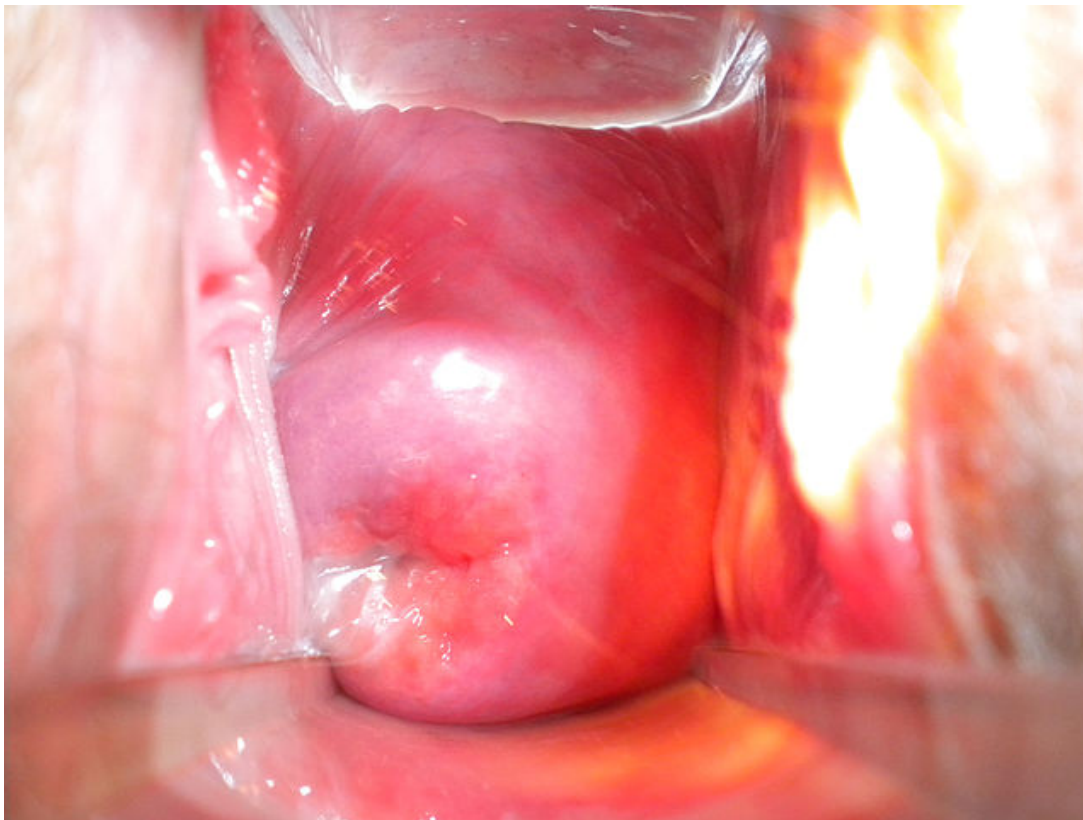


Abnormal-Looking Cervix: Cervical Fibroids and Cancer and Ectropion

[See online here](#)

The abnormal looking cervix can be seen commonly in gynecology in the day to day practice. It becomes necessary to differentiate between normal physiological changes brought by normal menstrual cycle from the anatomical and pathological disorders. Colposcopic examination of the cervix with a stereoscopic binocular magnifying glasses is extremely helpful for identification of the possible etiology behind and exclusion of any cancerous growth to establish the diagnosis. The etiologic reasons for the abnormal cervix can be physiological, infectious, abnormal growth and iatrogenic. This article provides a step-by-step approach to differentiating them.



Normal-Looking Cervix

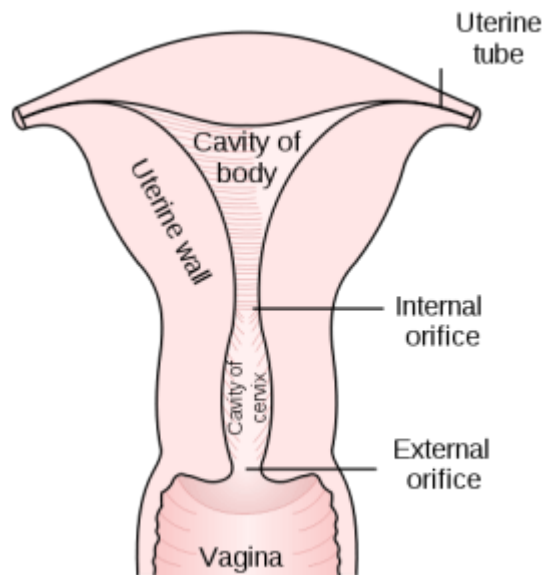


Image: Posterior half of the uterus and upper part of the vagina. By Henry Gray. License: Public domain.

