

Ethiopian Journal of Reproductive Health

December 2010, Volume 4, Number 1

ORGAN OF THE ETHIOPIAN SOCIETY OF OBSTETRICIANS AND GYNECOLOGISTS

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ORIGINAL ARTICLE

A five year analysis of histopathological results of cervical biopsies examined in a pathology department of a teaching hospital (2003-2007)Balkachew Nigatu¹, Yirgu Gebrehiwot², Kassahun Kiros³ and Wondwossen Eregete⁴*Abstract*

Background: Cervical biopsies are widely used for the diagnosis of various lesions of the cervix. Early diagnosis and treatment of benign and malignant cervical lesions are in turn associated with increased chance of long term survival.

Objectives: The aim of the study was to elucidate the pattern of cervical pathologies encountered at the Department of Pathology, Addis Ababa University.

Methods: Retrospective review of biopsy request forms and reports examined at the Department of Pathology in Tikur Anbessa Specialized Teaching Hospital from 2003- 2007

Results: The most common biopsy finding was cervical neoplasia (n=2312, 64%). Ninety four percent (n=2182) of the cancers were squamous cervical cancer (SCC), while the remaining were adenocarcinoma (n=104, 4%) and adenosquamous (n=26, 1.1%) carcinoma. Cervical intraepithelial neoplasia (CIN) was found in 8.6% (n=354) of the biopsies. The mean age of cervical cancers at diagnosis was 48 years. Chronic cervicitis was the commonest benign lesion (n=698, 16.8%).

Conclusion: The majority of the diagnoses of cervical cancer were made late at the invasive stage of the disease process. Screening programs focused on early detection and treatments are recommended.

Ethiopian Journal of Reproductive Health , 2010,4(1): 52–57

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Introduction

The cervix is both a sentinel for potentially serious upper genital tract infections and a target for viral and other carcinogens which may lead to invasive cancer. Infection constitutes one of the most common clinical complaints in gynecologic practice and frequently vexes both patient and clinician. The potential threat of cancer, however, is central to cervical cancer screening programs and histologic interpretation of biopsy specimens by the pathologist. The relative ease of cervical examination allows observation of physiologic changes that occur in response to normal cyclic variations in ovarian hormone secretion, as well as a variety of structural abnormalities and pathologic conditions.

Cervical pathologies which can be diagnosed histopathologically include preinvasive and invasive cervical cancer, polyps, cervicitis, dysplasia, adenosis, leiomyoma, endometriosis and secondaries.

Cervical polyps commonly occur during the reproductive years, especially after age 40 years. The etiology is unknown. Chronic inflammation of the cervical canal may play a role, as may hormonal factors, since endometrial hyperplasia and polyps coexist more frequently than one would expect by chance alone. Histologically, cervical polyps are characterized by vascular connective tissue stroma covered by epithelium, which may be columnar, squamous, or squamocolumnar. Malignant change is rare.

In cervicitis, the inflammation primarily affects the columnar epithelial cells of the endocervical glands, but may also cause visible changes of the ectocervix, whose squamous epithelium is contiguous with that of the vagina.

Cervical intraepithelial neoplasia (CIN) refers to a preinvasive pathological intermediate of cervical cancer that is slow to progress and can be easily detected and treated.

CIN is typically detected in younger women and many years before a diagnosis of invasive cervical carcinoma. The likelihood of progression increases and the time to progression decreases with increasing severity of CIN. As an example, the diagnosis of CIN is usually made in women in their twenties; carcinoma in situ is diagnosed in women 25 to 35 years of age, and invasive cancer after the age of 40, typically eight to 13 years after a diagnosis of CIN III.

Cervical cancer was the most common malignancy in both incidence and mortality among women prior to the 20th century. Today, a dichotomy exists between developing and developed nations; the incidence of cervical cancer in the latter has fallen dramatically [1], while the disease continues to be the second most common cancer in women worldwide [2]. The reduction in the incidence of cervical cancer is one of the major public health achievements in developed nations, largely due to the implementation of population-based screening, detection, and treatment programs for preinvasive disease.

Cervical cancer has different histopathologic types. Squamous cell carcinomas (SCC) account for 75-80% of cervical cancers, adenocarcinoma 15-25%, and adenosquamous carcinomas 3-5% [2]. Adenosquamous tumors exhibit both glandular and squamous differentiation. They may be associated with a poorer outcome than pure SCCs or adenocarcinomas [3]. In addition, neuroendocrine or small cell carcinomas can originate in the cervix in women, but are infrequent. Rhabdomyosarcoma of the cervix is rare; it occurs in adolescents and young women [14, 15].

