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ThinPrep® General Cytology

History: Asymptomatic 35 Year Old Male

Specimen type: Anal Cytology - This specimen was collected using a Dacron swab under proctoscopic visualization.

This case was provided by Dr. Gabriele Medley, Principal Investigator - "The optimal anal collection technique for screening of anal intraepithelial neoplasia and anal HPV infection", National Centre in HIV Epidemiology and Clinical Research Darlinghurst Australia - Faculty of Medicine, UNSW

*The images, analysis and diagnosis for this case study were provided to Cytc by an independent physician. All conclusions and opinions are those of the physician and not Cytc Corporation.

Slide Description:

Slide 1: This 40x image shows a group of benign rectal columnar cells. Notice how closely they resemble the normal endocervical component of the Pap test.

Slide 2 and 3: The cells featured in these 40x photographs are readily identified as those arising in a high grade lesion. They show high nuclear to cytoplasmic ratios, abnormal chromatin patterns and irregular nuclear membranes.

Slides 4 and 5: The small, immature cells in these two high power views show irregularly distributed chromatin and only a slight rim of cytoplasm. They are consistent with the diagnosis of AIN III, severe dysplasia.

Slide 6: Histologic section of the lesion at 20x.

Cytologic Diagnosis:

High Grade Squamous Intraepithelial Lesion (AIN III/Severe Dysplasia/Carcinoma in situ)

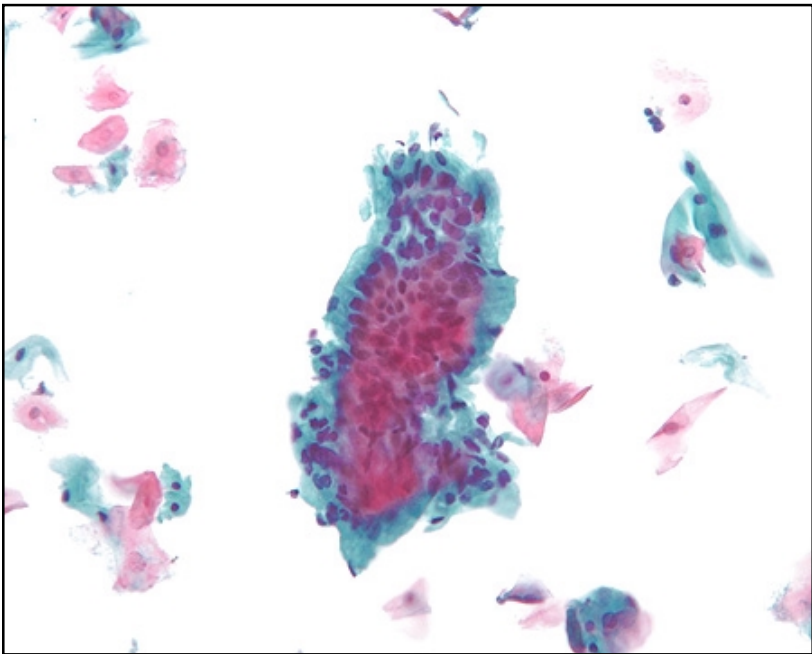
Tissue Diagnosis:

High Grade Squamous Intraepithelial Lesion/AIN III.

