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High Rates of High-Grade Cervical Dysplasia in High-Risk Young Women With Low-Grade Cervical Cytology

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Abstract

Objective: The aim of the study was to determine rates of cervical intraepithelial neoplasia (CIN) 2 or greater in high-risk, racially diverse, young women with low-grade cytology.

Materials and Methods: After institutional review board approval, a cross-sectional study of 21- to 24-year-old women with low-grade cytology (atypical squamous cells of undetermined significance, high-risk human papillomavirus+, low-grade squamous intraepithelial lesion, or human papillomavirus+ only) managed with colposcopy at our university-based clinic between May 2011 and April 2013 were identified. Demographics and pathologic data were collected including age, race, parity, smoking status, screening history, and histology. Student *t* test and χ^2 tests were used to compare women with and without CIN 2 or 3. Univariate analysis was performed with demographic data.

Results: One thousand fifty-eight women with a mean (SD) age of 22.5 (1.1) were included. Most patients (59.5%) were parous, 36.1% were smokers, and most (52.9%) were black. These patients were considered high risk because of their lower socioeconomic status, minority status, lack of insurance, or having Medicaid and therefore had limited access to preventative health care. Based on colposcopy, the prevalence of CIN 2+ was 19.1%: 13.9% (95% CI = 11.9–16.1) CIN 2 and 5.1% (95% CI = 3.9–6.6) CIN 3. There was an overall prevalence of 4.7% (95% CI = 3.7%–6.3%) of CIN 3 from excisional pathology from the 157 of 185 patients who returned for a recommended excisional procedure. Smoking (odds ratio = 1.64, 95% CI = 1.2–2.25) and a history of high-grade cytology (odds ratio = 2.06, 95% CI = 1.02–4.01) were associated with CIN 2/3.

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This study was approved by the institutional review board at the University of Alabama at Birmingham.

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Conclusions: High prevalence of CIN 2/3 in young women with low-grade cervical cytology in this population suggests that it may be prudent to consider alternative surveillance such as colposcopy in similar high-risk populations.

Keywords

LSIL; ASCUS; CIN 2; CIN 3; young women

In the past 50 years, the incidence and mortality from cervical cancer in industrialized countries have decreased by half because of introduction of the Pap smear as a screening test; however, cervical cancer is still an exceedingly common cause of death in developing countries.^{1–3} Despite this decrease, cervical cancer remains problematic in industrialized countries with a 2017 estimate of 12,820 new cases and 4210 deaths in the United States.⁴ More than 60% of new cases develop in women who are underscreened.^{5,6}

In 2006, the American Society for Colposcopy and Cervical Pathology (ASCCP) update integrated human papillomavirus (HPV) testing and HPV DNA typing into screening practice, which lead to fewer colposcopic examinations and fewer excisional procedures.^{7,8} The American Congress of Obstetrics and Gynecology subsequently published an updated Practice Bulletin in 2009 changing the minimum screening age to 21 years and recommending HPV co-testing for women older than 30 years and management of abnormal results in younger women.⁹ Among other changes, the 2012 ASCCP Updated Consensus Guidelines made a distinction in the management of young women ages 21 to 24 years because of the high prevalence of transient HPV infection, rates of regression of CIN 2 from 39% to 65% at 2 years, and low incidence of cervical cancer in young women.^{10–13} Instead of colposcopy, follow-up cervical cytology is recommended for young women with low-grade cytology.^{12,14–18} Importantly, studies that established the most recent guidelines were derived from a low-risk patient population, who were mostly white, all insured with good access to medical care and had low rates of smoking. In this low-risk population, the reported prevalence of CIN 2 in 21- to 24-year-old patients with low-grade cytology is 4.7% (758/16,090 patients) and for CIN 3 is 1.6% (253/16,090 patients).^{13,17}

Distinct from populations from which the most recent guidelines were developed, our state has a higher rate of cervical cancer (age-adjusted incidence rate = 8.7/100,000) compared with the national average (8.1/100,000) and our colposcopy clinic provides care to uninsured patients or those with Medicaid. Uninsured and government-insured patients are at higher risk for invasive disease due to decreased screening.^{19–22} More than half of our patients were black, and data show higher rates of persistent HPV infections in black patients.²³ The objective of this study was to determine rates of CIN 2 or greater (CIN 2+), after low-grade cytology in a resource poor, high-risk population to evaluate the applicability of the more conservative guidelines in different populations.

