

## Clinical History:

The patient is a 46-year-old female who presented with a large, exophytic cervical lesion upon physical examination by her physician. A PET-CT scan was performed to confirm the presence of the cervical lesion and positive pelvic lymph nodes. The patient underwent a total abdominal hysterectomy, bilateral salpingo-oophorectomy, and lymph node dissection to be followed by chemotherapy and radiation.

## Gross Findings:



**Figure 1:** View of radical hysterectomy with bilateral salpingo-oophorectomy



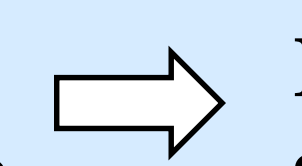
**Figure 2:** View of cervix with red, indurated, mass involving all four quadrants

The radical hysterectomy specimen pictured in Figure 1 includes the uterus, cervix, portion of right upper vagina, and bilateral fallopian tubes and ovaries. Figure 2 provides a close-up view of the 4.0 x 4.0 cm red, indurated mass surrounding the cervical os and grossly involving all four quadrants of the cervix.

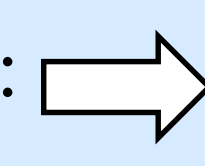
## An Overview of Cervical Dysplasia/Squamous Cell Carcinoma:

### Risk Factors:

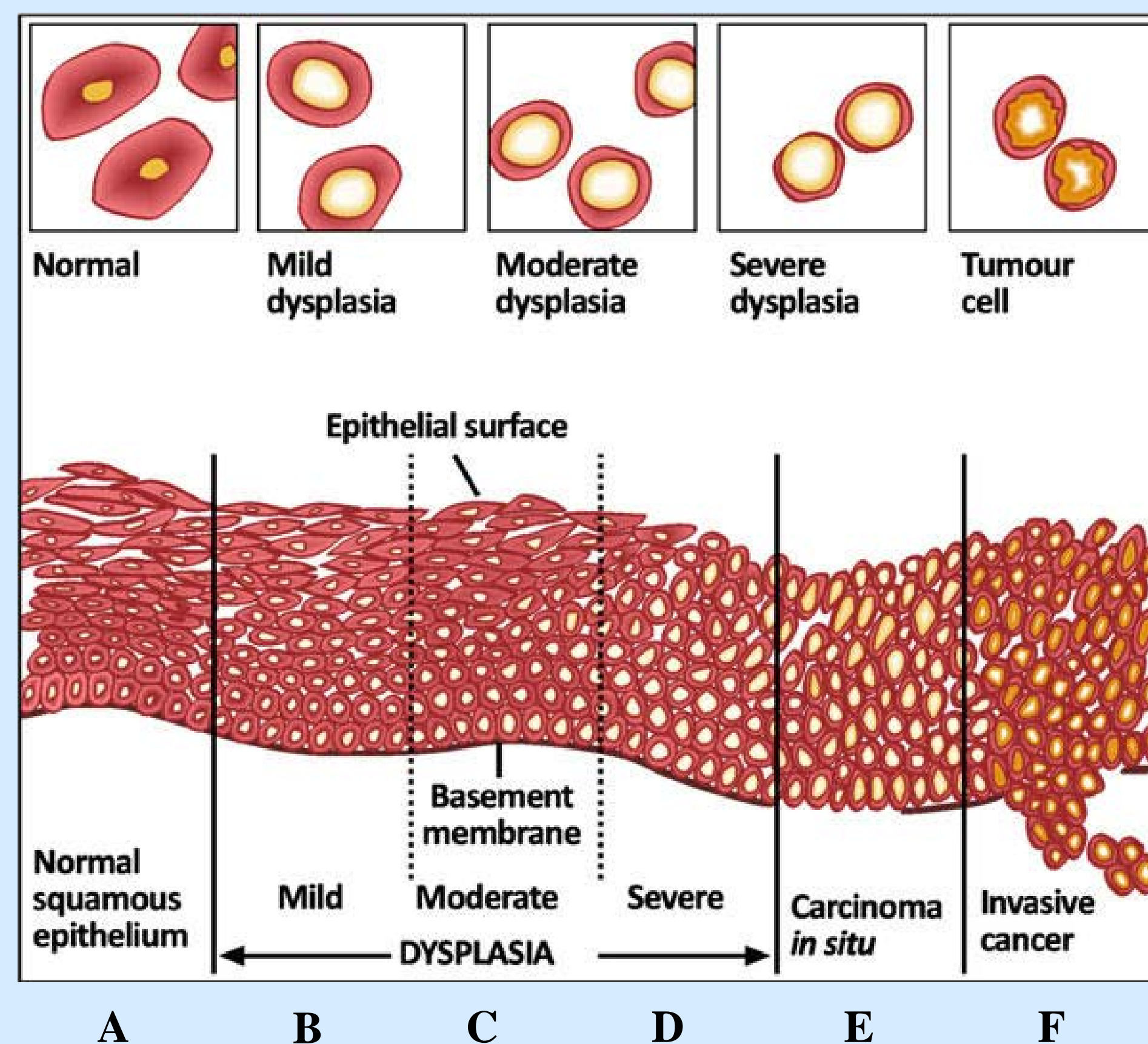
- Early age at first intercourse
- Multiple sexual partners
- High risk sexual partners



Exposure to High Risk HPV:  
• Types 16, 18, 31, 33, 35



Increased risk of cervical dysplasia and cancer



**Figure 3:** The diagram shows the progression from normal cervical squamous epithelium to invasive squamous cell carcinoma. Dysplastic squamous cells have the following characteristics: 1) increased mitotic activity/abnormal mitotic figures, 2) increased nuclear/cytoplasmic ratio, 3) hyperchromatic nuclei, 4) increased cellular pleomorphism.