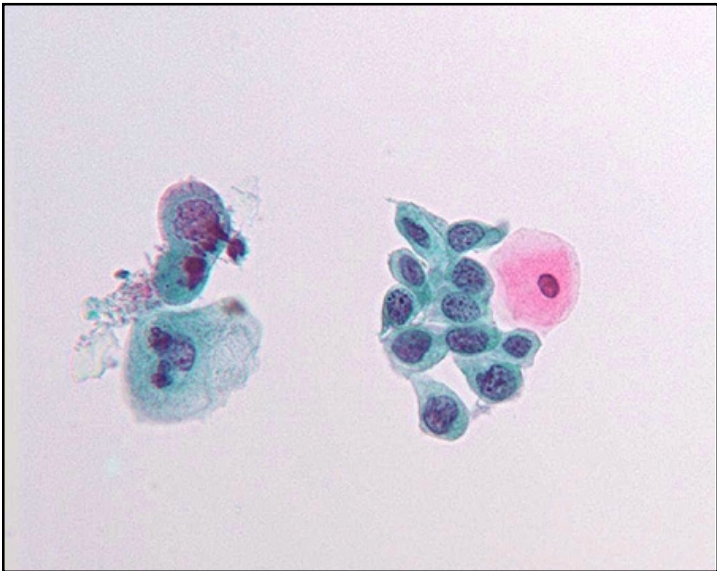
The search for subtle dysplastic changes that occur in squamous cells collected from the uterine cervix began well over fifty years ago in an attempt to stem the surging prevalence of cervical cancer. This test has been nothing less than an overwhelming and well-documented clinical and statistical success, against which the achievements of other methods of cancer screening are measured. The incidence of anal squamous cell carcinoma (ASCC) in HIV negative homosexual and bisexual men as stated by Goldstone et al is currently as many as 35/100,000.⁸ This "approximates the incidence of cervical cancer in women before the advent of routine cervical pap smear screening."⁸ Numerous studies have shown that the immunosuppressed status of HIV positive men puts them at an even greater risk for development of anal lesions.^{2,8-10,11,15,17,20-22} Other studies have shown that women with a history of cervical squamous intraepithelial lesions (SIL) are also at risk for developing anal neoplasia.^{2,14,16} In a study published in 1999, Moscicki et al. found anal neoplasia in 16 out of 410 women with cervical SIL.¹⁶ Melbye et al. found that "a diagnosis of cervical SIL was associated with a more than three fold increase of a simultaneous abnormal anal smear" in women at risk for HIV.¹⁴

Much like the transformation zone of the cervix, the squamocolumnar junction of the anal canal is prone to the development of neoplasia.⁸ The cytologic appearance of the two sample types is virtually identical. In fact, findings may be classified according to the familiar criteria defined by the Bethesda System.⁵ Berry et al. found that the colposcopic techniques used in cervical evaluation could also be successfully applied to the visualization and characterization of anal lesions.¹

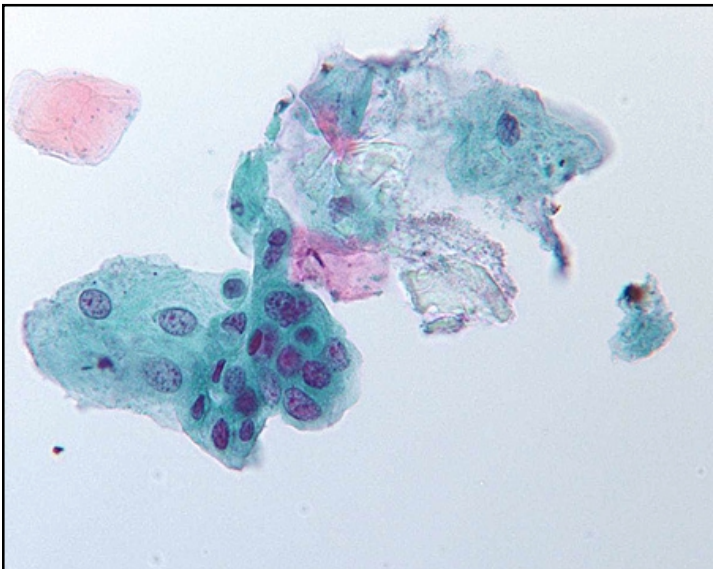
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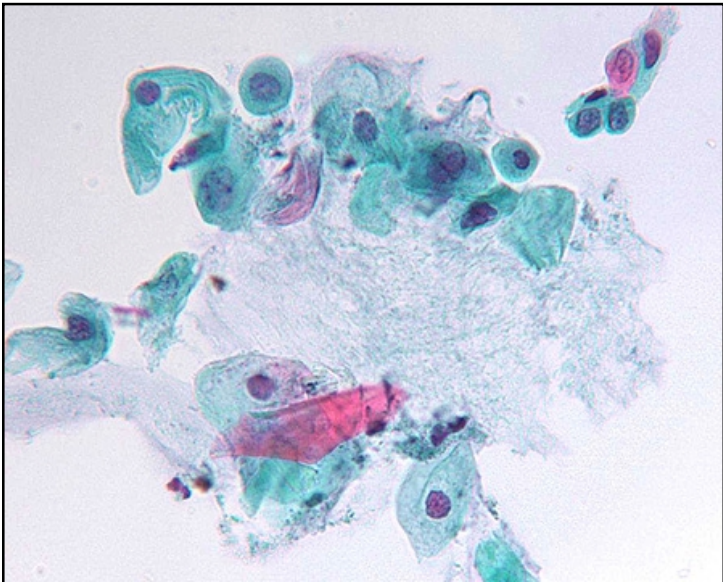
Slide 1- 40x



