

# The appropriateness of examining the entire cervix histologically in hysterectomy specimens from women with a previous history of cervical intraepithelial neoplasia or dyskaryosis

A Greene, M K Heatley

## Abstract

**Background/Aims**—To investigate the necessity of examining the entire cervix in hysterectomy specimens from women with a previous history of cervical intraepithelial neoplasia (CIN) or dyskaryosis.

**Methods**—The overall frequency with which squamous CIN was encountered in hysterectomy specimens of women with a previous diagnosis of squamous CIN or dyskaryosis was calculated in a sample of 71 women. The frequencies in women with positive or negative smears or biopsies between the initial diagnosis and hysterectomy, and in women with no intervening smear or biopsy, were also estimated.

**Results**—A persistent CIN lesion was identified in 18 patients (13 high grade cases; five low grade cases). A further eight patients who had high grade CIN also had microinvasive disease (seven cases of FIGO stage 1a1; one case of FIGO stage 1a2). Ten of the 20 patients with a positive smear or biopsy, but none of the 16 patients with a negative smear or biopsy between initial diagnosis and hysterectomy, had an abnormality on the hysterectomy specimen. Sixteen of the 35 patients who did not have an interim smear or biopsy had CIN in the hysterectomy cervix.

**Conclusions**—These results support continuing the practice of examining the entire cervix in hysterectomy specimens from women with a previous cervical abnormality, regardless of its histological or cytological grade, if there has been a positive interim smear or biopsy or if neither investigation has been performed.

(*J Clin Pathol* 2001;54:155–157)

Keywords: cervix uteri; biopsy; quality control; laboratory; diagnosis

Cervical intraepithelial neoplasia (CIN) is a preinvasive condition that is associated with the later development of invasive cervical cancers in a proportion of women.<sup>1</sup> The treatment given to women with CIN depends upon the grade and persistence of the cervical abnormality. A woman with a single low grade abnormal smear has two repeat smears and if these are normal she is returned to routine screening. Patients with high grade abnormalities on smear or a persistent low grade abnormality are

referred for colposcopic assessment, and are either monitored to ensure that the condition has completely resolved, or are treated using cold cautery or laser to destroy the abnormal area, or electric cautery or cold knife excision to remove it.<sup>2,3</sup> Later in life a proportion of these women will have a hysterectomy for some other condition such as dysfunctional uterine bleeding.

Currently, according to national guidelines,<sup>4</sup> in many pathology departments the entire cervix is submitted for histological examination when a patient with a previous abnormal smear or cervical biopsy has a hysterectomy. This is done to identify residual or recurrent CIN; to establish whether the lesion, if present, is of a higher histological grade; to determine whether there is evidence of invasive cancer; and to ensure that any lesion has been completely excised with no evidence of involvement of peripheral margins. A standard textbook has suggested that if the patient has had a series of normal cervical smears between the last abnormal smear or biopsy and the hysterectomy, only routine sampling of the cervix is necessary,<sup>5</sup> because it is unlikely that there is residual or recurrent disease. Current national guidelines recommend continuing cytological surveillance if CIN is present at the surgical margins in hysterectomy specimens and two further smears when the margins are not involved.<sup>2</sup>

We carried out our study for two reasons. First, to determine the frequency with which persistent squamous CIN, either residual or recurrent disease, was encountered in these hysterectomy specimens. Second, to examine the hypothesis that persistent CIN would not be encountered in women in whom there had been a series of negative smears after the previous intervention. If confirmed, this might allow a less extensive sampling of the cervix in some hysterectomy specimens removed from women with previous CIN lesions or dyskaryosis.

## Materials and methods

The laboratory computer at the department of pathology, the Royal Liverpool University Hospital was searched to identify those women who had undergone a hysterectomy and who had had a previous CIN lesion or basal cell abnormality of uncertain significance (BCAUS) diagnosed histologically, or in whom there had been a borderline or worse abnormality on cervical smear.<sup>6–9</sup> Basal cell abnormality was diagnosed if there was minimal nuclear pleomorphism in the absence of severe

Department of  
Histopathology and the  
Department of  
Pathology, The Royal  
Liverpool Hospital,  
Fifth Floor, Duncan  
Building, Prescot  
Street, Liverpool  
L7 8XP, UK  
A Greene  
M K Heatley

Correspondence to:  
Dr Heatley

Accepted for publication  
25 May 2000

inflammation; if there were features of CIN I in the presence of severe inflammation; or if there was a thin epithelium in which a diagnosis of CIN was appropriate, but in the presence of inflammation.<sup>6</sup> The patients' records were then examined to determine the highest grade of cervical abnormality at diagnosis and treatment, whether there had been intervening cytological or histological surveillance, and whether this had been positive (the presence of a CIN or BCAUS lesion on colposcopy and biopsy or dyskaryosis or borderline nuclear change (BNC) on smear) or negative. Only those patients in whom the cervix accompanying the hysterectomy specimen had been completely sampled for histological assessment<sup>10</sup> were included in our study. In a further 27 patients (23 with low grade disease, four with high grade disease on initial presentation), the examination of the cervix in the hysterectomy specimen was confined to the midline blocks from the anterior and posterior lips. One of these patients was found to have an abnormality, diagnosed as a low grade lesion, in the hysterectomy specimen of cervix. Of the others, nine had had normal interim smears, two had had abnormal interim smears, and one had had an inadequate interim smear. These patients were not included in our study because no assessment of the remainder of the cervical epithelium could be made. A lesion elsewhere in the specimen could not therefore be excluded or evaluated. Patients for whom the hysterectomy had been carried out after a diagnosis of invasive cancer, and those with glandular abnormalities, fell outside our hypotheses and were not studied, but will form the basis of future reports.