MATERIALS AND METHODS

The University of Alabama at Birmingham colposcopy clinic serves as a guideline-driven referral clinic for colposcopy and out-patient excisional procedures for all uninsured or Medicaid patients with abnormal Pap smears in the 67 counties of the state of Alabama. This

clinic provides preventative health care to patients who are high risk for cervical dysplasia due to their low socioeconomic status, lack of insurance or Medicaid, minority status, and higher-risk sexual practices such as earlier age of coitarche, multiple sexual partners, and multiparity, which all could lead to more exposure to high-risk HPV. Institutional Human Subjects Protection Review Board approval was obtained for this cross-sectional study. Women between the ages of 21 and 24 years with low-grade cervical cytology screening who were managed with colposcopy at University of Alabama at Birmingham from a 2-year period from May 2011 to April 2013 were included. This period was selected to provide both a reasonable sample size, as well as to correlate to the period before full implementation of the newest guidelines. Low-grade cervical cytology was defined as follows: atypical squamous cells of undetermined significance (ASCUS) with a positive high-risk HPV test (ASCUS, HR HPV+), low-grade squamous intraepithelial lesion (LSIL), or normal cytology with HPV positivity alone (HPV+). The 2006 ASCCP guidelines allowed for HR HPV testing as follow-up after colposcopy that was benign or showed CIN 1 in patients who had LSIL, ASCUS, HR HPV+, and ASC-H cytology as an acceptable follow-up method, hence why these HPV+ patients with negative cytology were included.²⁴ Patients known to be pregnant at the time of colposcopy were excluded.

Data abstracted included the following: age, race, ethnicity, parity, smoking status, whether they were immunocompromised, cervical cancer screening history, and surgical pathology results from cervical biopsies, endocervical curettage specimens, and loop electrosurgical excisional procedures (LEEPs). Gynecologic pathologists evaluated all pathologic samples. Per institutional practice, LEEP specimens are reviewed at a monthly multidisciplinary conference both by the performing provider as well as members of the gynecologic pathology staff. P16 staining was not routinely performed during this period as it was before the publication of the LAST guidelines, which recommended the use of P16 to differentiate between CIN 2/3.²⁵ Patients with CIN 2/3 were recommended to have an excisional procedure rather than conservative management with repeat colposcopy and cytology due to poor compliance rates with follow-up. Data were analyzed using χ^2 and Student's *t* test for demographic factors compared between patients with and without CIN 2/3. Odds ratios and 95% confidence intervals were calculated for the univariate analysis. Analyses were performed with SPSS Version 21 (IBM, Armonk, NY).

Role of the Funding Source

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RESULTS

From May 2011 to April 2013, 1058 patients met inclusion criteria for the study. During this period, there was a 56% no-show rate for all patients scheduled. Referral cytology included the following: 50.1% ASCUS, HR HPV+ ($n = 530$), 44.8% LSIL ($n = 474$), and 5.1% HPV+ alone ($n = 54$). More than half of these patients, 59.5%, were parous ($n = 630$). The mean (SD) age of the entire cohort was 22.5(1.1) years old with additional demographics displayed in Table 1, which depicts patients in 2 groups based on the presence or absence of

CIN 2/3 on colposcopic biopsy. No patients had known risks for being immunocompromised including being on chronic steroids, chemotherapy, or antirejection medications for transplants, and no patient was known to have the HIV.

A colposcopic-directed biopsy was performed 997 (94.2%) of 1058 patients; 61 patients (5.8%) did not have biopsies because of a clinical impression of normal or CIN 1 at the time of their evaluation and remained in the “no CIN 2/3” cohort. Two patients with complete demographic data, but missing biopsy results that were not recommended to undergo excisional procedures, also remained in the “no CIN 2/3” cohort in Table 1. A total of 202 patients (19.1%) had CIN 2+ on colposcopic biopsy, including 1 patient (0.01%) with invasive squamous cell carcinoma (SCC) on biopsy (see Figure 1). Specifically, on colposcopic-directed biopsy, 147 patients (13.9%) had CIN 2 and 54 patients (5.1%) had CIN 3 with pathologic results displayed based on referral cytology seen in Table 2. If the 61 patients without a biopsy were excluded from analysis, the rate of CIN 2+ would have increased to 20.3%.

