Patient education: Follow-up of high-grade or glandular cell abnormal Pap tests (Beyond the Basics)

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INTRODUCTION

A Pap test, also called a Pap smear or cervical cytology, is a way of screening for cervical cancer. Cervical cancer screening with Pap and/or human papillomavirus (HPV) tests is recommended starting between the ages of 21 and 25 years. Any person with a cervix should be screened, regardless of gender identity, sexual orientation, or sexual activity. (See "Patient education: Cervical cancer screening (Beyond the Basics)".)

The outer surface of the cervix and vagina are lined with cells called squamous cells. The canal of the cervix is lined by cells called glandular cells. When results of an abnormal Pap test are reported (meaning changes or abnormalities are seen in the cells), the following terminology is typically used, in order of severity:

- Atypical squamous cells of undetermined significance (ASC-US)
- Low-grade squamous intraepithelial lesions (LSIL)
- Atypical squamous cells cannot exclude high-grade squamous intraepithelial lesions (ASC-H)
- High-grade squamous intraepithelial lesions (HSIL)
- Atypical glandular cells (AGC)

This article will focus on the most serious of these categories: HSIL and AGC. HSIL indicates squamous cells that appear very abnormal and signify the possibility of a precancer or cancer of the cervix. AGC indicates glandular cells on a Pap test that appear abnormal. Glandular cells on a Pap test are usually cells from the cervical canal but may also come from the uterus.

Although rare, it is also possible for cervical cancer (rather than precancer) to be detected by a Pap test. (See 'Squamous cell carcinoma' below.)

Either HSIL or AGC on a Pap test should be followed up as soon as possible with a clinician for further testing.

The management of ASC-US, LSIL, and ASC-H is discussed separately. (See "Patient education: Follow-up of low-grade abnormal Pap tests (Beyond the Basics)".)

HIGH-GRADE SQUAMOUS INTRAEPITHELIAL LESION

High-grade squamous intraepithelial lesions (HSIL) refer to moderate to severe changes in the cells of the cervix. If less severe changes are seen, this is called low-grade squamous intraepithelial lesions (LSIL). The risk that HSIL abnormalities signify precancerous changes is as high as 53 percent, and the risk of cervical cancer is as high as 7 percent [1,2]. However, if the precancerous lesion is removed or destroyed, cervical cancer can usually be prevented.

For most people with HSIL on a Pap test, follow-up involves a colposcopy. Colposcopy is an examination of the cervix using a type of microscope, which is done during a pelvic examination in the clinician's office. Colposcopy is discussed in more detail separately. (See "Patient education: Colposcopy (Beyond the Basics)".)

In some cases, the clinician will advise immediate (ie, expedited) treatment at the same visit as the colposcopy with a "loop electrosurgical excision procedure" (also called a LEEP or large loop excision of the transformation zone [LLETZ]). This involves removing the area of the cervix where precancers and cancers usually develop (called the transformation zone). This provides a larger amount of tissue to analyze for precancer or cancer; it also treats cancer or precancer (if either is present) by removing affected cells. (See "Patient education: Management of a cervical biopsy with precancerous cells (Beyond the Basics)", section on 'Excision'.)

Immediate (expedited) treatment is not the preferred option for people ages 21 to 24 because even high-grade lesions often go away without treatment in young people, and there are concerns that treatment may increase the risk of complications if the person gets pregnant in the future. Therefore, treating based just on colposcopy (without waiting for biopsy results) is not typically done in this age group. Also, immediate treatment is not an option for people who are pregnant.

ATYPICAL GLANDULAR CELLS

Glandular cells develop from the inside of the cervix (called the endocervical canal). However, they can also originate from other parts of the reproductive system, such as the endometrium (lining of the uterus), the fallopian tube, or the ovary (figure 1). The risk that atypical glandular cell (AGC) abnormalities reflect precancerous changes is as high as 35 percent, the risk of cervical cancer is as high as 1 percent, and the risk of endometrial (uterine) cancer is as high as 3 percent [2-5].

For most people with AGC, colposcopy is done as a next step. (See "Patient education: Colposcopy (Beyond the Basics)".)

