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Research Article

Incidence and Cytological Examination of Cervical Cancer in Women that Attended Oncology Clinics in Alex Ekwueme Federal University Teaching Hospital Abakaliki (Ae- Futha), Ebonyi State, Nigeria

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Abstract

Cervical cancer is a cancer arising from the cervix due to the abnormal growth of cells that can spread to other parts of the body. This study focuses on the incidence and cytological examination of cervical cancer in women that attended oncology clinic in Alex Ekwueme Federal University Teaching Hospital, Abakaliki (AE-FUTHA) from 2016 to 2021. The cervical tissue blocks obtained from the Histopathology Department of AE-FUTHA were sectioned and stained with Giemsa stain and Papanicolaou stain and viewed under the microscope for cytological examination. From the microscopic study result, sample 1 showed no abnormal features, sample 2 revealed the presence of pseudohyphae, sample 3 contained red blood cells and few polyorphs, sample 4 had unclear perinuclei details and sample 5 showed no malignant features. Also, secondary data which were used to study the incidence of cervical cancer were collected from the record folders of the Histopathology unit of AE-FUTHA. Results of this study showed that the age range that had the highest number of occurrence was from 61 to 70 years (5 [26.2%]), followed by age groups 20-30 years, 41-50 years and 51-60 years (21.1% each). Andin terms of prevalence over the years (2016-2021), 15.8% of the cases occurred in 2016, 10.52%in 2017, 2018 and 2021 and 26.32% in 2019 and 2020; AE-FUTHA. In conclusion, the result of this study showed that there is a higher rate of occurrence in the older female population (61-70 years) followed by age groups 20-30 years, 41-50 years and 51-60 years and also a reduction in the incidence of cervical cancer was seen in 2021 in AE-FUTHA.

Keywords: Cytology; Cervical Cancer; Disease Incidence

Introduction

The female reproductive system is one of the most vital parts of human reproductive process; it consists of the lower genital tract which includes the vulva and the vagina; and the upper tract which is made up of the ovaries, uterine tube, the uterus including the cervix [7]. The cervix is the terminal end of the uterus that protrudes into the vagina [2]. It functions in transporting sperm into the uterine cavity, it allows the escape of blood from the uterus during menstruation, it supplies a thick mucus to the female reproductive tract during pregnancy, it also serve as a birth canal during parturition [1].

There are many clinical conditions that can affect the cervix, ranging from mild inflammation to cervical cancer [3]. Cervical cancer is a cancer arising from the cervix [6]. It is due to the abnormal growth of cells that have the ability to invade or spread to other parts of the body [5]. Human papillomavirus (HPV) is the most important risk factor for cervical cancer; in fact, it accounts for 90% of cervical cancer cases (Kumar., *et al*. 2017). According to NCI (2014) [6], other risk factors include smoking cigarettes, using oral contraceptives for a long time, having a weakened immune system causedby immunosuppression, being sexually active at a young age, having many sexual partners. NCI (2014) [6] also noted that the chance of getting the cervical cancer also increases with increase

in age. It can be treated through surgery, chemotherapy, radiation therapy, targeted therapy and so on. However, cervical cancer also has a lot of preventive measures which includes screening, sexual abstinence, HPV vaccination, reducing the use of oral contraceptive, and of course pelvic and cytological examination [5].

This review focuses on the cytological examination of cervical cancer and its incidence in AE- FUTHA, Ebonyi State.

Materials and Methods

The samples (tissue blocks) for the experiment were collected based on its availability at the oncology unit. The tissue blocks were sorted by the use of laboratory numbers from laboratory register. The tissue blocks were placed on the ice block to soften the tissue. Two (2) sections were made from each tissue blocks using microtome and placed on 20% alcohol before floating the tissue sections on hot water bath. The tissue was picked up using glass slides smeared with egg albumin to hold the tissue section firm. The tissue sections were stained with giemsa stain and papanicolaou stain respectively and then viewed under the microscope. Also, secondary data which were used to study the incidence of cervical cancer were collected from the records of the Histopathology unit of AE-FUTHA.

