

## Analysis of Gynecological malignancy in surgical specimens during Covid-19 pandemic

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Received: October 13, 2020

Accepted: November 1, 2020

### ABSTRACT

**Aims:** To determine the pattern of female genital tract malignancies in a teaching hospital in eastern Nepal.

**Methods:** This is a retrospective cross sectional study performed in the Department of Pathology at Nobel Medical College, Biratnagar, Nepal. This study was conducted over a period of 4 months during Covid-19 pandemic from June 2020 to September 2020. The records of the pathology department were analyzed.

**Results:** A total of 600 specimens were received in the Pathology Department out of which 224 (37.3%) were gynecology samples. Total number of gynecology malignancy was 14 (2.3%). The most common was cervical carcinoma (57%) followed by ovarian malignancy. More than 70% fell in 40-60 years age group.

**Conclusions:** In conclusion, in this cross sectional study we found more cervical cancer than other gynaecological malignancies which was followed by cancers of ovary. Most of the patients were in the 41-50 years age group. Tumor imprint cytology could be an option in place of frozen section in resource constraint setting. Effective screening test for cervical cancer would help prevent invasive cervical cancer and its morbidity.

**Keywords:** gynecological malignancy, high grade neoplasia, squamous cell carcinoma

**Citation:** Baral R, Shrestha O, Nepal N, Choudhary PK, Baral G. Analysis of Gynecological malignancy in surgical specimens during Covid-19 pandemic. Nep J Obstet Gynecol. 2020;15(31):19–22. doi: <https://doi.org/10.3126/njog.v15i2.32897>

### INTRODUCTION

The most common gynecological malignancies affecting women worldwide are the ovarian and cervical carcinomas followed by endometrial, vulval, fallopian tubes and other gestational tumors.<sup>1</sup> Over the years in Nepal the diagnosis of gynecological malignancies are increasing, the reason may be due to accessibility to health care and diagnostic facilities, screening tests and surgical intervention. However, due to lack of efficient documentation system policy to implement preventive and curative measures are difficult which is one of the reasons for the increased morbidity and mortality of women due to gynecologic malignancies.

Cervical cancer is the second most common cancer in women living in less developed regions with

an estimated 570, 000 new cases in 2018 (84% of the new cases worldwide). In the same year approximately 311, 000 women died from cervical cancer; more than 85% of these deaths occurring in low- and middle-income countries.<sup>2,3</sup>

The ovarian carcinoma is another common leading cause of death amongst the gynecologic malignancy. Patients usually present late due to vague symptoms, intra-abdominal location and lack of screening modalities.<sup>4</sup>

The aim of this study is to determine the pattern of female genital tract malignancies in the eastern region of Nepal during Covid-19 pandemic and to compare it with other national and international studies.

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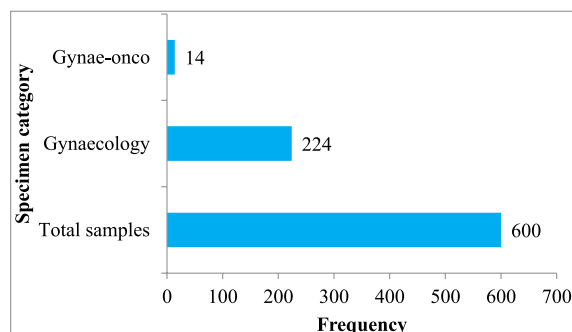
## METHODS

This is a retrospective cross sectional study performed in the Department of Pathology at Nobel Medical College, Biratnagar, Nepal. This study was conducted over a period of 4 months during Covid-19 pandemic from June 2020 to September 2020. The surgical specimens that were submitted to the Pathology lab were included in the study, irrespective of the surgical modality undertaken. Thus small biopsies, radical hysterectomy as well as total abdominal hysterectomy with unilateral or bilateral salpingo-oophorectomy were included in the study.

