

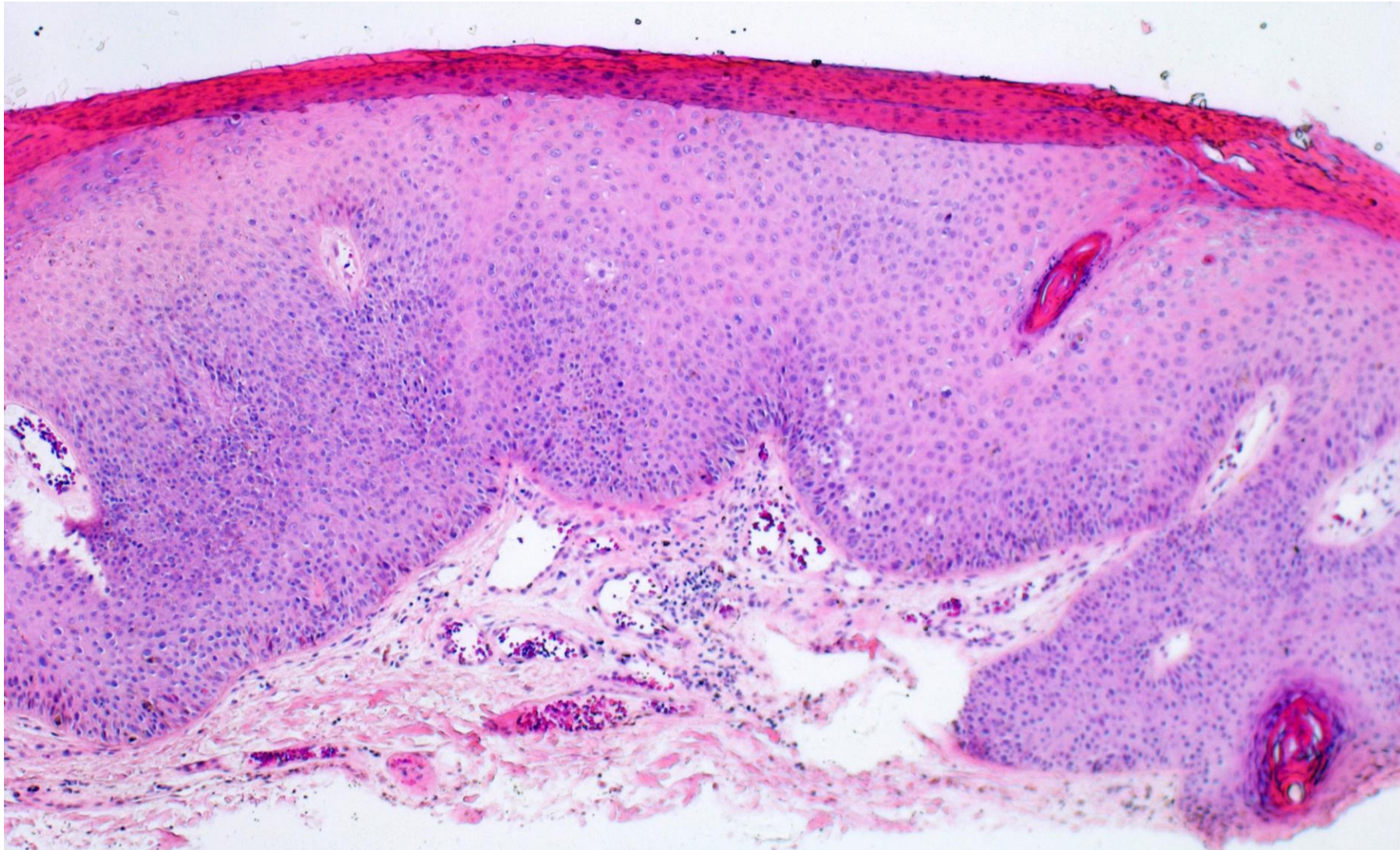
Anal squamous dysplasia

Anal squamous dysplasia (anal intraepithelial neoplasia: AIN) is a premalignant lesion for anal cancer driven by infection of HPV. It is commonly found in high-risk patients with human immunodeficiency virus infections, post-organ transplantation, and homosexuality in men. AIN can be classified into low and high grades, and the high-grade AIN is prone to progress to anal squamous cell carcinoma. In the high-grade lesion, mitotic (metaphasic) cells reveal ectopic chromosome around centrosome, a microscopic hallmark of high-grade HPV infection (see Gyne-80-2-cervix). Both low- and high-grade squamous dysplastic lesions of the anus are presented.