If there is concern that you may be at increased risk for uterine cancer (eg, if you are 35 years of age or older; have a family history of uterine cancer; or have irregular or heavy periods, vaginal bleeding after menopause, or endometrial cells on the Pap test laboratory report), your health care provider might recommend a biopsy of the lining of the uterus (endometrium). This is a procedure performed in the clinician's office, during which an instrument is passed through the cervix into the uterus to collect tissue for analysis. For some people, a pelvic ultrasound may be another important tool to evaluate abnormalities in the endometrial lining, ovaries, or fallopian tubes. If the ultrasound shows an abnormality of the endometrial lining, you will likely need a procedure called a hysteroscopy with dilation and curettage, even if your biopsy results were normal. This involves inserting a small instrument into your uterus through the cervix to view the lining and removing anything that is abnormal; no incisions are needed to do this procedure.

If there is concern for precancer (also called "adenocarcinoma in situ") or cancer ("adenocarcinoma") and there are no findings on colposcopy, a larger cervical biopsy, called a "cone biopsy," may need to be done.

Management after colposcopy is discussed separately. (See "Patient education: Management of a cervical biopsy with precancerous cells (Beyond the Basics)".)

SQUAMOUS CELL CARCINOMA

Squamous cell carcinoma is the medical term for the most common type of cervical cancer. A finding of cells that are cancerous (rather than precancerous) on a Pap test is rare, occurring in only 4.5 per 100,000 Pap tests [6]. If you have this result, you will need a biopsy of the cervix to confirm that cancer is present; this is usually performed during a colposcopy. (See "Patient education: Colposcopy (Beyond the Basics)".)

If the biopsy confirms that cancerous cells are present, treatment is recommended. The diagnosis and treatment of cervical cancer are discussed separately. (See "Patient education: Cervical cancer treatment; early-stage cancer (Beyond the Basics)".)

SPECIAL CIRCUMSTANCES

During pregnancy — For people who have an abnormal Pap test while they are pregnant, the next steps are based on ensuring the appropriate evaluation while avoiding pregnancy-related complications. For example, during pregnancy, a biopsy of the cervix is only done if there is a high concern regarding a precancerous or cancerous lesion.

If you are pregnant and have a Pap test with high-grade intraepithelial lesions (HSIL) or atypical glandular cells (AGC), you should have a colposcopy. However, biopsies of the cervix or uterine lining are not performed in this situation. Sometimes, the colposcopy can be delayed until after birth (usually four weeks postpartum).

After menopause — People who have been through menopause are managed the same way as those who still have monthly periods.

While cervical cancer screening can sometimes stop after age 65, patients with a history of high-grade or glandular lesions may need to continue testing beyond age 65. Your health care provider will use the results of your testing, including results of colposcopy, biopsy, or an excisional procedure, to help determine if and when you can stop testing. (See "Patient education: Cervical cancer screening (Beyond the Basics)", section on 'After age 65'.)

WHERE TO GET MORE INFORMATION

Your health care provider is the best source of information for questions and concerns related to your medical problem.

This article will be updated as needed on our web site (www.uptodate.com/patients). Related topics for patients, as well as selected articles written for health care professionals, are also available. Some of the most relevant are listed below.

Patient level information — UpToDate offers two types of patient education materials.

The Basics — The Basics patient education pieces answer the four or five key questions a patient might have about a given condition. These articles are best for patients who want a general overview and who prefer short, easy-to-read materials.

Patient education: Cervical cancer (The Basics)
Patient education: Cervical cancer screening tests (The Basics)

Beyond the Basics — Beyond the Basics patient education pieces are longer, more sophisticated, and more detailed. These articles are best for patients who want in-depth information and are comfortable with some medical jargon.

Patient education: Follow-up of low-grade abnormal Pap tests (Beyond the Basics)
Patient education: Cervical cancer screening (Beyond the Basics)
Patient education: Management of a cervical biopsy with precancerous cells (Beyond the Basics)
Patient education: Cervical cancer treatment; early-stage cancer (Beyond the Basics)

Professional level information — Professional level articles are designed to keep doctors and other health professionals up-to-date on the latest medical findings. These articles are thorough, long, and complex, and they contain multiple references to the research on which they are based. Professional level articles are best for people who are comfortable with a lot of medical terminology and who want to read the same materials their doctors are reading.