**A: Normal Squamous epithelium-** see normal cell maturation and cell division occurs only at the basement membrane.

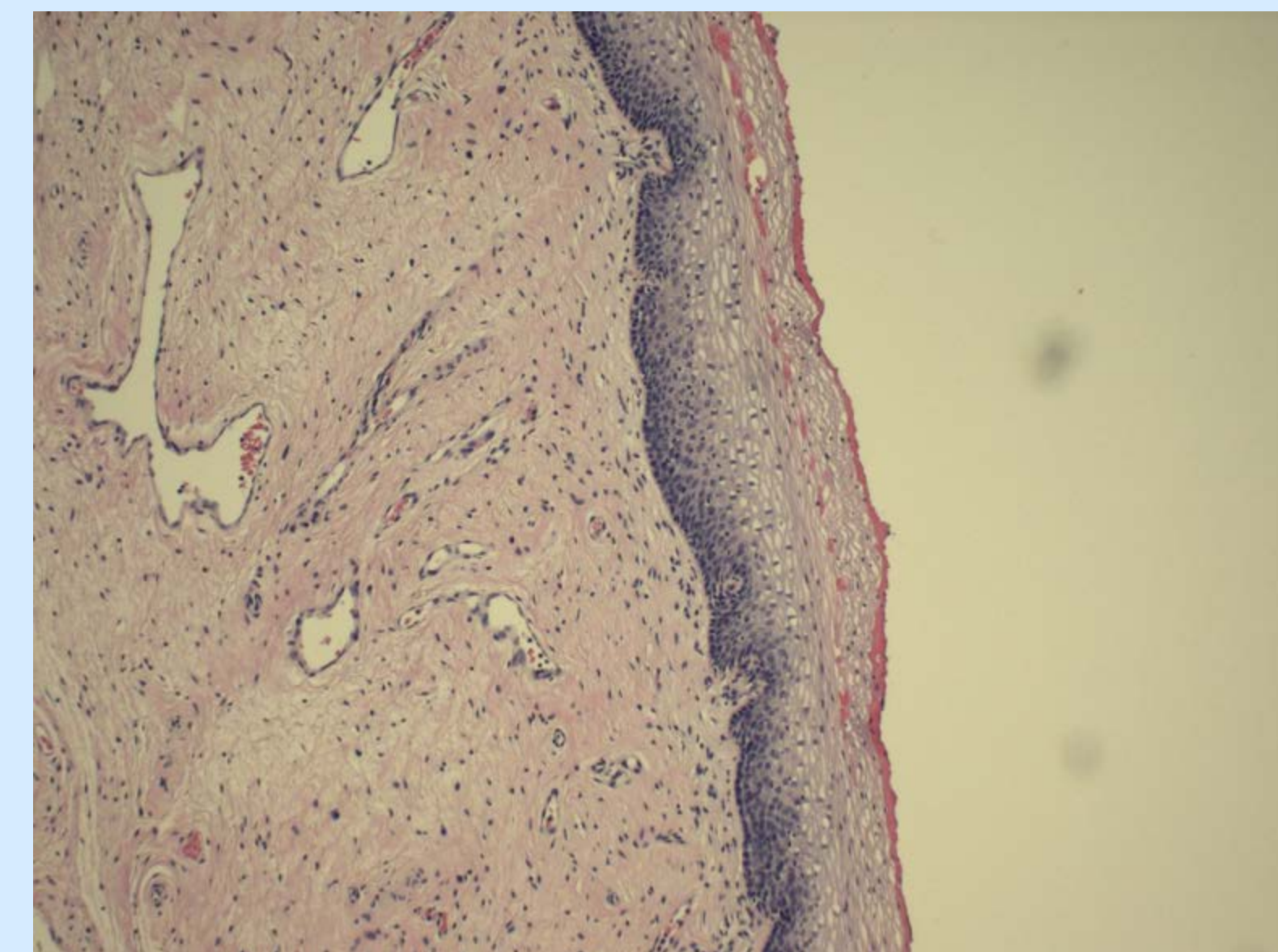
**B: Mild dysplasia-** see dysplastic cells in the lower one-third of the epithelium.

