epithelium. The squamous epithelium blocks the orifice of the endocervical gland causing distention.

1) Cervicitis - infectious vs non-infectious

- inflammation of cervix associated with mucopurulent to purulent vaginal discharge (cytology shows white blood cells, inflammatory atypia of epithelial cells, and may be some organisms)
- indigenous organisms (see list ,pg 603) associated with cervicitis
- more important organisms - Chlamydia trachomatis and Ureaplasma urealyticum, Trichomonas vaginalis, candida species, Neisseria gonorrhea, herpes simplex 2, and human papilloma virus

- most of these organisms are sexually transmitted, therefore the cervicitis represents a sexually transmitted disease
- C . trichomatoses is the most common and has numerous plasma cells within the infiltrate of the cervicitis
- herpes simplex shows the presence of intranuclear inclusions and may be transmitted to the infant during passage through the birth canal
- transmission of herpes to the infant can be fatal

- Non-specific cervicitis

- acute non-specific cervicitis post-partum women (staph and strep) chronic cervicitis - ubiquitous entity, reddening, swelling and mononuclear infiltrate
- epithelium shows hyperplasia, reactive atypia, depletion of normal content of glycogen in the epithelial cells, therefore a falsely positive Schiller reaction (failure to take up iodinated solution which is characteristic of glycogen depleted cells seen in dysplasia or cancer)
- cervicitis is not a pre-cancerous lesion
- chronic cervicitis may lead to sterility by deformation and unfavorable environment for sperm

Tumors of the Cervix

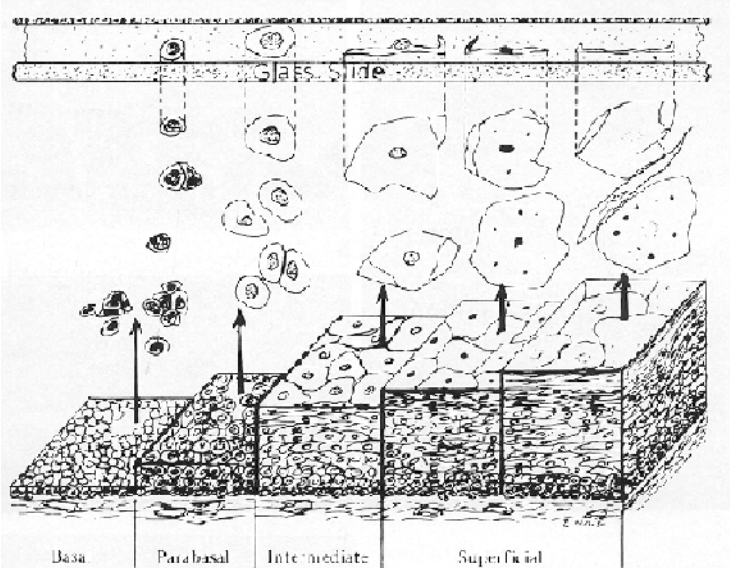
1) Benign

- common lesion endocervical polyp which protrudes into the os of the cervix and is inflammatory in origin
- may present with bleeding
- no malignant potential

2) Cervical intraepithelial neoplasia (CIN) , squamous intraepithelial lesion (S*IL*)

- The Papanicolaou screen (cytologic smear) has lowered the incidence of invasive tumors from the most frequent list to 8th in cancer killer roster. The incidence of cervical intraepithelial carcinoma (alterations confine to the epithelial layer and glands, not breaching the basement membrane)has increased allowing for curative treatment.
- These early changes are called *dysplasia*, the severity and degree of cellular atypia has been graded as mild (low grade), and moderate to severe (high grade)
- *Most invasive cervical squamous cell carcinomas arise from precursor CIN(SIL) lesions, however not all cases of CIN progress to invasive carcinoma*!
- The higher the grade the greater the likelihood for progression to cancer
- The peak incidence of CIN is 30 years of age, invasive carcinoma 45 years of age
- *Risk factors: early age of first intercourse, multiple sexual partners, male partner with history of multiple previous partners*
- Human papilloma virus (HPV) can be detected in 85-90% of pre-cancerous and invasive carcinomas

- *low risk HPV (6 and 11*)does not integrate (free episomal form), *high risk HPV (16 and 18),* after integration into cellular genome in code proteins that block tumor suppression genes p53 and RB
- other influences must be involved in tumor development (many women have HPV and only a few develop cancer, and 10-15% of carcinomas are HPV negative)
- CIN is graded as 1, 2, and 3 (mild, moderate, severe dysplasia, respectively) which correlates with progression of intraepithelial cellular atypia from the lower 1/3 of the epithelium until all layers are involved (CIN 3)
- Cytologic screening uses a terminology of low grade squamous intraepithelial lesion (SIL) or CIN 1



Invasive Carcinoma of Cervix

- 80-95% are SCC
- peak incidence is about 45 years of age, 10-15 years later than precursor lesions are noted
- three distinct microscopic forms exist: fungating, ulcerative, and infiltrative
- Histologic cell types include squamous cell carcinoma, adenocarcinoma, and adenosquamous cell carcinoma
- clinically carcinoma in situ is usually asymptomatic
- mortality from the form of cancer is more related to local effects of tumor extension (obstruction of ureter, invasion of bladder or rectum) than consequences of distant metastasis

1. Name risk factors for cervical carcinoma.

2. Name the HPV subtypes classified as high risk and those low risk.

3. This sexually transmitted organism is one of the most common and is associated with a heavy plasma cell infiltrate.

4. Approximately what percentage of cervical carcinomas are HPV negative?