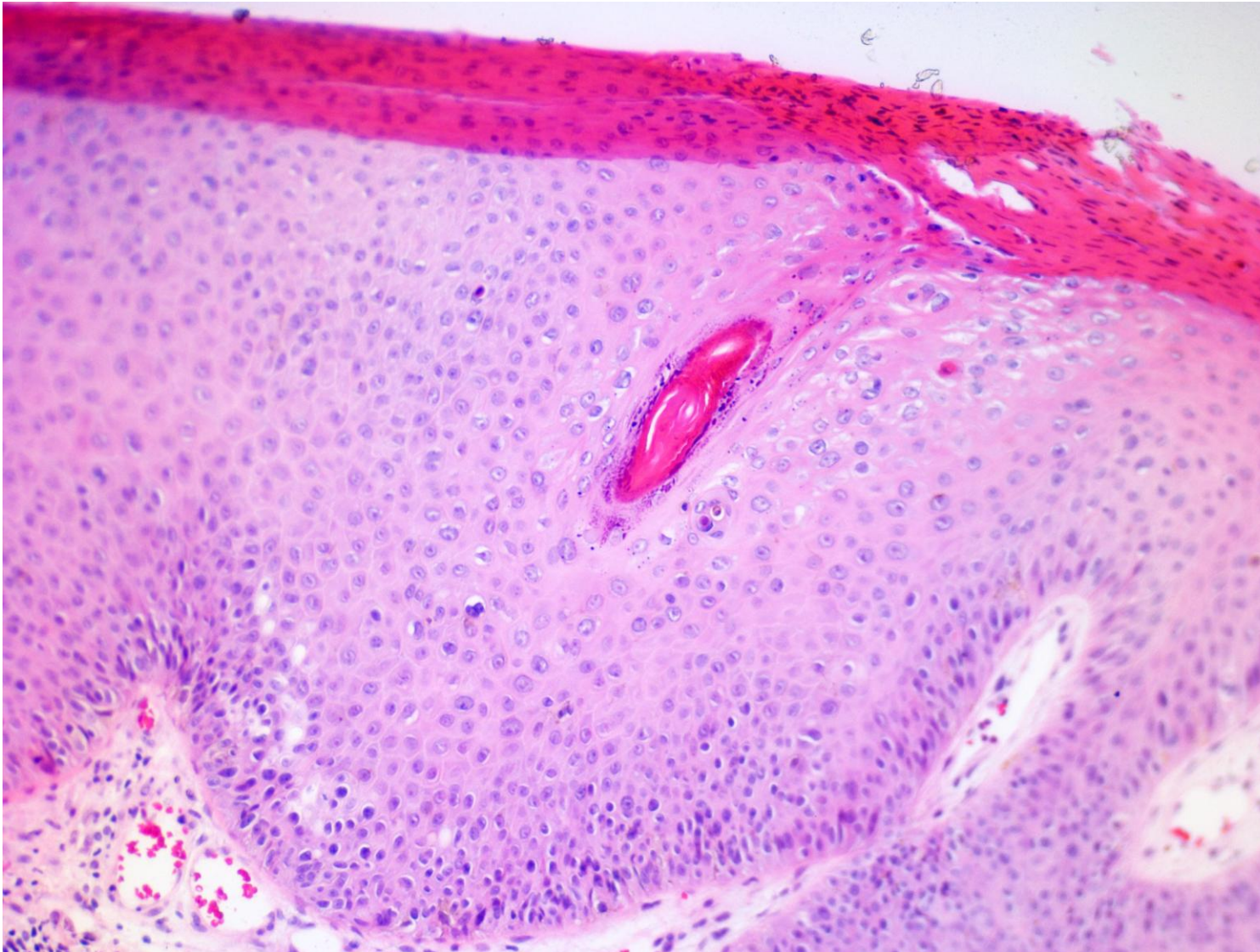
Ref.-1: Siddharthan RV, et al. Anal intraepithelial neoplasia: diagnosis, screening, and treatment. *Ann Gastroenterol* 2019; 32(3): 257-263. doi: 10.20524/aog.2019.0364

Ref.-2: Furuta R, et al. Ectopic chromosome around centrosome in metaphase cells as a marker of high-risk human papillomavirus-associated cervical intraepithelial neoplasias. *Int J Cancer* 2003; 106(2): 167-171. doi: 10.1002/ijc.11216. PMID: 12800190