Adenocarcinomas have been rising in incidence since the 1970s; especially in women younger than 35 years of age [8]. Part of the increase may be attributable to an increasing prevalence of HPV infection and part to improvements in screening and prevention of squamous intraepithelial neoplasia, thus leading to a histologic shift towards adenocarcinoma [14, 15].

In Ethiopia, there are limited studies on the subject. A previous report on biopsies indicated that cervical cancer was the most prevalent malignancy.

The main aim of this study is to elucidate the pattern of pathologic changes that are commonly responsible for cervical pathologies in our community and their association with socio-demographic and clinical factors. It also aims to determine the prevalence of the different cervical pathologies, determine the prevalence of the different histologic types of cervical cancer and assess possible sociodemographic and other factors associated with the histologic types.

Materials and method

This is a retrospective cross sectional study conducted at the Department of Pathology, Tikur Anbessa Specialized Teaching Hospital (TASTH), Addis Ababa University, by reviewing records of cervical biopsies examined from January 1, 2003 – December 31, 2007.

The Department of Pathology is one of the departments in TASTH and examines biopsy and cytology specimens from private and public health facilities from within and outside of Addis Ababa.

All records with histopathology diagnosis of cervical pathologies during the study period were identified and their biopsy 'request forms' and 'histology reports' were reviewed. All cervical punch biopsies were included in the study. Patient's age, duration of the complaint, presenting symptom, clinical diagnosis, number of punch biopsy specimens per patient, histological findings and year of diagnosis were reviewed. Prevalence of cervical pathologies was made based on histological findings.

Data was coded cleaned and entered to SPSS 15.0 statistical package. Mean, proportion and kappa correlation were used as appropriate.

Ethical clearance was obtained from the Department's Research and Publication Committee.

No information that might identify patient, treating physician and pathologist were collected.

Results

During the five years of the study (January 1, 2003 – December 31, 2007), 40,872 biopsies were examined at the Department. Four thousand one hundred and fifty five (10.2%) biopsies were cervical punch biopsies. The punch biopsies were mainly (n=3,380, 81.6%) from the three teaching hospitals in Addis Ababa (TASTH, Gandhi and St. Paul's hospitals). Cervical biopsies from within and outside of Addis Ababa accounted for the remaining 18.4% of the biopsies.

The commonest presenting complaint was vaginal bleeding (n=2,978, 75%) followed by vaginal discharge (n=539, 13.6%). Pain (n=294, 7.4%), abnormal PAP (n=39, 1%), and other symptoms (n=111, 2.8%) were the remaining presenting complaints for the women who had punch biopsies. The other symptoms included abdominal distension, protruding mass per vagina, pelvic heaviness.

The mean age of patients with punch biopsies was 44.9 ranging from 13 to 92 years. 46.5% (n=1685) of the patients presented in ≤ 6 months of onset of their symptoms, while 12.5% (n=452) of them had 2 years of illness.

The commonest indication for the punch biopsies was the clinical suspicion of cervical cancer (n=3,693, 91.4%). Cervical polyp (n=148, 3.6%) and chronic cervicitis (n=77, 2%) were the remaining less common indications.

The average punches (specimens) taken per patients was 3.7 and ranged from 1 to 8. 67.8% of the patients had a 4 quadrant punch biopsy. The majority of the single punches (75%) were taken from patients with invasive cervical cancer and polyps.

On the other hand, four quadrant punch biopsies were taken in 65% of patient who had clinical appearance of normal cervix.

Invasive cervical malignancy was the most common histological finding (n=2318, 55.7%) while cervical intraepithelial neoplasia (CIN) accounted for 8.6% (n=358) of the cervical biopsies. Benign cervical lesions and normal findings were found in 29.4% (n=1224) and 6.1% (n=255) of the biopsies, respectively. The benign lesions included chronic cervicitis (n=698, 16.8%), cervical polyp (n=272, 6.5%), and other lesions such as cervical tuberculosis, condyloma, nabothian cyst, metaplasia and koilocytosis (n=254, 6.1%). About 94% (n=2179) of the cervical malignancies were squamous cell carcinoma. There were 6 cases (0.1%) with embryonal rhabdomyosarcomas (Table 1).