On univariate analysis, smoking (odds ratio [OR] = 1.64, 95% CI = 1.02–4.01) and a history of previous high-grade cytology preceding the current low-grade cytology (OR = 2.06, 95% CI = 1.02–4.01) were associated with CIN 2 or 3 on colposcopic biopsy.

Of 185 women who were recommended to have an excisional procedure, most (84.9%) returned for follow-up ($n = 157$). All patients underwent an in-office loop electrode excisional procedure (LEEP). The histologic results from the excisional procedures are depicted in Figure 1 and shown by referral cytology in Table 2. Not surprisingly, most women (70%) undergoing a LEEP had CIN 2+ on their excisional biopsy specimen. When considering the entire population of 1058 patients, the prevalence of CIN 3+ from excisional pathology alone was 4.8%, but when combining colposcopic biopsy and excision pathology, the prevalence of CIN 3+ was 10.1%.

DISCUSSION

Cervical cancer screening guidelines have been updated to implement more conservative screening and management in young women because of the high prevalence of transient HPV infections and regression rates of dysplasia.^{9,10,24} Notably, the updates were based on studies from compliant, insured patient populations with excellent access to health care.^{14,26} In many university-based settings, patients are uninsured and have higher-risk habits such as earlier age of coitus, multiple sexual partners, smoking, and limited access to care due to insurance, childcare issues, and lack of reliable transportation making observation a less favorable option given our high rates of CIN 2+. Using a conservative approach where 61 patients without a colposcopic-directed biopsy based on a normal- or low-grade colposcopic impression remained in the study, rather than excluded, we documented an incidence of CIN 2+ of 19.1 % (202/1058), which is greater than that usually reported in young women, although these biopsies were analyzed before implementation of p16 staining, thus possibly affecting reporting rates of both CIN 2/3.

Our colposcopy clinic serves a high-risk uninsured or government-insured population, and this study was performed to determine whether the updated guidelines should be applied to patient populations similar to ours, in terms of whether to manage low-grade cytology in young women aged 21 to 24 years more conservatively with repeat Pap testing instead of colposcopy. Recently, we reported our outcomes of see-and-treat excisional strategies in a cohort of high-risk young women enrolled during the same period with high-grade cytology. Thirty-six percent of the patients were aged 21 to 24 years. Young women with high-grade cytology had a prevalence of CIN 3+ of 73.2% compared with 64.3% in women 25 years or older.²⁷ In this current study, the prevalence of CIN 3+ on colposcopic biopsy and excisional biopsy combined in women with low-grade cytology is 10.1%. These data support our concern that our young patients may be more at risk of harboring high-grade premalignant lesions.

With a loss to follow-up rate of 15.1% for patients referred for an excisional biopsy for CIN 2+, our patients may be at a high risk of having untreated high-grade dysplasia. Because of higher regression rates of CIN 2 of 39% to 65% in this young population, these patients may be able to be followed more conservatively especially when considering risk of preterm birth after excisional procedures. Data from a 2014 meta-analysis do not support this risk. The cause of preterm births in this population is likely multifactorial including other risk factors such as socioeconomic status, age, parity, and dysplasia causing molecular and structural changes in the cervix as the risk is similar in patients with high-grade dysplasia, whether or not they have undergone an excisional procedure.^{28,29}

In our current cross-sectional study, we found high rates (19.1% on colposcopic biopsy) of CIN 2+ in young women with low-grade cytology, including 1 patient with SCC on colposcopic biopsy and another patient with CIN 3 on colposcopic biopsy with SCC on her excisional pathology. These 2 patients were referred to the gynecologic oncology clinic for further treatment. Nationally, there is an incidence of 0.0014% for cervical cancer in women aged 21 to 24 years.³⁰ In this cohort of 21- to 24-year-old women, the incidence is much higher at 0.189%. If the 2 patients with SCC were managed by the ASCCP guidelines (1 with LSIL, 1 with ASCUS, HR HPV+) with repeat cytology in 1 year, their cancer diagnosis would have been delayed. Early detection in this patient population could allow fertility-sparing treatments such as a trachelectomy as compared with radical hysterectomy or chemoradiation for more advanced disease.