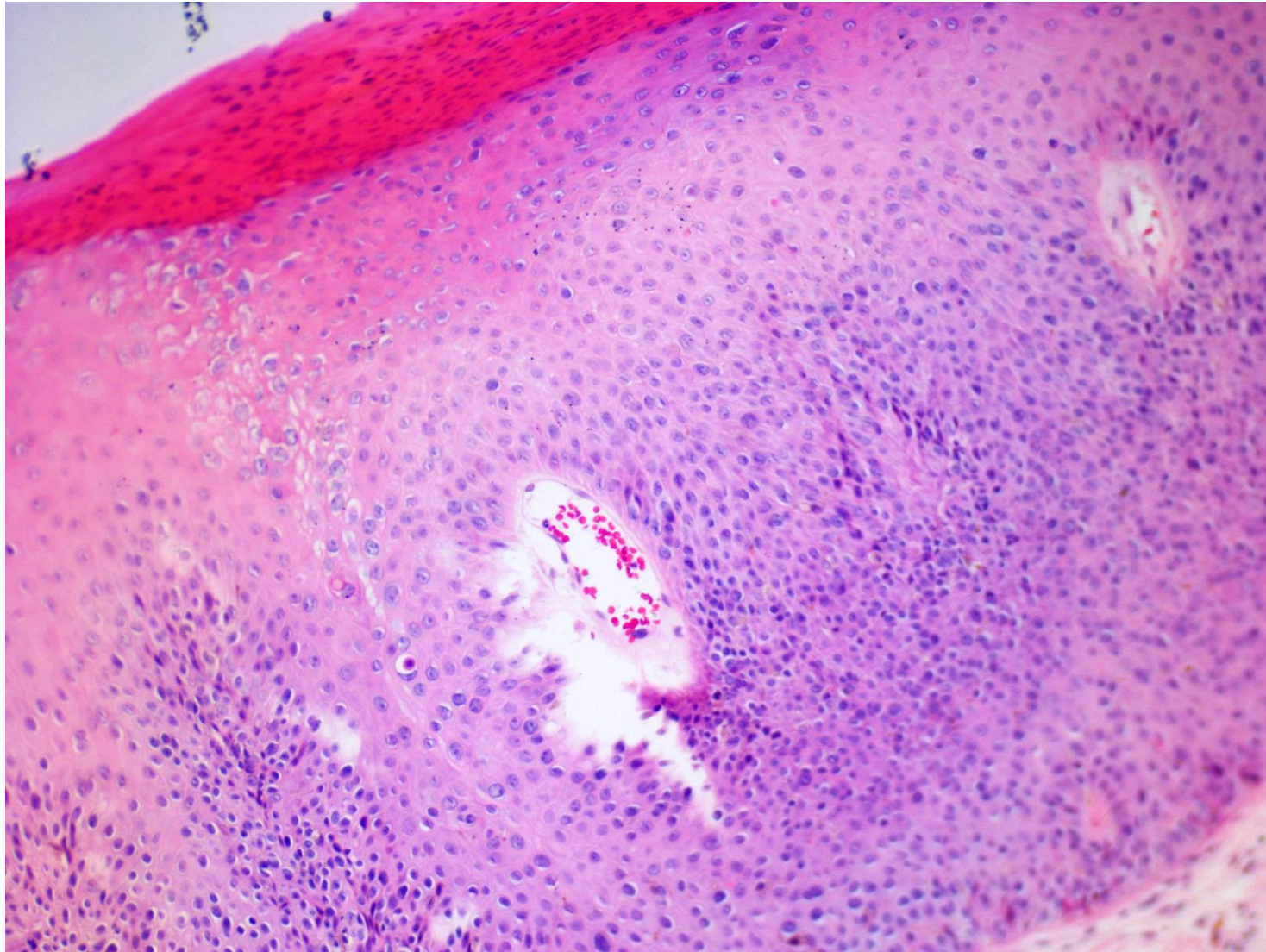
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Anal squamous dysplasia (anal intraepithelial neoplasia: AIN), low-grade, seen in an HIV-negative 45 y-o male patient. In this low-grade dysplastic lesion, widening and activation of the parabasal keratinocytes are observed (H&E-low-1).