**C: Moderate dysplasia-** see dysplastic cells in the lower two-thirds of the epithelium.

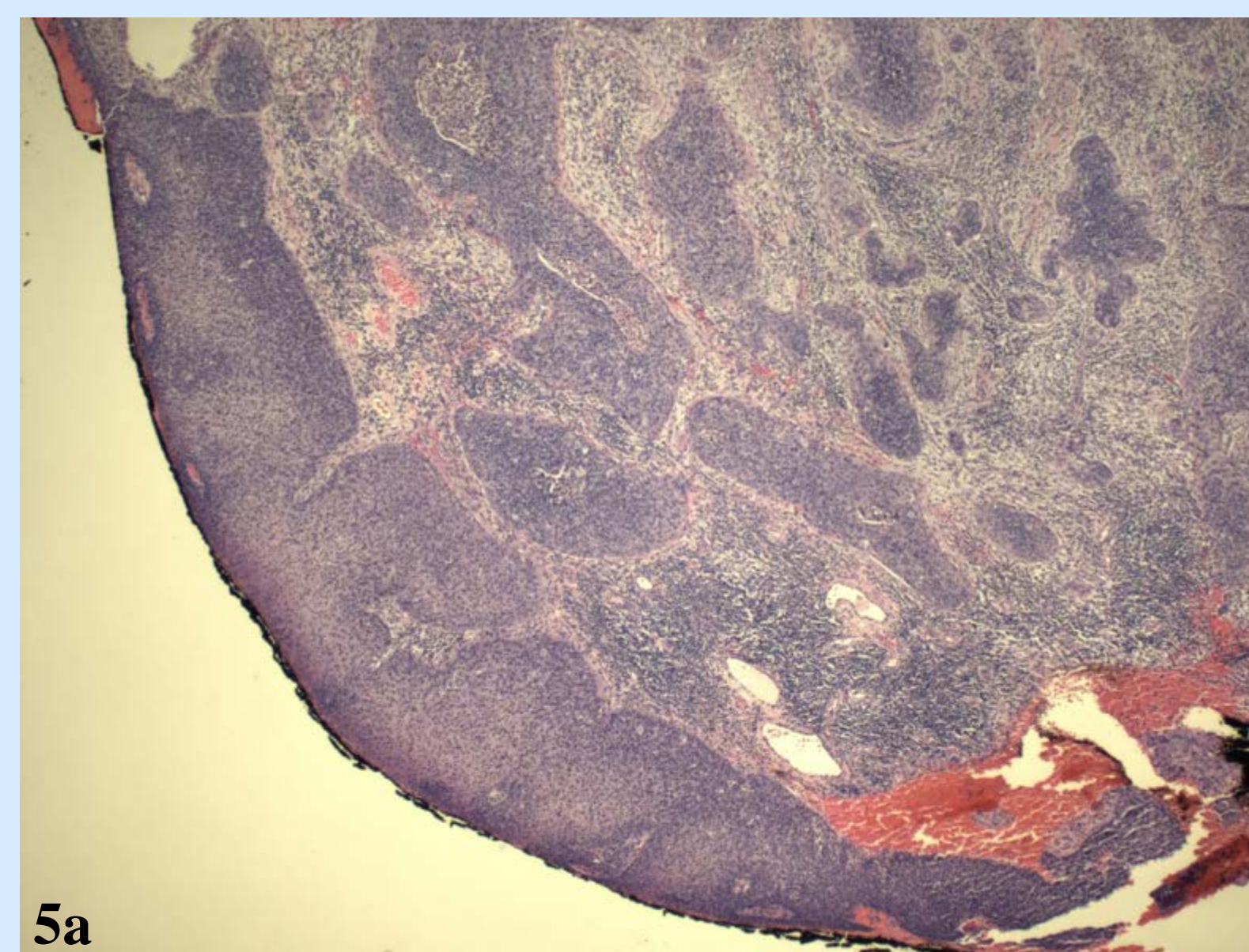
**D/E: Severe dysplasia/carcinoma in situ-** entire epithelium composed of dysplastic cells.

