EVALUATION OF CERVICAL PUNCH BIOPSY IN THE DIAGNOSIS OF CERVICAL CANCER

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ABSTRACT

Background: Cancer of the cervix uteri is the second leading cause of death in reproductive age women in developing countries. Its early detection and management can reduce the attendant mortality.

Aim: To determine the adequacy of cervical punch biopsy technique in the diagnosis of cervical cancer.

Methods: A consecutive five year clinico-pathological analysis of two hundred and fourteen cervical punch biopsies in the department of Pathology, Ahmadu Bello University Teaching Hospital, Zaria from January 2001 to December 2005.

Results: Two hundred and fourteen (214) cervical punch biopsies were analysed. The age range of the patients was 22 to 85years, with a median age of 46 years and a mean age of 46.8years. Commonest presenting complaints were abnormal vaginal bleeding and offensive vaginal discharge. Out of the 214 biopsies, histological diagnosis was made in 190 (88.8%) cases. The spectrum of diagnosis comprised malignant tumours 164 (76.6%), cervical intraepithelial neoplasia (CIN)10 (4.7%), chronic cervicitis 9 (4.2%) and others 7(3.3%) including nabothian cysts, leiomyoma and a case of tuberculosis. The malignant tumours comprised predominantly squamous cell carcinoma 153(71.5%) with the large cell keratinizing histologic subtype accounting for 144 (99.1%), cervical Adenocarcinoma 5(2.3%), Adenosquamous 4 (1.9%), Leiomyosarcoma 1(0.5%) and malignant lymphoma 1(0.5%). Of the CIN cases, 7 had prior abnormal cervical smear cytology. 24 (11.2%) biopsies were considered inadequate for histological opinion due to extensive necrosis, obscuring haemorrhage and or scanty tissue.

Conclusion: Cervical punch biopsy technique is an adequate procedure in the diagnosis of cervical cancer. Squamous cell carcinoma is the commonest histologic type and late presentation is the norm in our setting.

Key words: Punch Biopsy, Cancer Cervix, Cytology

INTRODUCTION

The uterine cervix is a site for seemingly innocuous genital infection to life-threatening cancers.[1] Cancer of the cervix uteri is a major cause of cancer related deaths in women world over, particularly in developing countries.[1-2] In spite of the dramatic improvements in the early diagnosis and treatment of cervical cancer, most of our patients present late with advanced disease. Papanicolaou smear, a cytologic examination used to screen for presence of pre-malignant and potential cervical cancer does not seem to help in reducing the incidence of this disease in our resource constraint setting. There are many investigations and examinations to detect the presence of cervical cancer. However, cervical punch biopsy for histologic evaluation is the only one that gives definitive diagnosis as well as extent of tumour invasion.[3] Our objective in the study was to determine the adequacy of cervical punch biopsies in the diagnosis of cancer of the cervix.

PATIENTS AND METHOD

This was a consecutive five year clinico-

pathological analysis of all cervical punch biopsies seen in the Department of Pathology, Ahmadu Bello University Teaching Hospital, Shika-Zaria from January 2001 to December 2005.

Tissue biopsies were fixed in 10% formalin and processed in paraffin wax. All relevant histology slides stained with Haematoxylin and Eosin (H&E) were studied. New slides were prepared from tissue blocks where necessary.

Clinical information and personal data on age and duration of patients' symptoms were extracted from accompanying request cards.

RESULTS:

Two hundred and fourteen (214) cervical punch biopsies were analysed.

Table 1. Age distribution of all lesions

Age (years)	Frequency(%)
<25	2(0.9)
25-29	3(1.4)
30-34	17(7.9)
35-39	21(9.8)
40-44	34(15.9)
45-49	48(22.4)
50-54	32(15.0)
55-59	11(5.1)
60+	46(21.5)
Total	**214**

The age range of the patients was 22 to 85years, median age was 46years and mean age was 46.8years. (**Table 1**)

The clinical indications for biopsy were vaginal bleeding, including inter-menstrual, contact and post-coital bleeding - 134, offensive vaginal discharge- 70, vaginal mass- 36, abdominal and or pelvic pain -27, abnormal cervical smears- 7 and ectropion- 2. A number of the patients had more than one symptom. Duration of symptoms was from 3months to 3years. (**Table 2**)

Histological diagnosis was made in 190 (88.8%) cases. The spectrum of histological diagnosis made was categorized into malignant tumours164 (76.6%), cervical intra-epithelial neoplasia (CIN) 10 (4.7%), chronic cervicitis 9 (4.2%) and others 7(3.3%) including nabothian cysts, leiomyoma and a case of tuberculosis. (**Table 3**)

The malignant tumours comprised predominantly squamous cell carcinoma 153(71.5%) with the large cell keratinizing histologic subtype accounting for 144 (99.1%), cervical adenocarcinoma 5(2.3%), adenosquamous carcinoma 4 (1.9%), leiomyosarcoma 1(0.5%) and malignant lymphoma 1(0.5%). (**Table 3**)