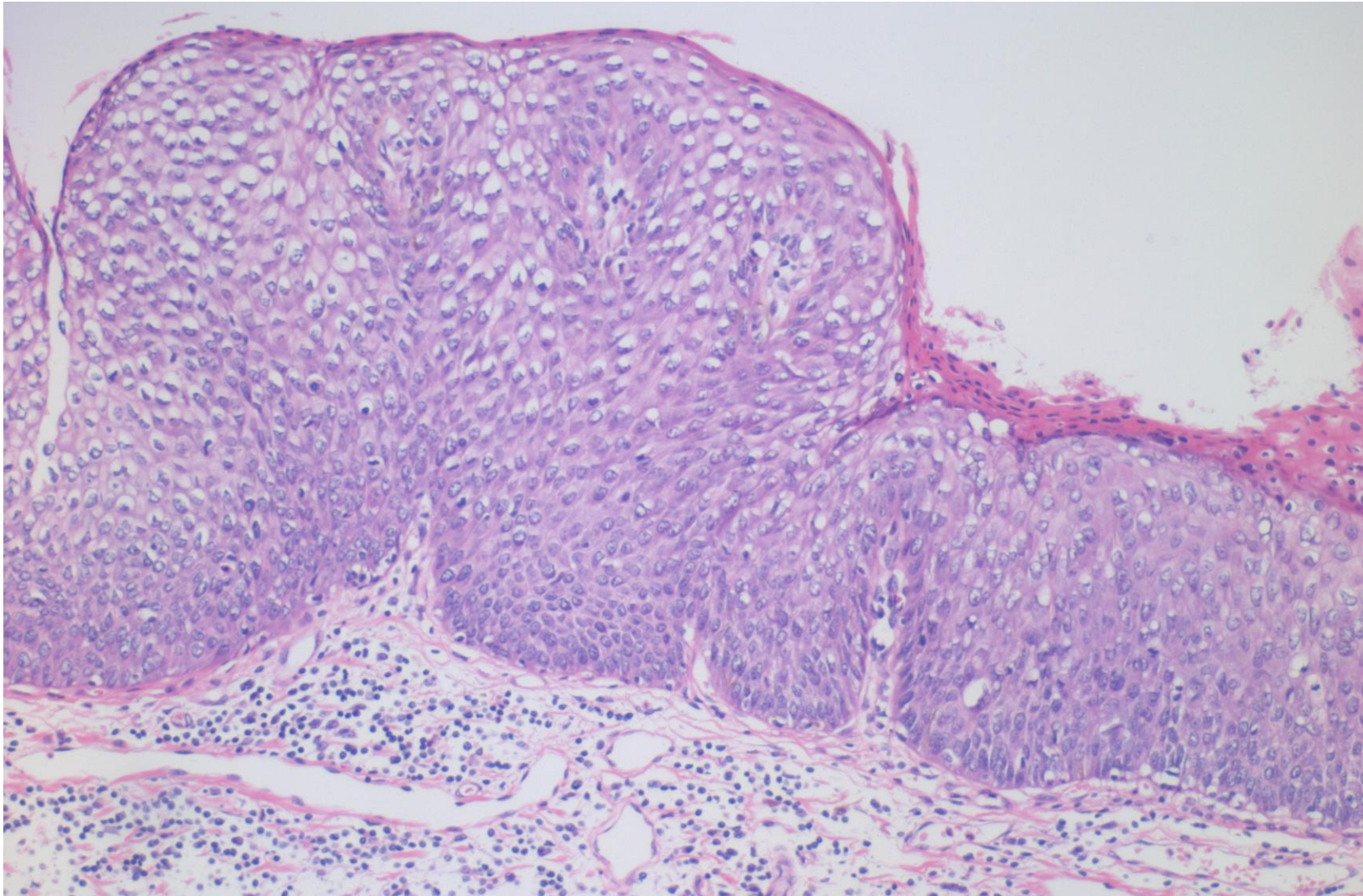


Anal squamous dysplasia (anal intraepithelial neoplasia: AIN), low-grade, seen in an HIV-negative 45 y-o male patient. Widening and activation of the parabasal keratinocytes are observed. A surface differentiation pattern is preserved. Dyskeratosis, focal koilocytosis and parakeratosis are associated (H&E-low-2).