**F: Invasive cancer-** dysplastic cells invade through the basement membrane

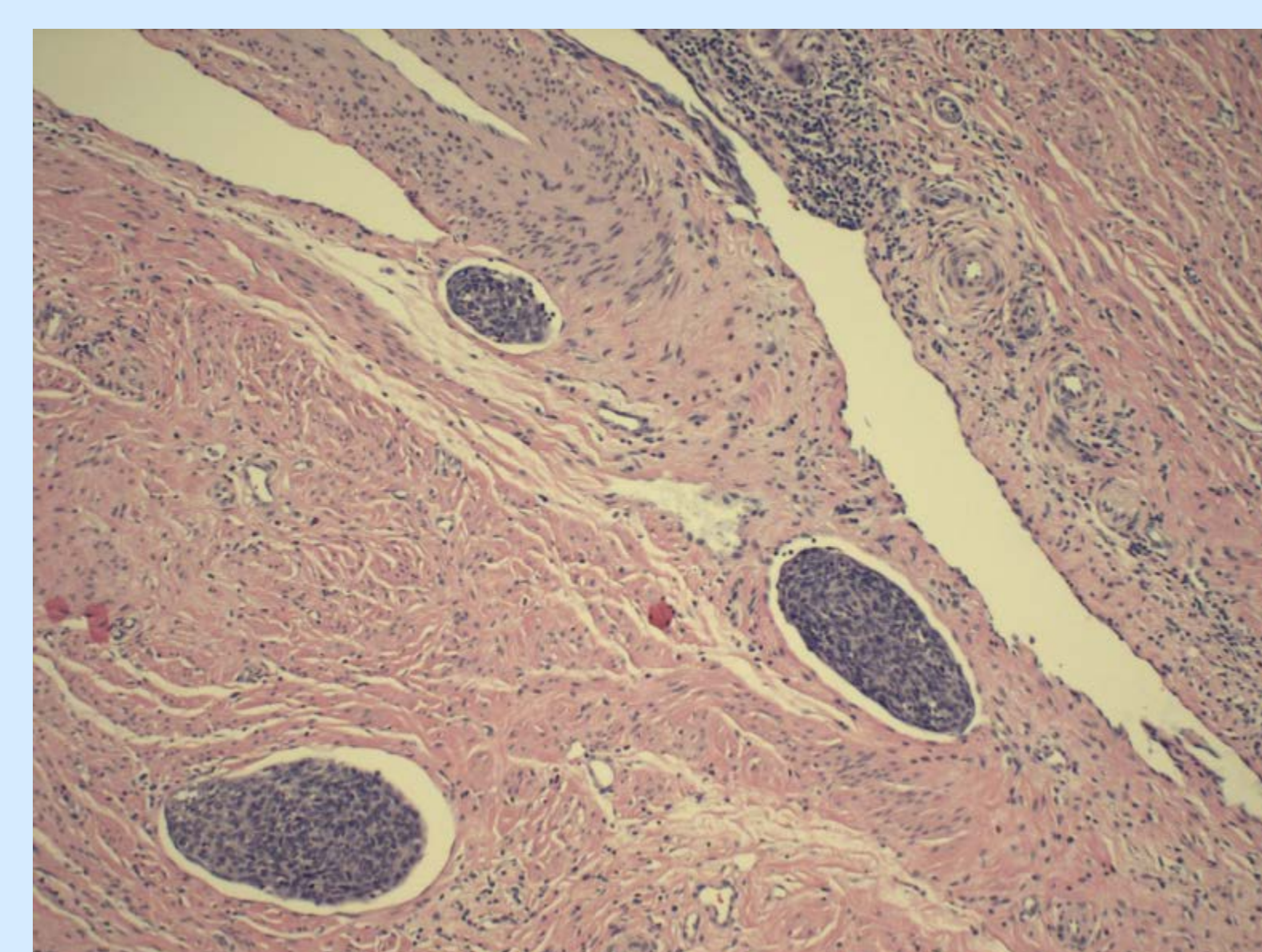
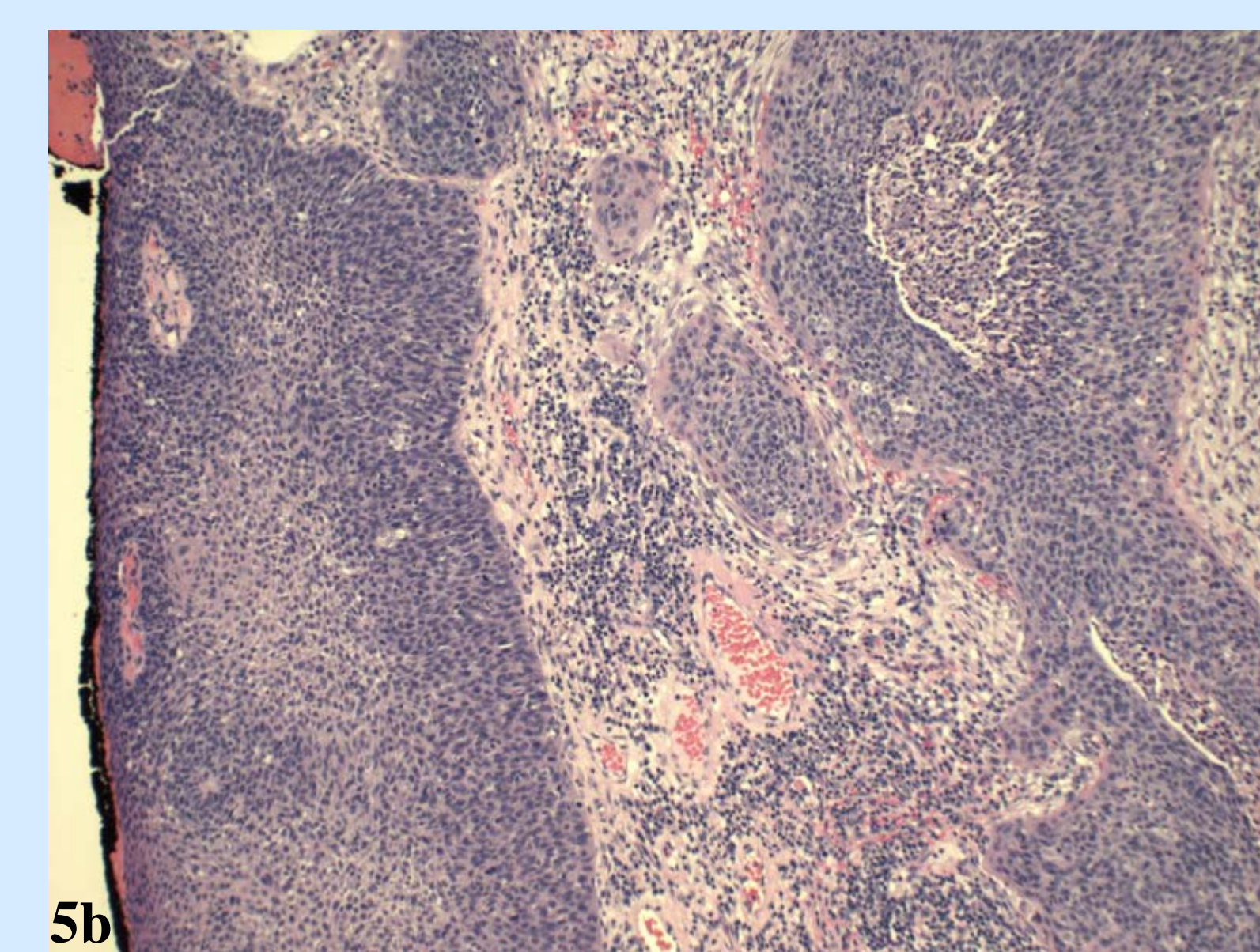
## Microscopic Findings:



