



Figure 22-18 The cytology of cervical intraepithelial neoplasia as seen on the Papanicolaou smear. Normal cytoplasmic staining in superficial cells (**A** and **B**) may be either red or blue. **A**, Normal exfoliated superficial squamous cells. **B**, Low-grade squamous intraepithelial lesion (LSIL)—koilocytes. **C**, High-grade squamous intraepithelial lesion (HSIL; CIN II). **D**, HSIL (CIN III). Note the reduction in cytoplasm and the increase in the nucleus-to-cytoplasm ratio, which occurs as the grade of the lesion increases. This reflects the progressive loss of cellular differentiation on the surface of the lesions from which these cells are exfoliated. (Courtesy Dr. Edmund S. Cibas, Brigham and Women's Hospital, Boston, Mass.)

Stage II—Carcinoma extends beyond the cervix but not to the pelvic wall. Carcinoma involves the vagina but not the lower third.

Stage III—Carcinoma has extended to the pelvic wall. On rectal examination there is no cancer-free space between the tumor and the pelvic wall. The tumor involves the lower third of the vagina.

Stage IV—Carcinoma has extended beyond the true pelvis or has involved the mucosa of the bladder or rectum. This stage also includes cancers with metastatic dissemination.

Clinical Features. More than half of invasive cervical cancers are detected in women who did not participate in regular screening. While early invasive cancers of the cervix (microinvasive carcinomas) may be treated by cervical cone excision alone, most invasive cancers are managed by hysterectomy with lymph node dissection and, for advanced lesions, radiation and chemotherapy. The prognosis and survival for invasive carcinomas depend on the stage of the cancer at diagnosis and to some degree on histologic subtype, with small-cell neuroendocrine tumors having a very poor prognosis. With current treatments the 5-year survival rate is 100% for microinvasive carcinomas and less than 50% for tumors extending beyond pelvis.

Most patients with advanced cervical cancer die of the consequences of local tumor invasion (e.g., ureteral obstruction, pyelonephritis, and uremia) rather than distant metastases.

Cervical Cancer Screening and Prevention

As is well known, cytologic cancer screening has significantly reduced mortality from cervical cancer. In countries where such screening is not widely practiced, cervical cancer continues to exact a high toll. The reason that cytologic screening is so effective in preventing cervical cancer is that most cancers arise from precursor lesions over the course of years. These lesions shed abnormal cells that can be detected on cytologic examination. Using a spatula or brush, the transformation zone of the cervix is circumferentially scraped and the cells are smeared or spun down onto a slide. Following fixation and staining with the Papanicolaou method, the smears are screened microscopically by eye or (increasingly) with automated image analysis systems. The cellular changes seen on the Pap test, illustrating the spectrum from LSIL to HSIL, are shown in [Figure 22-18](#).