Table 2. Duration and Spectrum of clinical indication for biopsy

Duration (months)	Vaginal Bleeding	Vaginal discharge	Vaginal mass	Abdominal/ pelvicPain	Abnormal smears	Ectropion
<3	10	2	0	4	0	0
3-6	34	20	5	3	1	0
7-12	56	34	11	4	6	2
13-24	28	10	16	15	0	0
25-36	6	4	4	1	0	0
Total	**134**	**70**	**36**	**27**	**7**	**2**

Table 3. Spectum of histologic diagnosis

Diagnosis	Frequency(%)
Malignant:-	
Squamous cell carcinoma	153(80.5)
Adenocarcinoma	5(2.6)
Adenosquamous carcinoma	4(2.1)
Leiomyosarcoma	1(0.5)
Malignant lymphoma	1(0.5)
Dysplasia	10(5.3)
Chronic cervicitis	9(4.7)
Others:-	
Nabothian cyst	2(1.1)
Tuberculosis	1(0.5)
Leiomyoma	2(1.1)
Cervical polyp	2(1.1)
Total	**190**

*24 (11.2%) biopsies were inadequate for histological opinion.

DISCUSSION

Cervical cancer evolves slowly over several years, thus is a model tumour for early diagnosis, prevention and treatment.[1,4] It is the commonest malignancy among women in Zaria and accounted for 15.5% of all malignancies seen in the department within the study period. Cancer of the cervix uteri is the most frequent neoplasm among women in many countries.[5,6] The estimated number of patients diagnosed with and who died from cervical cancer in 2000 were 470,606 and 233,372 respectively.[7] While the incidence is between 1.5 to 14.9/100,000 women aged 20-49years.[8] Over 400,000 new cases are diagnosed annually with a mortality of 230,000 from developing countries. The incidence in the United States has decreased in the last decade as a result of widespread cytologic screening programs.[9]

Cytologic screening programs are often unavailable in most developing countries and where available are grossly underutilized due to lack of widespread awareness, financial constraints and few trained personnel.[10,11] It is however, noteworthy that of the 10 cases of cervical intra-epithelial neoplasia seen, 7 had a prior cytologic smear which prompted the punch procedure. However, a punch biopsy may miss microinvasive carcinoma in the presence of atypical cytology.

The Cervical punch biopsy is the best and less traumatic method for obtaining cervical tissue for histopathological evaluation. It is an invaluable procedure in the confirmation of the presence or absence of a suspicious lesion seen grossly or with colposcopy. Unfortunately, colposcopy, which is the only validated method for detecting suspicious lesions is not readily available and there is a lack of adequate number of trained personnel in its application in our setting. The cervical punch is unaffected by the limitations of cytology, which may be unsatisfactory in the

presence of malignancy associated with extensive infection and necrosis, or the absence of the squamo-columnar junction where a false negative result is obtained.[3] The cervical punch procedure can be applied to gross lesions such as polyps, nabothian cysts and large cervical masses as in this study or to microscopic lesions detected by cervical smear cytology. It would have been desirable to compare punch biopsy adequacy with procedures like cold knife incision and LEETZ method, but we do not have the facility for these presently.

Over half of the patients in our study presented with advanced disease, thus increasing the morbidity and mortality rate of an otherwise curable disease. This finding is supported by a similar study.[10] The mean age of occurrence in this study is comparable to reports from other parts of the world.[1,12,13] Vaginal bleeding, post-coital and inter-menstrual inclusive and offensive vaginal discharge were the commonest presentation. These presentations are comparable to related studies on cervical cancer.[1,3,14]

Of the 214 biopsies, a histopathological diagnosis was made in 190 (88.8%). Out of these 190 cases, a malignant diagnosis was made in 164 (86.2%). This high percentage confirms the adequacy of this procedure in the confirmation of tumour presence. In the malignant series, squamous cell carcinoma (SCC) was the commonest histologic variant (80.5%). Reports from other parts of Nigeria and documented literature support this finding.[1,15] CINs and non neoplastic lesions accounted for 5.3% and 8.4% respectively. Punch biopsy is also adequate in the diagnosis of pre-malignant as well as the non-neoplastic cervical lesions.

Only 24 (11.2%) biopsies were considered inadequate for histological diagnosis. Reasons for inadequacy ranged from non representative biopsy, obscuring haemorrhage to extensively necrotic biopsies. Other factors that may affect adequacy of these biopsies are fixatives other than 10% formalin used in the tissue preservation, transportation of tissue to the laboratory and even the processing in the laboratory.

CONCLUSION: Cervical punch biopsy technique is an adequate procedure in the diagnosis of cervical cancer. Squamous cell carcinoma was the commonest histologic variant. Late presentation is a frequent occurrence in our setting.

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