We also found on univariate analysis that smoking and history of high-grade cytology were associated with a higher likelihood of having CIN 2 or 3 on colposcopy. These data suggest that in populations with limited resources, including those with restricted access to health care, poor follow-up, as well as risk factors such as smoking and a history of previous high-grade cervical cytology, it may be reasonable to consider colposcopy in young women with low-grade cytology in an attempt to detect high-grade CIN for treatment as opposed to repeat cytologic screening assuming high rates of regression in 3 years.^{13,23} Management algorithms such as the ASCCP guidelines need to be viewed as guidelines but not absolute management strategies as they may not be appropriate in high-risk patients.

The main strength of this study is the large patient population that was examined and the high-risk characteristics of the population including higher rates of invasive cervical cancer in Alabama. Limitations include its retrospective design, absence of data on all known risk factors, and the specific high-risk characteristics of our population that may not make this study generalizable to all centers. Moreover, we did not have a comparison arm to evaluate the effect of repeat cytology in this high-risk cohort. Future studies should try to examine the effect of delaying colposcopy by repeating cytology in high-risk populations with low-risk cytology.

Despite advancements in screening practices and decline in morbidity and mortality from cervical cancer in the developed world, high-risk young women remain at risk for developing invasive disease due to lack of follow-up and standardized algorithms may not be appropriate for clinical use in all patients. Future guidelines should attempt to be more generalizable by including more representative patient populations. Similar concerns and criticisms about the increase in the screening interval have been noted, as it has been predicted that increased screening intervals will be associated with a higher risk of the development of cervical cancer.³¹

CONCLUSIONS

In populations of young women at high risk for cervical cancer, who are often lost to follow-up after child bearing years, management with colposcopy as opposed to follow up Pap smears may increase the number of high-grade lesions identified, thus allowing for treatment and prevention of invasive disease. Future cohort studies could compare high-risk young women with low-grade cytology who had repeat cytology versus colposcopy with biopsy to further evaluate the guidelines effectiveness in high-risk patients.

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REFERENCES

1. Adegoke O, Kulasingam S, Virnig B. Cervical cancer trends in the United States: a 35-year population-based analysis. *J Womens Health (Larchmt)* 2012;21:1031–7. [PubMed: 22816437]
2. de Martel C, Ferlay J, Franceschi S, et al. Global burden of cancers attributable to infections in 2008: a review and synthetic analysis. *Lancet Oncol* 2012;13:607–15. [PubMed: 22575588]
3. Bray F, Ren JS, Masuyer E, et al. Global estimates of cancer prevalence for 27 sites in the adult population in 2008. *Int J Cancer* 2013;132:1133–45. [PubMed: 22752881]
4. Society AC. Cancer Facts and Figures 2015.
5. Erickson BK, Zhang B, Straughn JM Jr. Screening behaviors and cultural barriers in women with newly diagnosed cervical cancer. *J Low Genit Tract Dis* 2013;17:425–9. [PubMed: 23595038]
6. Scarinci IC, Garcia FA, Kobetz E, et al. Cervical cancer prevention: new tools and old barriers. *Cancer* 2010;116:2531–42. [PubMed: 20310056]
7. Kinney W, Hunt WC, Dinkelspiel H, et al. Cervical excisional treatment of young women: a population-based study. *Gynecol Oncol* 2014;132: 628–35. [PubMed: 24395062]
8. Wright TC Jr, Massad LS, Dunton CJ, et al. 2006 consensus guidelines for the management of women with abnormal cervical screening tests. *J Low Genit Tract Dis* 2007;11:201–22. [PubMed: 17917566]