The cervix is normally **fusiform in shape, with narrow external and internal openings**. The **portio vaginalis** is the visible portion of the cervix that protrudes into the vagina. The outer portion of the ectocervix is covered by a **smooth, pink, non-keratinized squamous epithelium** that embryologically originates in the vaginal plate. The central portion of the ectocervix is lined by a simple columnar **epithelium**, which also lines the endocervix, and originates in the Mullerian tissue. The squamocolumnar junction is the **line of demarcation** between the pale and pink squamous epithelium and the bright red columnar epithelium.

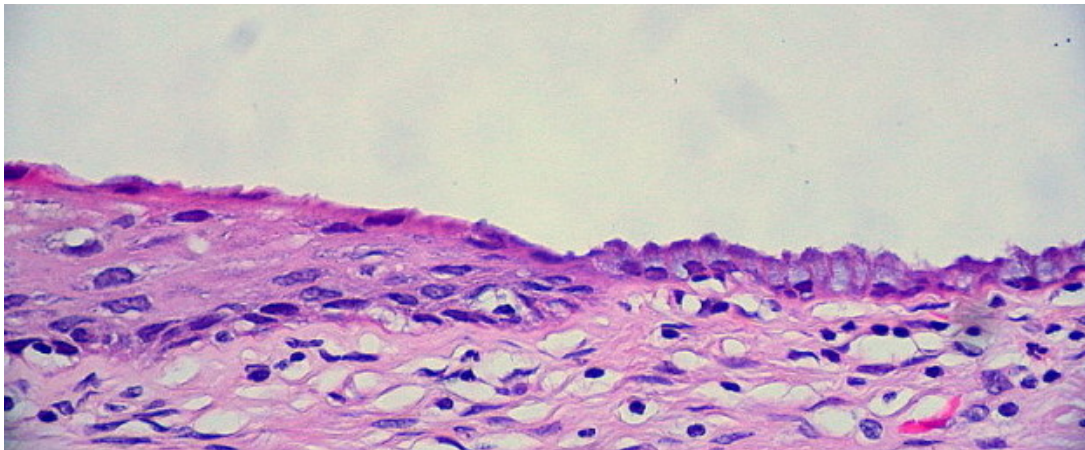


Image: An unusually 'clean' squamocolumnar junction of the uterine cervix, representing the boundary between the exocervix on the left, and the endocervix on the right. This is the 'hot spot' where the tiny seedlings of dysplasia grow into the mighty oaks of cervical cancer. Accordingly, it is important to sample this area while collecting a Pap smear specimen. By Ed Uthman. License: [CC BY 2.0](https://creativecommons.org/licenses/by/2.0/).

The **original squamocolumnar junction** is the embryologically designated junction between the squamous and columnar epithelium. It is usually seen during adolescence and a woman's first pregnancy as the uterus and vagina enlarge, resulting in eversion of the endocervix. In post-menopausal women, the squamocolumnar junction may be high in the canal and invisible.

A **new squamocolumnar junction** may develop during squamous metaplasia of the columnar epithelium that covers the central ectocervix, which moves the junction

progressively closer to the internal os and up the endocervical canal.

The **transformation zone** is an area of cuboidal subcolumnar epithelium that develops into either the columnar or squamous epithelium. It is located between the original and the new squamocolumnar junction.

Evaluation of an abnormal-looking cervix

An abnormal-looking cervix should be examined carefully using **colposcopy under stereoscopic binocular magnification** to identify the possible etiologies and exclude cancerous lesions that may require further clinical evaluation. The possible etiology of a suspicious cervix includes physiologic, infectious, and iatrogenic factors as well as abnormal growth.

Physiologically abnormal cervix

The gynecologist should first exclude the physiologic conditions that result in an abnormal-looking cervix.



Image: A nulliparous, post-menarchal woman's cervix viewed on speculum exam with asymptomatic ectropion. By GynaelImages. License: [CC BY-SA 4.0](https://creativecommons.org/licenses/by-sa/4.0/).

Ectropion

Ectropion occurs when **endocervical eversion exposes a significant proportion of columnar epithelium with a reddish appearance**, similar to granulation tissue resembling an erosion. Ectropion appears as a central area of velvety redness surrounding the external os. Suspicious lesions should be biopsied to exclude malignancy.