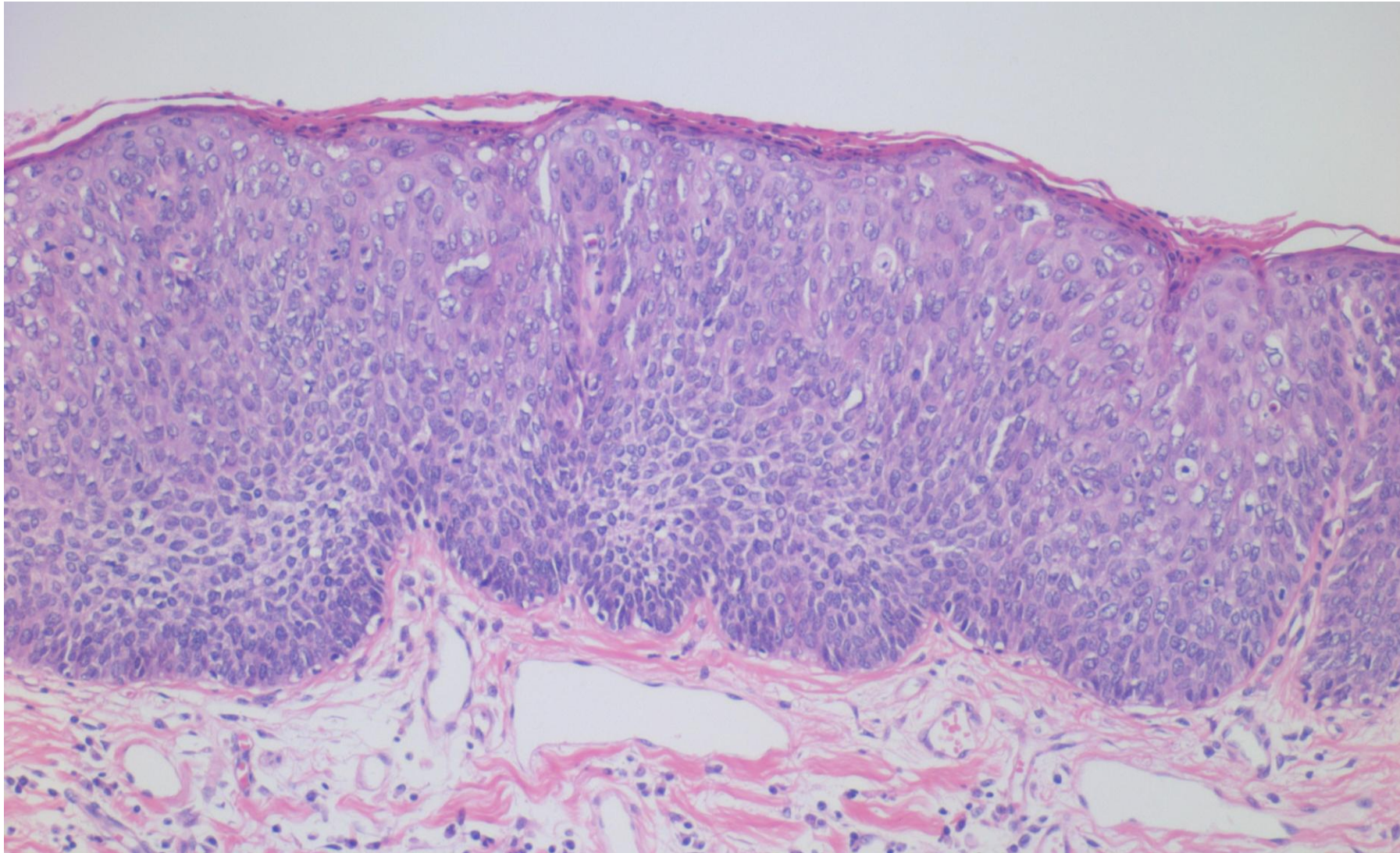


Anal squamous dysplasia (anal intraepithelial neoplasia: AIN), low-grade, seen in an HIV-negative 45 y-o male patient. Widening and activation of the parabasal keratinocytes are observed. A surface differentiation pattern is preserved. Dyskeratosis, focal koilocytosis and parakeratosis are associated (H&E-low-3).