Slide 2 - 40x

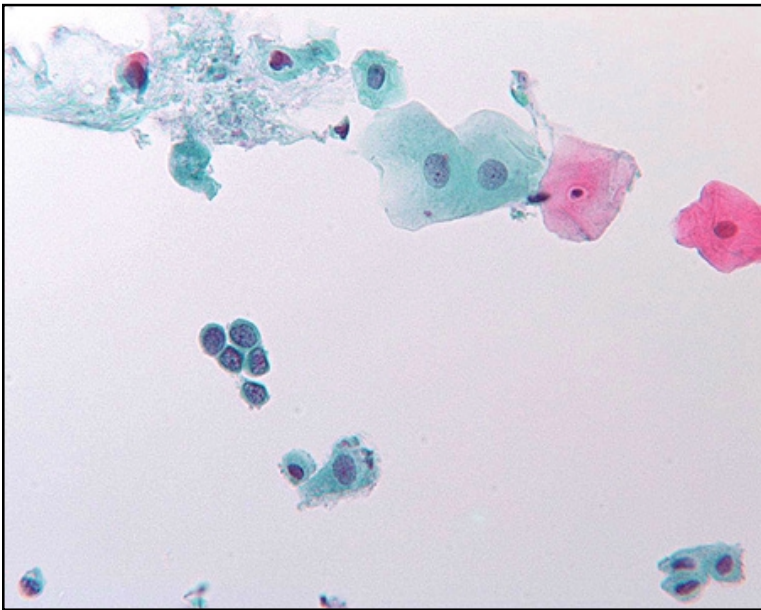


Slide 3 - 40x

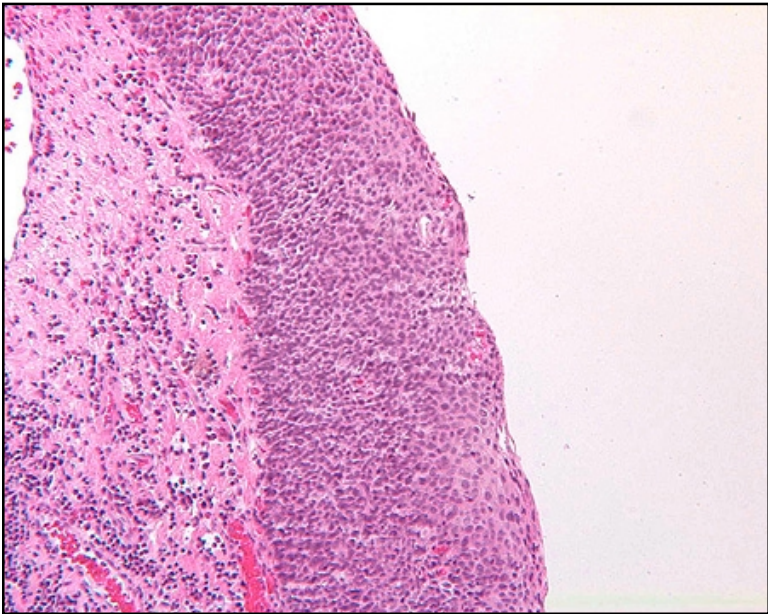


Slide 4 - 40x

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Slide 5 - 40x



Slide 6 - 20x

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Screening for anal neoplasia on an annual basis in HIV positive homosexual and bisexual men has been shown to be cost effective by Goldie et al. and every 2-3 years in those that are HIV negative.^{9,10} As previously discussed, studies have shown that those infected with HIV are at much greater risk for the development of anal lesions. Berry and Palefsky comment that “the improvement in survival for HIV infected patients may increase the incidence of invasive anogenital cancers.”² This suggests an expected escalation of anal disease and a greater need for a regular screening program. Currently, no information could be found pertaining to the cost effectiveness of screening for anal SIL in women, although much of the literature cited here suggests that there is a need for assessment in this population, as well.^{2,3,14-16.}

References:

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- 20.) Palefsky et al. Virologic, immunologic and clinical parameters in the incidence and progression of anal squamous intraepithelial lesions in HIV-positive and HIV-negative homosexual men. *J Acquir Immune Defic Syndr* 1998;17:314-9.
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