To facilitate presentation, the histological diagnoses of BCAUS and CIN I, and the cytological diagnoses of borderline nuclear change and mild dyskaryosis, were combined under the heading of "low grade disease". Similarly, the diagnoses of CIN II and CIN III and the

cytological diagnoses of moderate and severe dyskaryoses were combined under the heading of "high grade disease".

## Results

Seventy one cases were included in our study (table 1) with up to 26 blocks of cervix being examined in each case. In most patients, a histological diagnosis of BCAUS or CIN had been made (high grade CIN, 37 cases, low grade CIN, 13 cases) originally. In 21 patients, a hysterectomy had been performed after a cytological diagnosis of dyskaryosis (seven high grade cases, 14 low grade cases) without prior histological confirmation of the presence and grade of the lesion. Patients with high grade disease were found subsequently to have carcinoma in the hysterectomy cervix in eight cases; persistent CIN II or CIN III in 11 cases; CIN I in two cases; and no evidence of residual CIN in 23 cases. The corresponding figures for low grade disease on the initial smear or histology specimens were 0, 2, 3, and 22. In all but one case persistent disease was identified within five years of the initial diagnosis. Of the patients found to have invasive disease, two had a hysterectomy after a smear that showed high grade disease with no interim histological evaluation. Of the remaining patients, all but one had had a large loop excision of the transformation zone (LLETZ) for CIN III and were found to have stage 1a1 disease on the hysterectomy cervix specimen. The final case was from a woman who had undergone a LLETZ despite the squamocolumnar junction not being visible colposcopically. CIN III was found to extend to the endocervical margin at the apex of the specimen. Invasive disease, which extended to a depth of 5 mm (stage 1a2), was present in the hysterectomy specimen.

Ten of the 20 patients with a positive smear or biopsy between the initial diagnosis and hysterectomy had evidence of persistent disease in the hysterectomy specimen, and three of these patients were found to have a carcinoma.

None of the 16 patients who had had negative smears or biopsies between their initial diagnosis and treatment and hysterectomy had an abnormality on the hysterectomy specimen.

Sixteen of the 35 patients who had not had an interim smear or biopsy were found to have persistent disease and five of these had carcinoma.

## Discussion

These results highlight the importance of a careful examination of the cervix in a hysterectomy specimen from a patient who has had a previous cervical abnormality, particularly when there have been positive smears or biopsies between the initial treatment and hysterectomy, because high grade disease and even carcinoma was encountered in almost one half of the cases. Similarly, careful examination of the cervix has been shown to be necessary if a hysterectomy has been carried out in a patient after a diagnosis of CIN or dyskaryosis, in whom there is no intervening biopsy or smear

Table 1 The grade of the histological or cytological abnormality at original presentation, the presence of a positive or negative smear or biopsy (in the interim period), and the grade of disease (if any) in the hysterectomy specimens of 71 patients who had hysterectomies after a previous cervical abnormality

Final diagnosis	Original diagnosis: high grade disease					
	CIN II/III: interim diagnosis			Moderate/severe dyskaryosis: interim diagnosis		
	Positive	Negative	None	Positive	Negative	None
Carcinoma	2	0	4	1	0	1
CIN II/III	3	0	6	2	0	0
CIN I	1	0	0	0	0	1
Nil	6	7	8	0	1	1

  

Final diagnosis	Original diagnosis: low grade disease					
	BCAUS/CIN I: interim diagnosis			BNC/mild dyskaryosis: interim diagnosis		
	Positive	Negative	None	Positive	Negative	None
CIN II/III	0	0	1	0	0	1
CIN I	1	0	0	0	0	2
Nil	3	6	2	1	2	8

Original diagnosis refers to the grade of lesion for which the patient originally came to medical treatment.

Interim diagnosis refers to the presence (positive) or absence (negative) of an abnormal smear or biopsy between the original diagnosis and hysterectomy.

Final diagnosis refers to the presence and grade of abnormality in the hysterectomy specimen.

BCAUS, basal cell abnormality of uncertain significance; BNC, borderline nuclear change; CIN, cervical intraepithelial neoplasia.

available to suggest that the lesion has been excised or has resolved spontaneously, because over one third of these patients will have CIN or carcinoma. A more restricted sampling of the cervix may be possible in patients with negative smears or biopsies between initial treatment and diagnosis and the eventual hysterectomy because none of the 16 cases studied had residual disease, although a recent study indicates that even patients with borderline nuclear changes on initial smear may be found to have high grade CIN lesions despite interim negative smears.<sup>11</sup> Even in this situation, it is probably wise to examine more than the usual midline blocks taken in "routine" hysterectomy specimens, because none of the 27 patients whose hysterectomy cervix was sampled in two such blocks showed a CIN lesion, despite two having had high grade lesions diagnosed shortly before the hysterectomy.<sup>12 13</sup>

The results support the continued practice of examining the entire cervix in hysterectomy specimens in women with a previous cervical abnormality, regardless of its histological or cytological grade, in the presence of interim positive smears or biopsies, or if such surveillance is not available.

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