Anal squamous intraepithelial lesions: Diagnosis, screening, prevention, and treatment

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INTRODUCTION

The anal and cervical canal share embryologic, histologic, and pathologic characteristics. Both develop from the embryonic cloacal membrane, and are sites of fusions of endodermal and ectodermal tissue to form a squamocolumnar epithelial junction. Both areas may display normal metaplastic change and abnormal dysplastic change related to infection with human papillomavirus (HPV) (figure 1). (See "Virology of human papillomavirus infections and the link to cancer".)

The pathology, risk factors, clinical manifestations, screening, prevention, and treatment of anal SIL are discussed here. Anal cancer is discussed separately. (See "Clinical features, staging, and treatment of anal cancer".)

NOMENCLATURE

The classification of lower genital tract squamous terminology for HPV associated lesions has recently been re-evaluated with consensus reached that there will be a single set of diagnostic terms for the lower anogenital tract (LAT). A two tiered nomenclature is recommended for HPV associated squamous proliferations of the LAT, with low-grade and high-grade squamous intraepithelial lesions (LSIL and HSIL respectively), that may be further classified to intraepithelial neoplasia (IN) of the cervix, vulva, vagina, penis and anus to grade 1, 2, or 3. For example, AIN 1 corresponds to anal LSIL, and AIN 2 and 3 to anal HSIL [1].

The biologic consequences of anal SIL, are considered analogous to those of cervical SIL. Anal HSIL, corresponding to AIN grade 2 or 3, is considered premalignant and may progress to anal cancer, similar to the progression of cervical HSIL to cervical cancer [2]. Anal LSIL, corresponding to AIN 1, is not considered to be a direct precursor of anal cancer, but may progress to HSIL [3]. (See "Invasive cervical cancer: Epidemiology, risk factors, clinical manifestations, and diagnosis".)

PATHOLOGY

Anal SIL and the histopathologic manifestations of HPV infection are most apparent at the anal transition zone (ATZ) where rectal columnar epithelium and anal squamous epithelium meet (figure 2) [2]. Anal SIL and cervical SIL share cytopathologic features, and both anal and cervical cytology are described using the 2001 Bethesda classification system (table 1). Cytologic changes are reported, in increasing severity, as atypical squamous cells of undetermined significance (ASC-US), LSIL, ASC-suggestive of HSIL (ASC-H), and HSIL [4]. A diagnosis of atypical squamous cells cannot rule out the presence of a higher grade lesion. (See "Cervical intraepithelial neoplasia: Terminology, incidence, pathogenesis, and prevention".)

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