Ethical consideration

This study was approved by the research coordinators and Head of Anatomy Department, Ebonyi State University, Abakaliki. Permission for this study was also obtained from the Research and Ethical Committee (REC) of AE-FUTHA and an ethical approval letter with Ethical code number: AE-FUTHA/REC/VOL 3/2022/039; was received.

Figure a

Results

These results contain the photomicrographs of the cervical samples and bar charts showing the incidence of cervical cancer in relation to age range and years.

Figure 1: A cervical smear collected from asymptomatic normal female age 26, stained with pap stain; was adequate for evaluation. The cells are predominantly superficial cells with pynotic nuclei and few intermediate cells; there is no abnormal cells noted. The smear is negative for malignancy.

Figure 2: This is a pap smear stained with pap stain and is adequate smear for evaluation; the cells are predominantly intermediate cells, and few normal superficial cells with pyknotic nuclei. Most significantly revealed in the smear is the fungus with pseudohyphae.

Figure 3: This is a pap smear stained with pap stain, the smear is adequate for evaluation, and it shows conspicuous amount of superficial cells, inflammatory background with red blood cells and few polymorphs. This is consistence with inflammatory lesion.

Figure 4: A cervical smear stained with Giemsa stain which shows relatively poor nuclei details of the superficial cells and unclear perinuclei details.

Figure 5: This is a pap smear from asymptomatic female 21; stained with pap stain; the smear shown is adequate for evaluation; the cells are predominantly superficial, both the cytoplasm and nuclei appeared normal, with excellent nuclei details, no malignant features seen.

Figure 6: This shows the age range of patients that had a positive result for cervical cancer from 2016 to 2021.

Figure 7: This shows the number of patients that had a positive result for cervical cancer from year 2016 to year 2021.

Discussion

The results obtained on the incidence of cervical cancer in AE-FUTHA showed that (21.1%) cervical cancer cases occurred at the age range of 20-30 years. At the age range of 31-40 years, cervical cancer occurred in (10.5%) women while at the age range of 41-50 years, it occurred in (21.1%) women. Between the ages of 51 to 60 years, (21.1%) women had cervical cancer. The age range that had the highest number of occurrence was from 61 to 70 years (26.2%). This wasfollowed by age groups 20-30 years, 41-50 years and 51-60 years. This result is in agreement with Hillemanns., *et al*. (2016), who highlighted that one of the major risk factors of cervical cancer is the attainment of menopause in some women and thus might be the reason we havea higher rate of occurrence of cervical cancer in older women.

And in terms of occurrences over the years (2016-2021) from the bar chart (Figure 7), 15.8% of the cases occurred in 2016, 10.52% in 2017, 2018 and 2021 and 26.32% in 2019 and 2020; in Ebonyi State (AE-FUTHA). This means that cervical cancer cases in AE-FUTHA were predominant in 2019 and 2020 before decreasing in 2021. Meanwhile, according to World Health Organization [WHO] (2020), worldwide, cervical cancer is the fourth most frequent cancer in women with an estimated 570,000 new cases as at 2018 representing 7.5% of all female cancer deaths.

From the microscopic\cytological study result, sample 1 showed no abnormal features, sample 2 revealed the presence

of pseudohyphae, sample 3 contained red blood cells and few polyorphs, sample 4 had unclear perinuclei details and sample 5 showed no malignant features.

Conclusion

In conclusion, the result of this study showed that there is a higher rate of occurrence in the older female population (61-70 years) followed by age groups 20-30 years, 41-50 years and 51- 60 years. The findings in this research also showed that there was a reduction in the incidence and mortality due to invasive cervical cancer as at 2021 in AE-FUTHA probably because of early detection and screening through pap test.

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