Cervical adenocarcinoma in situ
Cervical cancer in pregnancy
Cervical cancer screening tests: Techniques for cervical cytology and human papillomavirus testing
Cervical cytology: Evaluation of atypical and malignant glandular cells
Cervical cancer screening: Risk assessment, evaluation, and management after screening
Cervical intraepithelial neoplasia: Terminology, incidence, pathogenesis, and prevention
Cervical intraepithelial neoplasia: Management
Human papillomavirus infections: Epidemiology and disease associations
Preinvasive and invasive cervical neoplasia in patients with HIV infection
Cervical cancer screening: Benefits, harms, screening methods, and patient risk groups
Cervical cancer screening in resource-abundant settings: How to screen average-risk patients

The following organizations also provide reliable health information.

- National Library of Medicine

  (https://medlineplus.gov/healthtopics.html)

- National Cancer Institute

  (www.cancer.gov/)

- American Society for Colposcopy and Cervical Pathology

  (www.asccp.org/Default.aspx)

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REFERENCES

1. Katki HA, Schiffman M, Castle PE, et al. Five-year risks of CIN 3+ and cervical cancer among women with HPV-positive and HPV-negative high-grade Pap results. J Low Genit Tract Dis 2013; 17:S50.
2. Egemen D, Cheung LC, Chen X, et al. Risk Estimates Supporting the 2019 ASCCP Risk-Based Management Consensus Guidelines. J Low Genit Tract Dis 2020; 24:132.

3. Geier CS, Wilson M, Creasman W. Clinical evaluation of atypical glandular cells of undetermined significance. Am J Obstet Gynecol 2001; 184:64.
4. Schnatz PF, Guile M, O'Sullivan DM, Sorosky JI. Clinical significance of atypical glandular cells on cervical cytology. Obstet Gynecol 2006; 107:701.
5. Wang J, Andrae B, Sundström K, et al. Risk of invasive cervical cancer after atypical glandular cells in cervical screening: nationwide cohort study. BMJ 2016; 352:i276.
6. Katki HA, Schiffman M, Castle PE, et al. Benchmarking CIN 3+ risk as the basis for incorporating HPV and Pap cotesting into cervical screening and management guidelines. J Low Genit Tract Dis 2013; 17:S28.

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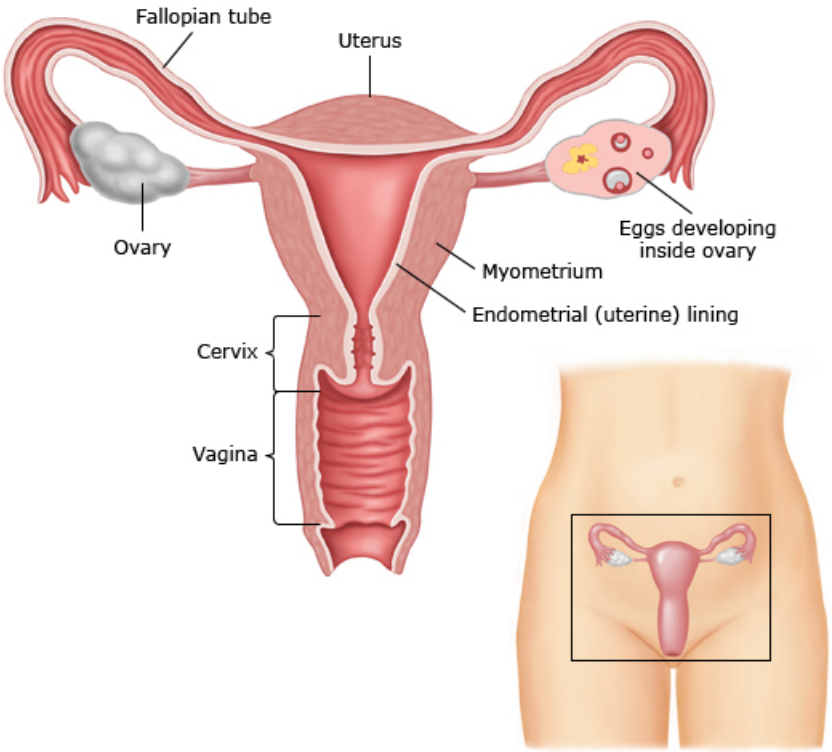
GRAPHICS

Female reproductive anatomy



The internal organs that make up the female reproductive system are located in the lower belly. These include the uterus, fallopian tubes, ovaries, cervix, and vagina.

The uterus has an inner lining, called the "endometrium," and a thicker outer layer, called the "myometrium."

Graphic 80271 Version 8.0

Contributor Disclosures

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