9. American College of Obstetricians and Gynecologists. ACOG Practice Bulletin No. 99: management of abnormal cervical cytology and histology. *Obstet Gynecol* 2008;112:1419–44. [PubMed: 19037054]
10. Massad LS, Einstein MH, Huh WK, et al. 2012 updated consensus guidelines for the management of abnormal cervical cancer screening tests and cancer precursors. *Obstet Gynecol* 2013;121:829–46. [PubMed: 23635684]
11. Fuchs K, Weitzen S, Wu L, et al. Management of cervical intraepithelial neoplasia 2 in adolescent and young women. *J Pediatr Adolesc Gynecol* 2007;20:269–74. [PubMed: 17868892]
12. Moore K, Cofer A, Elliot L, et al. Adolescent cervical dysplasia: histologic evaluation, treatment, and outcomes. *Am J Obstet Gynecol* 2007;197:141.e1–6. [PubMed: 17689626]
13. Moscicki AB, Ma Y, Wibbelsman C, et al. Rate of and risks for regression of cervical intraepithelial neoplasia 2 in adolescents and young women. *Obstet Gynecol* 2010;116:1373–80. [PubMed: 21099605]
14. Katki HA, Schiffman M, Castle PE, et al. Five-year risk of CIN 3+ to guide the management of women aged 21 to 24 years. *J Low Genit Tract Dis* 2013;17(5 suppl 1):S64–8. [PubMed: 23519307]
15. Moscicki AB, Shiboski S, Hills NK, et al. Regression of low-grade squamous intra-epithelial lesions in young women. *Lancet* 2004;364: 1678–83. [PubMed: 15530628]
16. Ho GY, Bierman R, Beardsley L, et al. Natural history of cervicovaginal papillomavirus infection in young women. *N Engl J Med* 1998;338:423–8. [PubMed: 9459645]
17. Woodman CB, Collins S, Winter H, et al. Natural history of cervical human papillomavirus infection in young women: a longitudinal cohort study. *Lancet* 2001;357:1831–6. [PubMed: 11410191]
18. Moore G, Fetterman B, Cox JT, et al. Lessons from practice: risk of CIN 3 or cancer associated with an LSIL or HPV-positive ASC-US screening result in women aged 21 to 24. *J Low Genit Tract Dis* 2010;14:97–102. [PubMed: 20354416]
19. Howlader NNA, Krapcho M, Garshell K. SEER Cancer Statistics Review, 1975–2012. Bethesda, MD: National Cancer Institute; 2015 Available at: http://seer.cancer.gov/csr/1975_2012. Accessed May 20, 2015.
20. Alabama cancer facts and figures: 2012 Montgomery. Alabama: State of Alabama Department of Public Health; 2013 Available at: <http://www.adph.org/ascr/assets/2012FactsFigures.pdf>. Accessed June 1, 2014.
21. Watson M, Benard V, King J, et al. National assessment of HPV and Pap tests: changes in cervical cancer screening, National Health Interview Survey. *Prev Med* 2017;100:243–7. [PubMed: 28502575]
22. Tangka FK, Howard DH, Royalty J, et al. Cervical cancer screening of underserved women in the United States: results from the National Breast and Cervical Cancer Early Detection Program, 1997–2012. *Cancer Causes Control* 2015;26:671–86. [PubMed: 25783455]
23. Banister CE, Messersmith AR, Cai B, et al. Disparity in the persistence of high-risk human papillomavirus genotypes between African American and European American women of college age. *J Infect Dis* 2015;211:100–8. [PubMed: 25028692]
24. Wright TC Jr, Massad LS, Dunton CJ, et al. 2006 consensus guidelines for the management of women with abnormal cervical cancer screening tests. *Am J Obstet Gynecol* 2007;197:346–55. [PubMed: 17904957]
25. Darragh TM, Colgan TJ, Thomas Cox J, et al. The Lower Anogenital Squamous Terminology Standardization project for HPV-associated lesions: background and consensus recommendations from the College of American Pathologists and the American Society for Colposcopy and Cervical Pathology. *Int J Gynecol Pathol* 2013;32:76–115. [PubMed: 23202792]
26. Katki HA, Kinney WK, Fetterman B, et al. Cervical cancer risk for women undergoing concurrent testing for human papillomavirus and cervical cytology: a population-based study in routine clinical practice. *Lancet Oncol* 2011;12:663–72. [PubMed: 21684207]
27. Smith HJ, Leath CA 3rd, Huh WK, et al. See-and-treat for high-grade cytology: do young women have different rates of high-grade histology? *J Low Genit Tract Dis* 2016;20:243–6. [PubMed: 27243140]