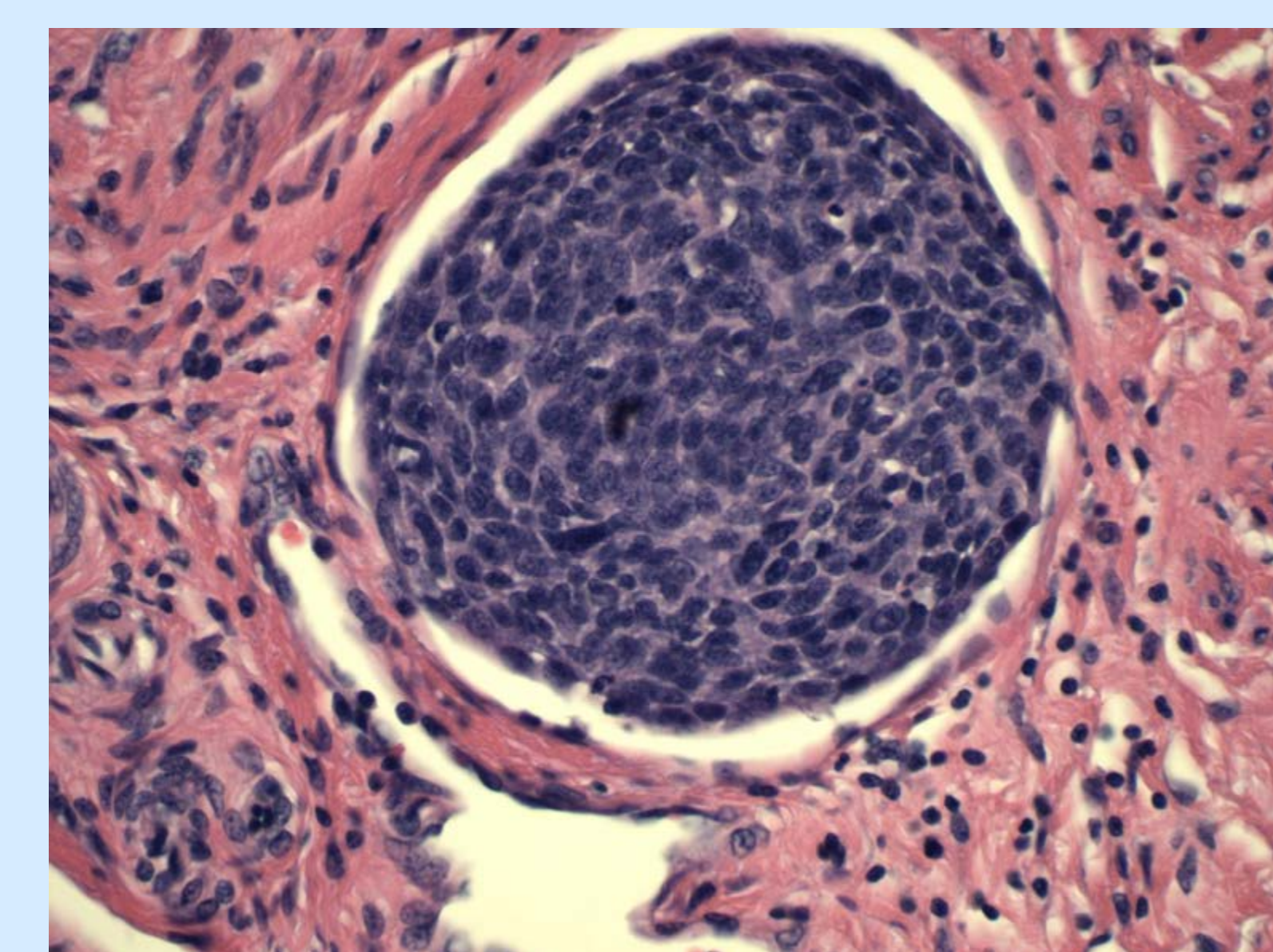
**Figure 4: Vaginal cuff margin;** the vaginal cuff margin was entirely submitted to ensure that it was not involved by the cervical squamous cell carcinoma. The image at the left is representative of the vaginal cuff margin sections, showing normal maturation of the vaginal squamous epithelium and no evidence of involvement by squamous cell carcinoma.