Atrophic cervicitis

Physiologic depletion of ovarian follicles after menopause leads to a significant decrease in the levels of estrogen, resulting in atrophy and thinning of the cervical epithelium. Speculum examination reveals a **pale epithelium with patches of erythema that may bleed easily on contact**. The pH of vaginal discharge is less acidic (**pH 4.7 or higher**). The possibility of a coexistent neoplasm should be excluded. Topical estrogen

therapy for 2-3 months can reverse these changes.

Nabothian cysts



[Image](#): Nabothian cysts in a specimen of the uterus. By Ed Uthman. License: [CC BY-SA 2.0](#).

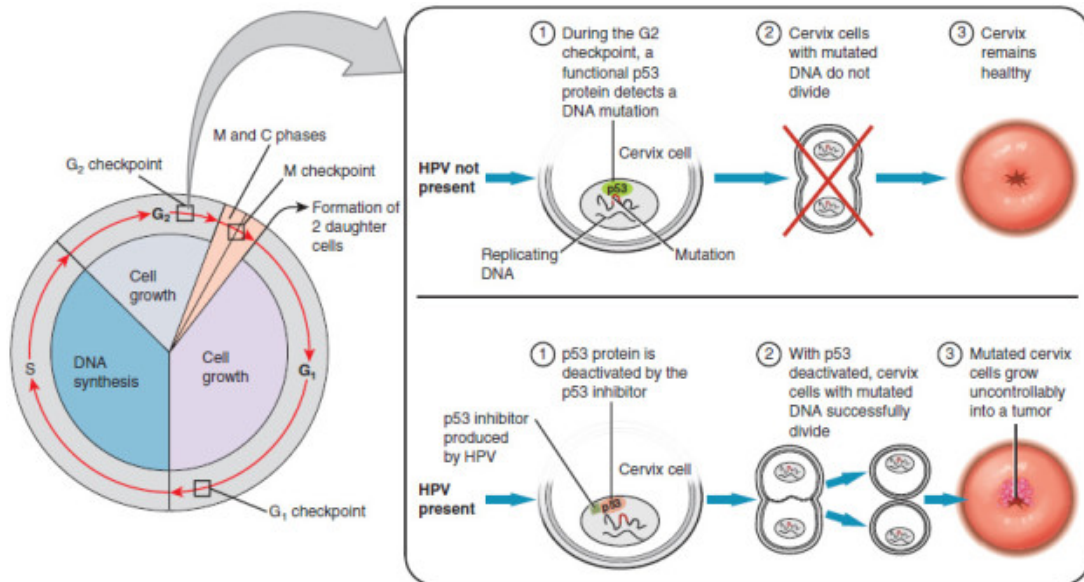
These cystic structures form when a **portion of columnar epithelium is covered with squamous cells. The underlying islands of active columnar tissue continue to secrete mucoid material.** This material becomes entrapped, resulting in the formation of retention cysts. The cysts vary in number and size from microscopic to large clusters, distorting the cervical appearance. They may be translucent or opaque yellowish/whitish cysts, with branching [blood vessels](#) traversing their surfaces. They are usually asymptomatic but may cause pain during intercourse (dyspareunia).

Abnormal growth

If colposcopic examination reveals non-cystic cervical masses, gynecologists should first exclude the possibility of cervical neoplasms. Other cervical growths include polyps and cervical fibroids.

Cervical cancer

Invasive cervical carcinoma first appears as **focally ulcerated and indurated lesions with a friable necrotic mass that bleeds easily on touch.** Advanced lesions can be exophytic, endophytic, or infiltrative. Suspected lesions should be examined carefully, especially in high-risk patients. Cervical intraepithelial neoplasia (CIN) is a spectrum of pre-malignant lesions that can be detected only by Pap smears.



[Image:](#) In most cases, cells infected with the HPV virus heal on their own. In some cases, however, the virus continues to spread and becomes invasive cancer. By OpenStax College. License: [CC BY 3.0](#).