Table 1: Proportions and mean age of patients with cervical cancer, Department of Pathology, Addis Ababa University, 2003-2008

| Histologic type | No (%) | N0 (Mean age) |
|-----------------------------|-------------|---------------|
| Squamous cell carcinoma | 2182 (52.6) | 2179 (48.3) |
| Adenocarcinoma | 104 (02.5) | 104 (48.4) |
| Adenosquamous carcinoma | 26 (00.6) | 26 (47.4) |
| Chronic cervicitis | 698 (16.8) | 694 (40.3) |
| Cervical polyp | 272 (06.5) | 272 (39.8) |
| Normal cervix | 255 (06.1) | 254 (41.4) |
| CIN | 358 (08.6) | 354 (42.4) |
| Other cervical malignancies | 6 (00.1) | 6 (26.0) |
| Others | 254 (06.1) | 251 (39.8) |
| Total | 4155 (100) | 4140 (44.9) |

The mean age of the patients with squamous cell carcinoma was 48.3 while those with adenocarcinoma and adenosquamous carcinoma had 48.4 and 47.5 years of age, respectively. The mean age of patients with benign lesions was generally less than 41 while patients with cervical malignancies had greater than 47 years of age. The mean age of patients with CIN (41.4 years) was slightly higher than the age of patients with benign lesions but five years less than the mean age of patients with malignant lesions (Table 1).

The prevalence of cervical had an increasing pattern with increasing age. The prevalence increased from 26.8% at of 20-3 to 81.8% at age of 60 years and above.

Vaginal bleeding was more common (81.8%) among women with cervical cancer than vaginal discharge (13.2%). (Table 2)

Table 2: Proportion of cervical cancer by age and presenting symptoms Department of Pathology, Addis Ababa University, 2003-2008

| Variables | Cervical cancer |
|---------------------|-----------------|
| Age groups in years | % |
| 19 or less | 30 |
| 20 to 29 | 26.8 |
| 30 to 39 | 42.2 |
| 40 to 49 | 52.4 |
| 50 to 59 | 71 |
| 60 or more | 81.8 |
| Symptoms | N (%) |
| Vaginal bleeding | 2027 (81.6%) |
| Vaginal discharge | 339 (13.1%) |

Clinical diagnosis and histologic diagnosis of cervical cancer had rater agreement of 76%, agreement by chance of 67% and kappa of 28%.

Discussion

The cervix is the single most commonly biopsied structure because it is both a site for potentially serious upper genital tract infections and viral and other carcinogens. At the same time, the cervix is easily accessible for examination and biopsy. In this study, cervical punch biopsies accounted for 10.2% of all the biopsies submitted to the Department. More than 80% of the biopsies were from the three teaching hospitals as these hospitals were referral and teaching hospitals.

As expected, the number of punch biopsies among patients with invasive cervical lesions was less than those with benign lesions. The number of punch biopsies was higher among patients with benign lesions or no obvious clinical diagnosis because colposcopy directed or alternative tests were rarely available to direct sampling at potential lesions.

The mean age of cervical cancer in this study was 48 years which is similar to the 47 years in the USA [1, 5, 16]. Recent studies indicate that the proportion of adenocarcinoma has increased from 5% to 15-24% of the invasive cervical cancers [4, 14, 15]. The proportion of adenocarcinoma in this study was not high accounting for about 4% of the invasive cervical cancers. The differences partly can be attributable to the lack of effective cervical cancer screening programs in our country.

The mean age of CIN stands at 41.4 yrs in our study which is higher than the western figure of the third decade. This is highly likely to be due to lack of screening and detection at asymptomatic stage. Most of our patients come with clinical symptoms.

It is known that adenosquamous cancers are associated with poorer prognoses than pure squamous or adenocarcinomas. Its proportion was lower (1.1%) in this study than other studies (3-5% of cervical cancers at 35 years) [7, 8, 14, 15].

The low proportion (1%) of punch biopsy requests following abnormal Pap smear was due to the lack of organized and widely available screening program in the country. The high proportion of invasive carcinoma and late presentation of patients indicates the need to investigate the delay factors and implement early diagnosis and cost effective treatment programs. Initiation of effective cervical screening programs is mandatory to preventable mortalities and morbidities associated with the cervical cancer.

Acknowledgements

We would like to acknowledge Dr. Mihrete W/Tinsae and the administrative staff at the department of pathology for giving us ideas and making the data collection easier and enjoyable.

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