28. Werner CL, Lo JY, Heffernan T, et al. Loop electrosurgical excision procedure and risk of preterm birth. *Obstet Gynecol* 2010;115:605–8. [PubMed: 20177293]
29. Conner SN, Frey HA, Cahill AG, et al. Loop electrosurgical excision procedure and risk of preterm birth: a systematic review and meta-analysis. *Obstet Gynecol* 2014;123:752–61. [PubMed: 24785601]
30. Benard VB, Watson M, Castle PE, et al. Cervical carcinoma rates among young females in the United States. *Obstet Gynecol* 2012;120:1117–23. [PubMed: 23090530]
31. Kinney W, Wright TC, Dinkelspiel HE, et al. Increased cervical cancer risk associated with screening at longer intervals. *Obstet Gynecol* 2015; 125:311–5. [PubMed: 25568989]

FIGURE 1.

Colposcopic and excisional biopsy results. A, Pathologic results from 1058 women undergoing colposcopy for low-grade cytologic abnormalities. B, Pathologic results from 157 women who underwent excisional biopsy after colposcopic evaluation that revealed CIN 2/3. After colposcopic biopsy results, of the 185 women (17.5%) who were recommended to have an excisional procedure, 157 (84.9%) returned for follow-up for a 15.1% no-show rate. SCC indicates squamous cell carcinoma; CIN, cervical intraepithelial neoplasia.

TABLE 1.Patient Demographics (*N* = 1058)

	No CIN 2/3 ^a (<i>n</i> = 857)	CIN 2/3 (<i>n</i> = 201)
Age, mean (SD)	22.48 (1.1)	22.53 (1.1)
Previous Pap smear history ^b		
No previous Pap test	602 (70.2)	138 (68.7)
Previous LSIL	213 (34.9)	42 (20.9)
Previous HSIL	28 (3.3)	13 (6.5)
Unknown	14 (1.6)	8 (4)
Parity		
0	350 (33.1)	78 (38.8)
1	318 (30.1)	75 (37.3)
2+	189 (17.8)	48 (23.9)
Race		
Black	461 (53.8)	99 (49.3)
White	349 (40.7)	90 (44.8)
Other	47 (5.5)	12 (5.9)
Ethnicity		
Non-Hispanic	815 (95.1)	192 (95.5)
Hispanic	42 (4.9)	9 (4.5)
Smoking history ^c		
Current smoker	290 (33.8)	92 (45.7)
Nonsmoker	546 (63.7)	105 (52.2)
Former smoker	14 (1.6)	1 (0.5)
Unknown	7 (0.8)	3 (1.5)

Data are presented as *n* (%), unless otherwise indicated.

^aNo CIN 2/3 contains 61 patients (5.8%) who did not have a colposcopic biopsy and had clinical impression of benign or CIN 1. All other patients defined as having CIN from colposcopic biopsies.

^b*p* < .05.

^c*p* < .001.

CIN indicates cervical intraepithelial neoplasia; LSIL, low-grade squamous intraepithelial lesion; HSIL, high-grade squamous intraepithelial lesion.

TABLE 2.
Pathologic Results From Patients Undergoing Colposcopic Biopsy Versus Excisional Biopsy per Referral Cytology Results

Colposcopic biopsy (<i>n</i> = 202)	CIN 2 (<i>n</i> = 147)	CIN 3 (<i>n</i> = 54)	SCC (<i>n</i> = 1)
ASCUS, HR HPV +	76 (51.7)	25 (46.3)	1 (100)
LSIL	66 (44.9)	26 (48.1)	0 (0)
HR HPV+	5 (3.4)	3 (5.6)	0 (0)
Excisional biopsy (<i>n</i> = 112) ^a	CIN 2 (<i>n</i> = 60)	CIN 3 (<i>n</i> = 51)	SCC (<i>n</i> = 1)
ASCUS, HR HPV +	35 (58.3)	22 (43.1)	0 (0)
LSIL	24 (40)	28 (54.9)	1 (100)
HR HPV+	1 (1.7)	1 (2)	0 (0)

Data are presented as *n* (%).

^a45 patients had benign pathology or CIN 1 on their excisional biopsy specimen and are not included in Table 2.

CIN indicates cervical intraepithelial neoplasia; SCC, squamous cell carcinoma; ASCUS, atypical squamous cells of undetermined significance; HR HPV+, high-risk human papillomavirus positive; LSIL, low-grade squamous intraepithelial lesion.