Cervical polyps

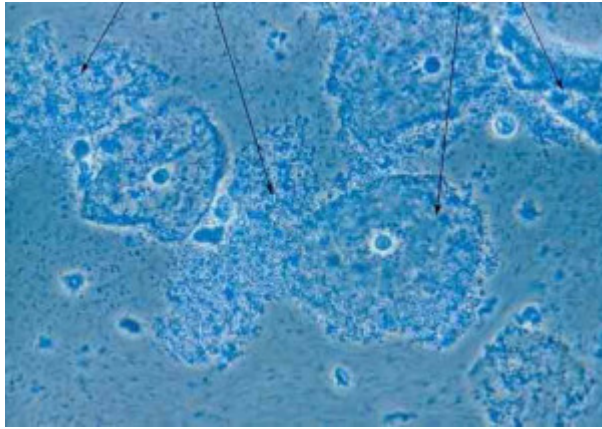
Cervical polyps are **single or multiple reddish, soft, pedunculated polyps**, resulting from hyperplasia of the endocervical columnar epithelium due to chronic inflammation of the cervical canal. The pedicle is usually long and thin but may also be short and have a broad base. Symptomatic polyps should be removed and sent to the laboratory for histologic study.

Cervical fibroids

Fibroids (leiomyomas) are well-circumscribed benign [tumors](#) of the uterine smooth muscles that usually exhibit a very slow progressive course. Cervical fibroids may arise in the cervix itself or from the uterine submucosal fibroids that may elongate and project downward into the vagina through the cervical os. The fibroids are **firm, smooth, and non-tender on palpation**. **Menorrhagia and dysmenorrhea** are the most common presentations, and are most commonly associated with the submucosal type of fibroids.

Infectious

Bacterial vaginosis



[Image](#): Bacterial vaginosis. By Per Grinsted / Medicinsk Webdesign. License: [CC BY-SA 3.0](#).

Bacterial vaginosis is a common bacterial vaginal infection that is characterized by unexplained changes in the normal vaginal flora that result from the overgrowth of normal anaerobic vaginal bacteria, such as *Gardnerella vaginalis* (GV). It generally manifests as a **non-irritating** and malodorous vaginal discharge that is characteristically thin and homogeneous, with a fishy odor and gray color. It is especially noticeable around the time of menses or following sexual intercourse. The diagnosis is based on the **presence of clue cells on saline wet mount smears**, a vaginal **pH > 4.5**, and a fishy odor with the addition of 10% potassium hydroxide (KOH). It responds well to metronidazole.

Trichomoniasis

Trichomoniasis is a common cause of vulvovaginitis. It is caused by *Trichomonas vaginalis* (TV), which is an oval, motile, and flagellated protozoan. It is a common sexually transmitted infection and is characterized by **profuse, frothy, and yellow malodorous vaginal discharge with vulvar irritation**. Speculum examination may reveal subepithelial redness of the cervix (strawberry cervix), with specific red areas identified colposcopically.

The diagnosis is based on the presence of motile trichomonads and WBCs in saline wet mount smears, a vaginal pH > 4.5, and amine odor with 10% KOH. The application of Schiller's iodine solution leads to a leopard-skin appearance. It responds well to metronidazole.

Candidiasis

Candidiasis is a fungal infection of the vulva and vagina. In 90% of the cases, it is caused by *Candida albicans*, especially when host immunity is decreased. Patients typically present with **intense pruritus, a vaginal burning sensation that may cause discomfort, and a thick, white vaginal discharge**. Although the candidal infection can be identified clinically, diagnosis is based mainly on the presence of pseudo-hyphae, with budding yeast observed on KOH wet mount smears.

Herpes simplex infection

Herpes simplex virus (HSV) type 2 primarily infects the anogenital tract. It is considered the most common cause of ulcerative genital lesions. HSV typically presents with **multiple, superficial, and painful ulcerations** of the vagina and cervix, leading to an extremely abnormal-appearing cervix, which may be misdiagnosed as invasive cervical cancer. In contrast to cervical cancer, HSV infections are painful, recurrent, and resolve

spontaneously within 2–4 weeks.

Genital warts or condylomata accuminata

Genital warts are the most common sexually transmitted viral infection, and in 90% of cases, they are caused by human papillomavirus (HPV) types 6 and 11. They present as either **flat or large exophytic (cauliflower-like) papules or nodules on the moist surfaces of the vulvovaginal area and the cervix**, causing itching and burning pain. A suspicious clinical diagnosis can be confirmed with a colposcope-directed cervical biopsy.

Iatrogenic factors

Iatrogenic scarring of the cervix may be attributed to previous cervical surgery or other procedures. The gross appearance is based on the extent of cervical scarring. **Minimal scarring** may be observed as circumferentially raised pale tissue around the os, while more **extensive scarring** may result in cervical distortion. Cervical stenosis is a common complication that occurs in 1–2% of patients. The contraction of the scar tissue may result in secondary amenorrhea and hematometra in severe stenosis.

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