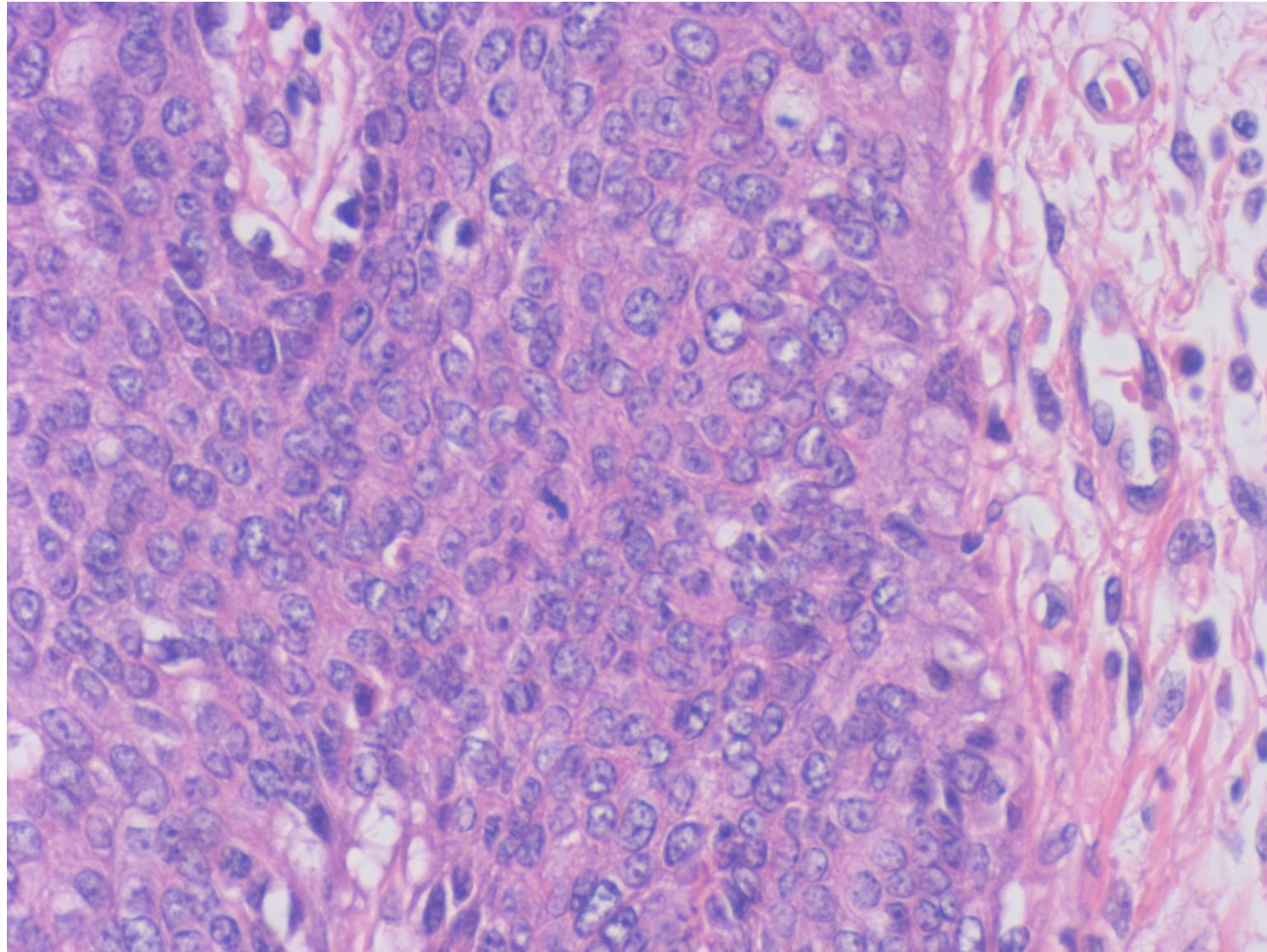
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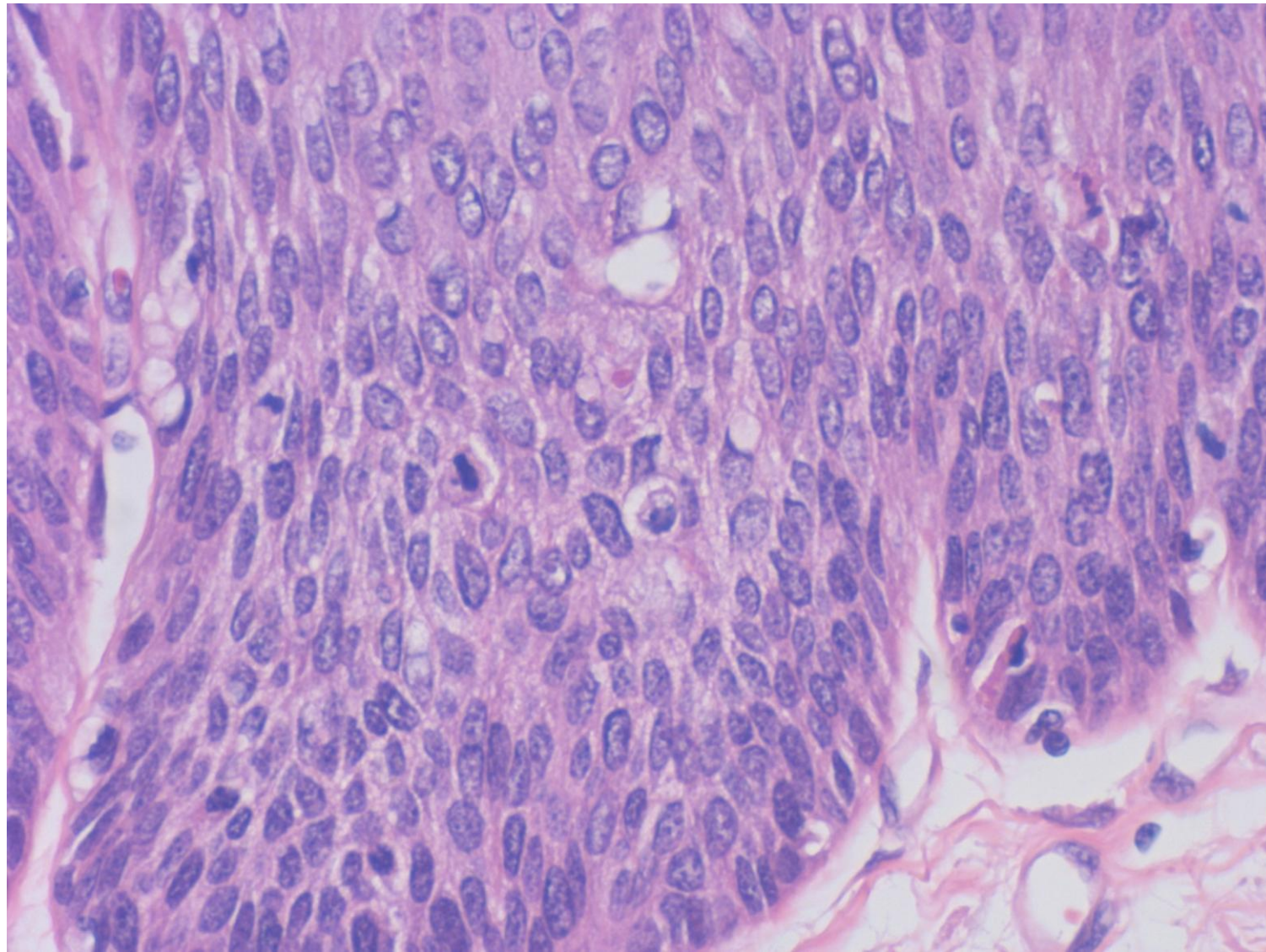
Anal squamous dysplasia (anal intraepithelial neoplasia: AIN), high-grade, seen in an HIV-negative 63 y-o female patient. In this high-grade dysplastic lesion, parabasal keratinocytes occupy the entire layer of the anal squamous mucosa. Parakeratosis is associated (H&E-high-1).