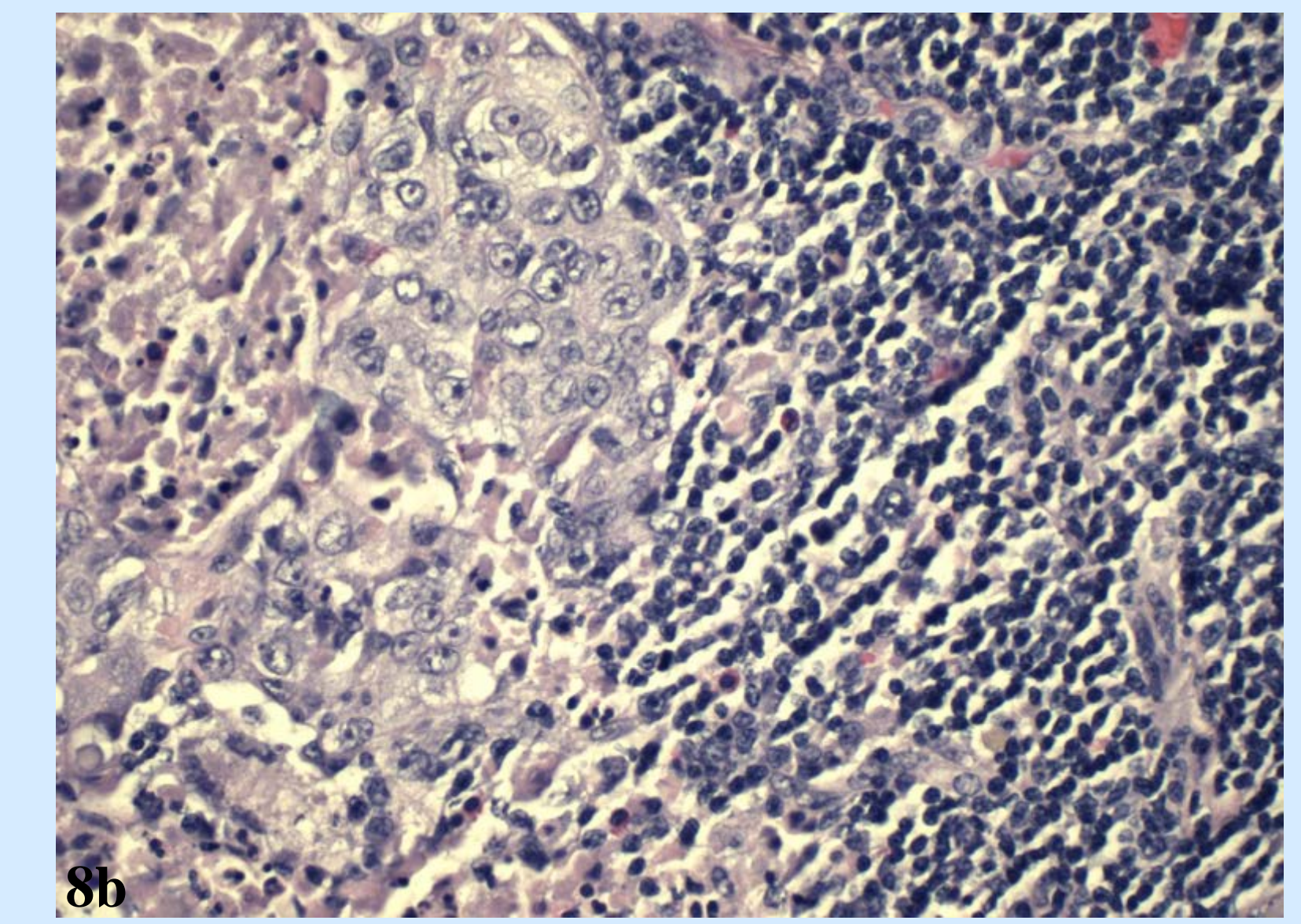
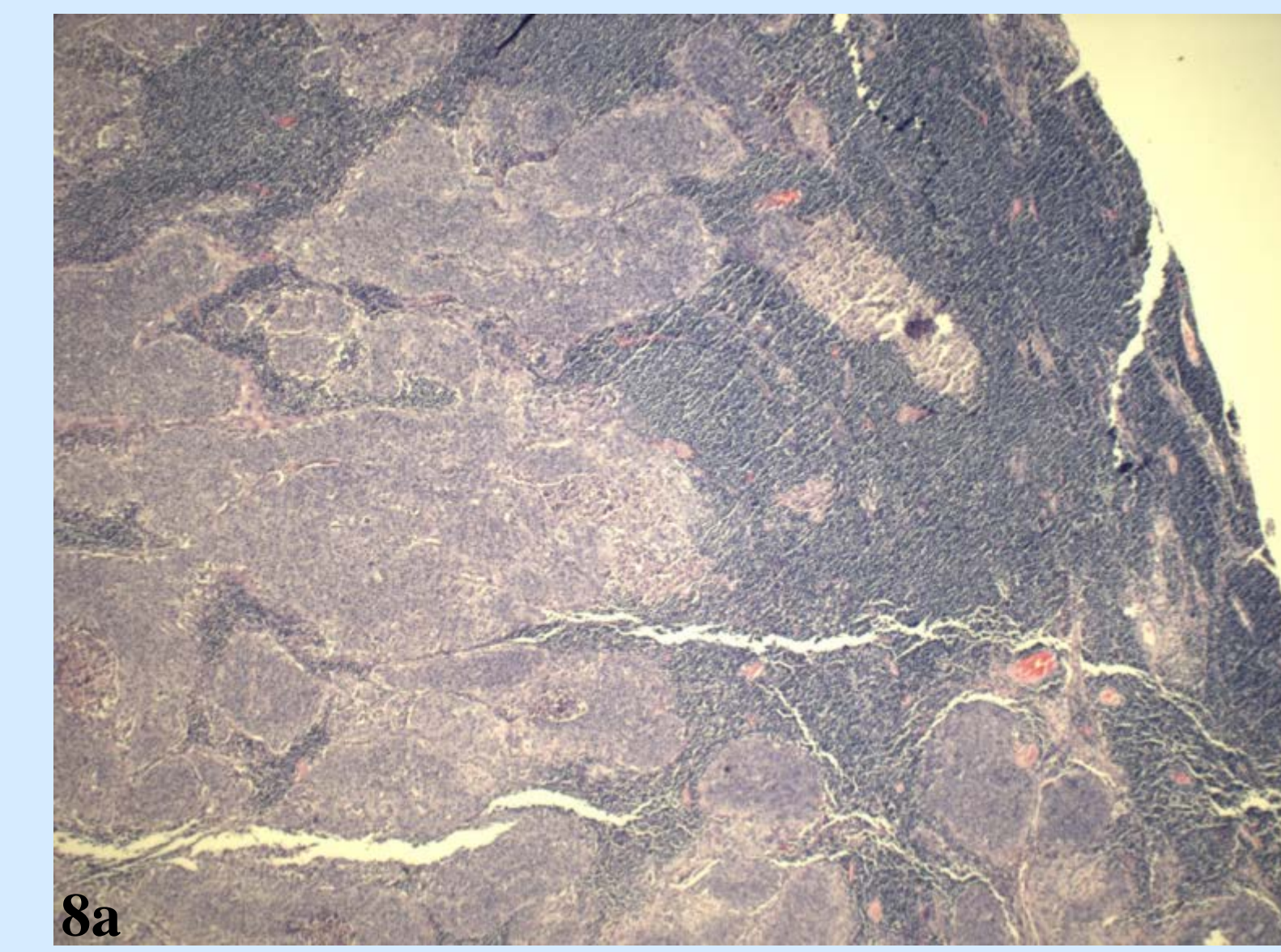
**Figures 5a and 5b: Invasive squamous cell carcinoma of the cervix;** Figures 5a and 5b show dysplastic squamous cells with hyperchromatic nuclei and an increased nuclear/cytoplasmic ratio. These cells span the entire epithelium, break through the basement membrane, and form nests within the cervical stroma.



