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# Cervical pathology in West Virginia adolescents

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## Abstract

**Cytologic screening is an important diagnostic tool used to detect precancerous and cancerous lesions of the cervix. We studied the prevalence of cervical abnormalities, based on Pap smear results, in patients at the Outpatient Adolescent Clinic at West Virginia University. We found a high incidence of overall intraepithelial cell pathology (24%) in this group with 2.4% high grade and 9.9% low-grade lesions. These findings show that major cervical pathology is present in this age group. Furthermore, repeat smears at intervals of < one year were performed on 317 patients. Of these repeat smears, 7% changed from normal to abnormal in this period. Sexually active adolescent females should have Pap smears at least annually to detect abnormalities that may otherwise not be detected until they are more advanced and difficult to manage. Higher risk adolescents may need semiannual screening.**

## Introduction

High-risk sexual behavior, inconsistent use of condoms and the immature anatomy of the female genital system contribute to potential cervical abnormalities in female adolescents. We studied the Pap smears of patients at the Outpatient Adolescent Clinic at West Virginia University to gain insight into how prevalent cervical abnormalities are in the female adolescent population.

Smears were collected from patients 12-19 years old over a four-year period. They were analyzed and classified according to the Bethesda System. In this system, lesions are classified as low grade SIL (CIN 1 and flat condyloma) high grade SIL (CIN 2 and CIN 3)(1).

Smears with inflammation are diagnosed as within normal limits, but if it is unclear whether squamous changes represent malignancy, they are then classified as atypical squamous cells of undetermined significance (ASCUS)(1).

## Materials and methods

A total of 1,479 pap smears obtained from 990 patients between the years of 1994 and 1997 were analyzed. Patients were 12-19 years of age and 96% of these patients reported being sexually active.

Results of these pap smears were categorized to determine the incidence of abnormal findings as classified in the Bethesda Grading System. Smears were obtained using a plastic spatula and cytobrush and processed as conventional pap smears.

## Results

A total of 1,479 Pap smears were performed on 990 patients, and 333 (22.62%) showed inflammation. Of these, 38 (2.56%) showed bacteria and 51 (3.46%) had fungi. ASCUS cells were present in 79 (5.36%) samples. Cervical dysplasia of varying degrees was found in 356 (24%) samples with 146 low grade, 36 high grade and 95 undetermined grade dysplasia (Table 1).

Repeat pap smears were obtained from 317 patients at approximately six-months. Of these patients, 10 (3%) had abnormal results on both samples, 272 (85%) were normal for both samples, 12 (4%) went from abnormal to normal, and 23 (7%) changed from normal to abnormal (Table 2).

## Discussion

The incidence of cervical dysplasia has been increasing since 1978, with more than 55,000 cases in the U.S. in 1996. There are now nearly 16,000 new cases of invasive cervical cancer reported annually (2,3).

Several risk factors are associated with increased risk for cervical cancer including early age of onset of sexual activity, large number of sexual partners, low socioeconomic background, multiparity and poor hygienic habits (4). Cancer of the cervix is a preventable disease. Early detection of asymptomatic lesions detected by the Papanicolaou smear and proper eradication of precursor cells eliminates disease in a majority of cases (5).

The Bethesda system of grading is currently used to classify the histopathology of lesions. In this system, lesions are classified as low grade SIL (formerly CIN 1 and flat condyloma), high grade SIL (CIN 2 and CIN 3)(6). Smears with inflammation are diagnosed as within normal limits unless it is unclear whether squamous changes represent malignancy in which case they are classified as (ASCUS)(7). It is believed that high grade SIL lesions will progress to cancer if untreated (7).

The false negative rate for the Pap smears is between 10%-20%, but it is still the best screening method available for detection of precancerous lesions (8). However, the current recommendations of Pap smears every three years after two consecutive normal Pap smears are inadequate to meet the screening needs of adolescents.

Cervical pathology is a common finding in sexually active adolescents. Abnormalities, such as cervical

**Table 1. Results of Pap Smears From 990 Patients (1,479 Smears).**

Inflammation	22.62%	333
ASCUS	5.36%	79
Low grade	9.91%	146
High grade	2.44%	36
Reactive	4.75%	70
Dysplasia	6.45%	95
Total SIL	23.56%	347
Total	51.5%	759

*ASCUS: atypical squamous cells of undetermined significance*

*SIL: squamous intraepithelial lesion*

*Dysplasia: refers to dysplasia that is not classified as mild, moderate or severe*

**Table 2. Results of the 317 Pap Smears Repeated in < 1 Year.**

Pap 1 N, Pap 2 N	86%	272
Pap 1 N, Pap 2 A	7.3%	23
Pap 1 A, Pap 2 N	4%	12
Pap 1 A, Pap 2 A	3%	10

*N: normal*

*A: abnormal*

*Pap 1: 1<sup>st</sup> Pap smear*

*Pap 2: 2<sup>nd</sup> Pap smear from same patient in less than one year*

dysplasia with potential development of more severe pathology is also prevalent in this group. Immaturity of the female genital tract, inconsistent condom use and high-risk sexual behavior, all place this age group at particularly high risk for cervical disease.

Our results, showing high incidence of atypia on pap smear and change from normal to abnormal within the same year, is in agreement with studies showing that major cervical pathology exists in this group (9). The unpredictable progression from earlier epithelial alterations to advanced abnormalities can vary from 1 to 20 years, with the more advanced form of CIN progressing to invasive cancer in

less than one year (8,9). The incidence of cervical pathology in our adolescent population is even higher than that reported in another recent study (10).

Pap smear continues to be a safe, adequate screening method for early detection of cervical pathology. We believe that screening of all sexually active adolescents should be done at least annually in order to identify and begin treatment at the earliest possible stage of disease. Pap smears should be obtained even more frequently (semiannually) in high-risk adolescents to detect abnormalities that may otherwise not be detected until six months later when they could be more advanced and difficult to manage.

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