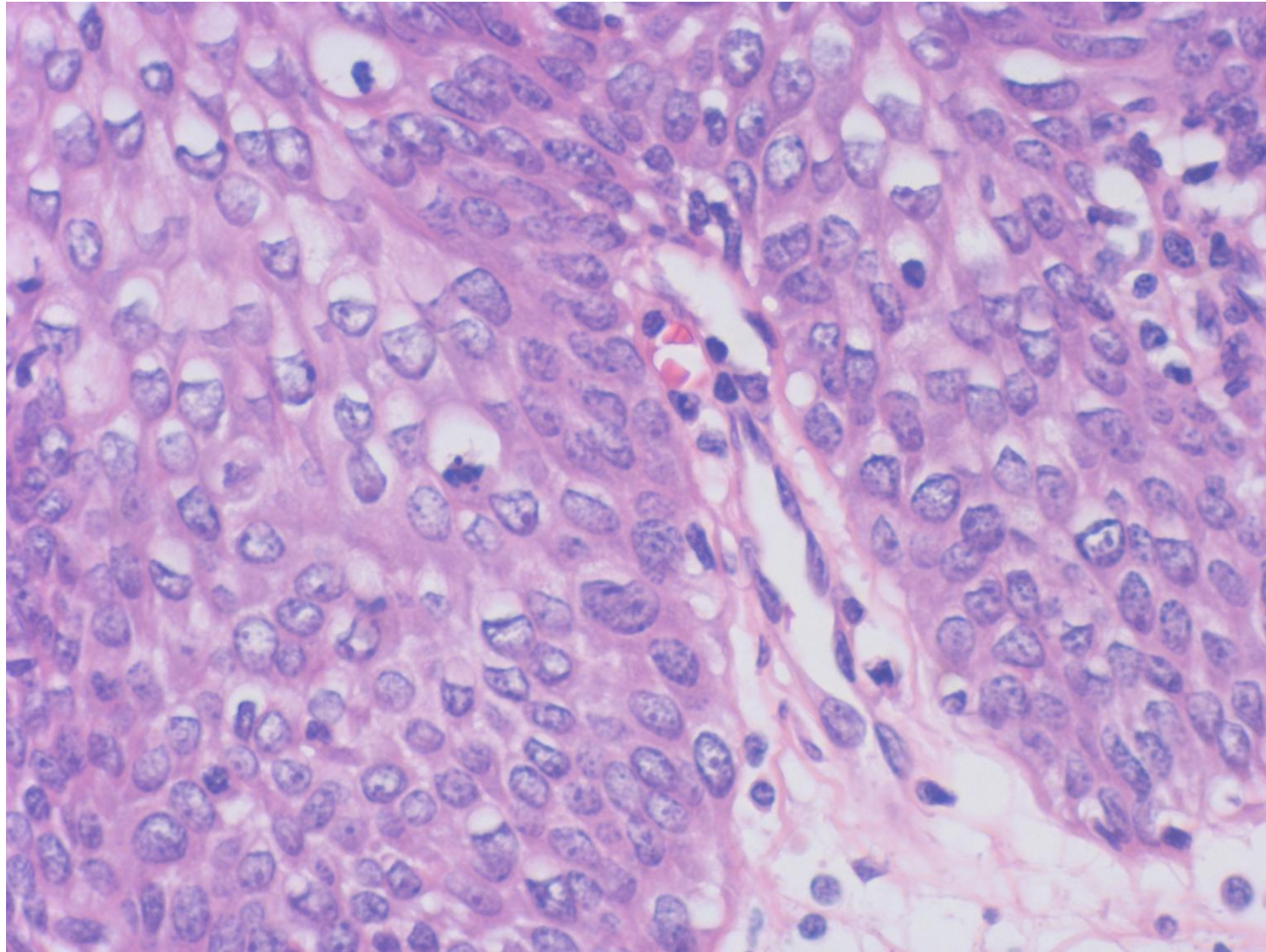
Anal squamous dysplasia (anal intraepithelial neoplasia: AIN), high-grade, seen in an HIV-negative 63 y-o female patient. In this high-grade dysplastic lesion, parabasal keratinocytes occupy the entire layer of the anal squamous mucosa. Parakeratosis is associated (H&E-high-2).