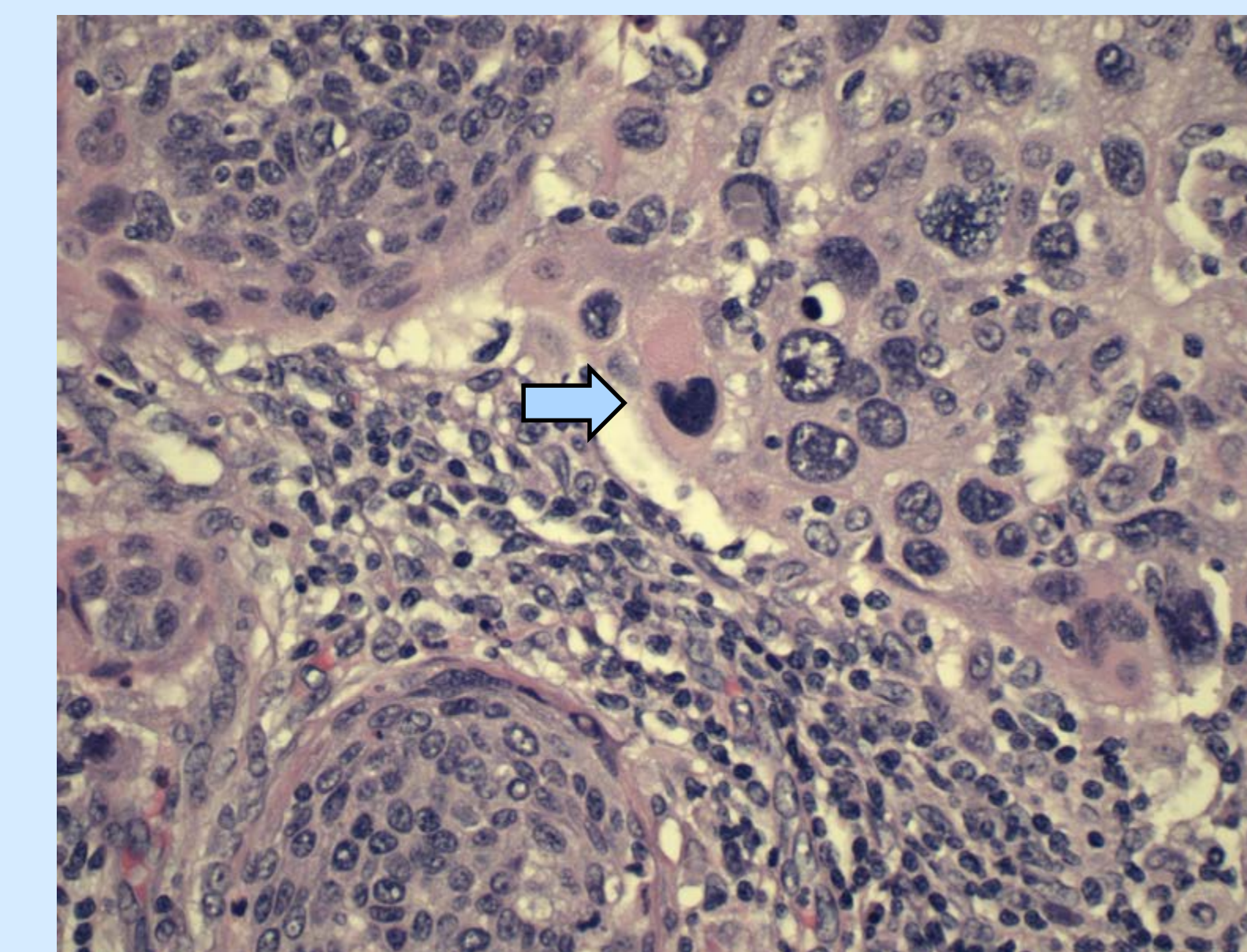
**Figures 7a and 7b: Lymphatic involvement by cervical squamous cell carcinoma.**



## Microscopic Findings Continued:



**Figures 8a and 8b: Lymph node involvement by cervical squamous cell carcinoma;** the nests of lighter colored cells are squamous cell carcinoma, while the dark stained cells are lymphocytes.



**Figure 9: Lymph node involvement by cervical squamous cell carcinoma.** This image is useful for grading of the cervical cancer. Grading of squamous cell carcinoma is based on the following:

- 1) Keratin production
- 2) Degree of nuclear atypia
- 3) Mitotic activity

All squamous cells in the figure to the left show nuclear atypia and increased mitotic activity. The focal pink keratin deposit (arrow) suggests that the surrounding cells in the upper right of the image are moderately-well differentiated. The cells of lower left are poorly differentiated due to their lack of keratin production.

## Staging of Cervical Cancer:

Stage	Extent of Disease
Stage I	Cancer is confined to the cervix; subdivisions of Stage I are based on the size of the mass.
Stage II	Cancer has spread beyond the cervix but not to the pelvic wall or to the lower third of the vagina; subdivisions of Stage II are based on the size of the mass.
Stage III	Cancer has spread to the lower third of the vagina, and/or the pelvic wall, and/or has inhibited proper kidney function.
Stage IV	Cancer has spread to the bladder, rectum, or other parts of the body.

## Discussion:

The microscopic findings include the presence of invasive squamous cell carcinoma in all four cervical quadrants and in six out of eleven lymph nodes submitted. The squamous cell carcinoma is poorly- to moderately-well differentiated based on the degree of nuclear atypia, mitotic activity, and focal keratin deposition observed. The vaginal cuff margin is not involved by the squamous cell carcinoma. The cancer is staged as pT1b1, pN1. In the primary tumor staging (pT), "1" indicates confinement to the cervix and "b1" indicates the lesion is clinically visible and 4 cm or less in greatest dimension. pN1 indicates nodal involvement (six of eleven nodes). The patient was scheduled to undergo chemotherapy and radiation therapy following the radical hysterectomy.

## References:

- "Cervical Cancer Treatment: Stages of Cervical Cancer." National Cancer Institute At The National Institutes Of Health, 13 Feb. 2015. Web. 15 Feb. 2015. <http://www.cancer.gov/cancertopics/pdq/treatment/cervical/Patient/page2>
- Hanau, C. (2014, March). Pathology of the Vulva, Vagina, and Cervix. Lecture conducted from Drexel University College of Medicine, Philadelphia, PA.
- Kumar, Vinay, Abul K. Abbas, Nelson Fausto, and Richard N. Mitchell. *Robbins Basic Pathology*. Philadelphia: Saunders Elsevier, 2007. Web. 15 Feb. 2015.
- "What does cervical dysplasia mean?" Web. 22 Apr 2015. [https://www.healthtap.com/user\\_questions/167257](https://www.healthtap.com/user_questions/167257)
- Wei, Jian-Jun. "Pathology of Cervical Carcinoma." *The Global Library Of Women's Medicine*. N.p., Aug. 2009. Web. 15 Feb. 2015. <[http://www.glowm.com/section\\_view/heading/Pathology%20of%20Cervical%20Carcinoma/item/230](http://www.glowm.com/section_view/heading/Pathology%20of%20Cervical%20Carcinoma/item/230)>.