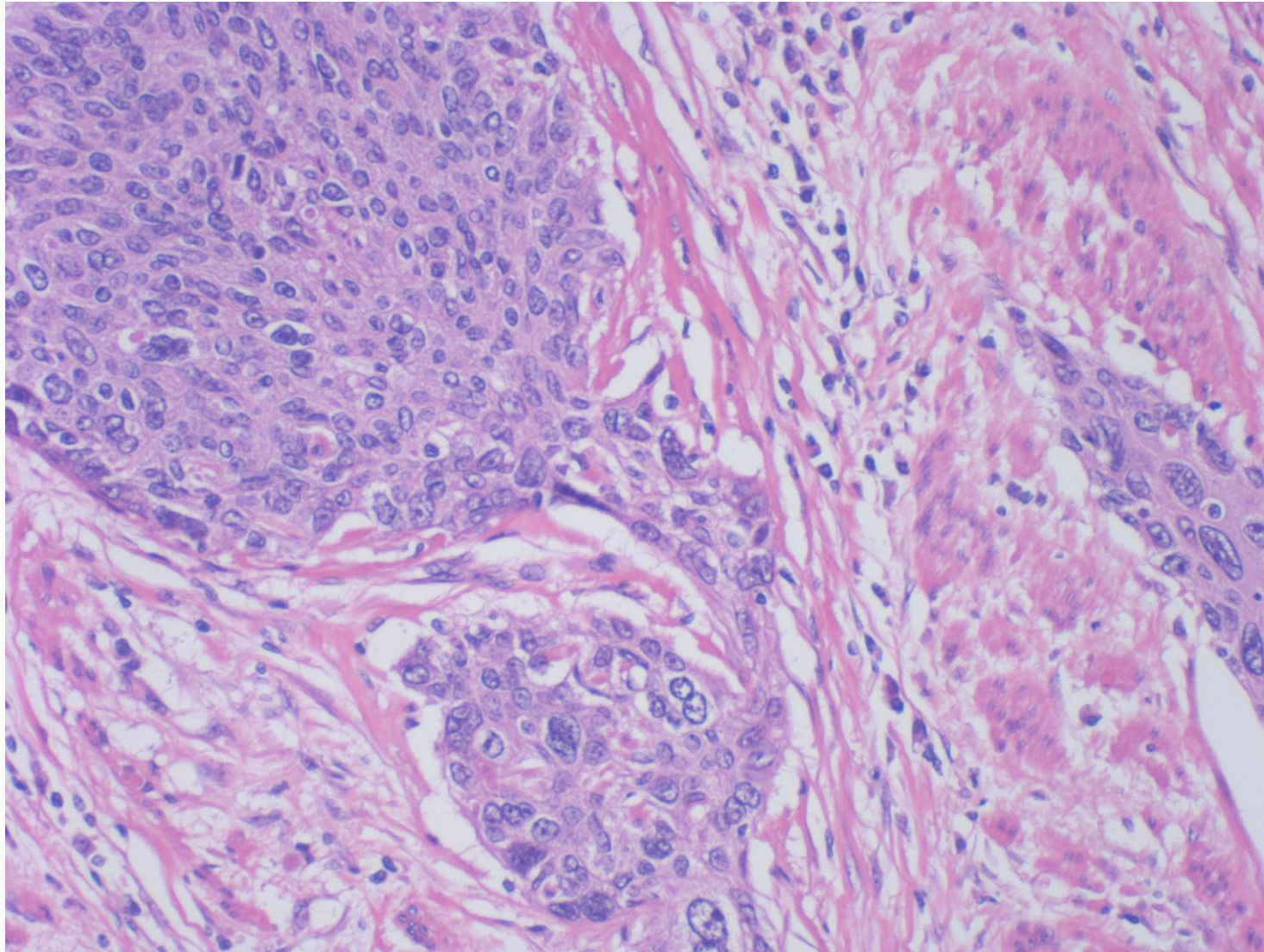
Anal squamous dysplasia (anal intraepithelial neoplasia: AIN), high-grade, seen in an HIV-negative 63 y-o female patient. Atypical parabasal keratinocytes diffusely grow in the anal squamous mucosa. Ectopic chromosome around centrosome (ECAC) in the metaphasic cell in the center of the figure indicates carcinogenic HPV infection (H&E-high-3).



Anal squamous dysplasia (anal intraepithelial neoplasia: AIN), high-grade, seen in an HIV-negative 63 y-o female patient. Atypical parabasal keratinocytes diffusely grow in the anal squamous mucosa. Ectopic chromosome around centrosome (ECAC) in the metaphasic cell in the center left of the figure indicates carcinogenic HPV infection (H&E-high-4).



Anal squamous dysplasia (anal intraepithelial neoplasia: AIN), high-grade, seen in an HIV-negative 63 y-o female patient. Atypical parabasal keratinocytes diffusely grow in the anal squamous mucosa. Ectopic chromosome around centrosome (ECAC) in the metaphasic cell in the center left of the figure indicates carcinogenic HPV infection (H&E-high-5).



Anal squamous dysplasia (anal intraepithelial neoplasia: AIN), high-grade, seen in an HIV-negative 63 y-o female patient. Atypical parabasal keratinocytes diffusely grow in the anal squamous mucosa. In this high-grade lesion, invasive squamous cell carcinoma is complicated. See GI-487-1-anus (H&E-high-6).