The specimens were fixed in 10% formalin. Gross examination was done and sections were taken from representing areas. The tissues were processed and stained with Hematoxylin and Eosin stain as per standard protocol. Intraoperative tumor imprint cytology (cytology slide sent by surgeon for suspected malignancy in absence of frozen section facility) examined with Pap and Giemsa stain and reported to operating surgeon within half an hour. The slides were examined by Pathologists. Histologic classification was done according to World Health Organization (WHO) guidelines. The variables were entered in a database and data were analyzed in SPSS version 20.0.

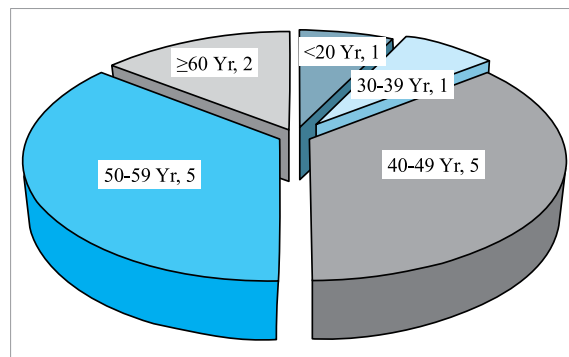
## RESULTS

During the study period a total of 600 specimens were received in the Pathology Department out of which 224 (37.3%) were gynecology samples. Total number of gynecology malignancy was 14 (2.3% of all samples received in the lab). Cervical carcinoma was seen in 8 Cases, Ovarian tumor was seen in 5 cases, carcinoma in situ was seen in 1 case. The vulval, vaginal, endometrial and fallopian tube tumors were not seen during the study period. [Figure-1]



**Figure-1: Biopsy specimens received for histopathology examination**

Majority (>70%) of malignancy occurred in the age group of 40-60 years. Most common age group for cervical carcinoma was above 50 years with a mean age of 51 years. Two cases of radical hysterectomy were present while others were small diagnostic biopsies. All cases except one were reported as Invasive squamous cell carcinoma, non-keratinizing type. One case of a 71 year old lady was High grade neuroendocrine tumor, small cell type. High grade squamous intraepithelial lesion (CIN2/3) was seen in a 32 year old lady. [Figure-2]



**Figure-2: Age group distribution of gynecological cancer [N=14]**

The average age of patients with ovarian carcinoma is 53 years. Two cases were of bilateral ovary. High grade serous carcinoma was seen in 3 cases. Endometrioid ovarian carcinoma and Sex cord stromal tumor (Adult granulosa cell tumor) were also seen. One case of choriocarcinoma was seen in a young patient aged 14 years. She had history of abortion with a diagnosis of hydatidiform mole about a year ago.

Intraoperative imprint cytology was done in all cases of ovarian malignancy. All except one case of imprint cytology matched the final histopathology diagnosis. This helped the gynecologist to plan the surgery accordingly.

## DISCUSSION

The burden of gynaecological cancers in developing countries appears huge. In these countries, gynaecological cancers account for 25% of all new cancers diagnosed among women aged up to 65 years compared to 16% in the developed world.<sup>5</sup> Total number of gyne oncology cases during the study period was 14 (6.3% of all gynecology specimen). This maybe the reason for the gyne onco surgery

service provided to the patients. This is in sharp contrast to a study done in a referral hospital in Kathmandu where the number of gynae-onco cases was only 0.66% where gynae-onco surgery is not done. Similar to our study in centers which provide gynae-onco services the malignant cases form major part of biopsy specimen.<sup>6,7</sup>

Current estimates indicate that every year 2942 women are diagnosed with cervical cancer and 1928 die from the disease while the tool for prevention the Pap smear test was seen to be done according to protocol only in 2.8% of all women aged between 25-64 years.<sup>8</sup> Cervix was the commonest site of affliction among gynecologic malignancies in our center comprising of 57% (n=8). This is similar to many studies done in Nepal as well as in other countries.<sup>6,7,9</sup> However results of many studies have shown that ovarian tumor is more common than cervical tumor.<sup>10-12</sup> Cervical, vaginal and vulvar cancers have premalignant stages before the development of invasive cancer and link with high risk human papilloma virus infection. Chronic infection with this virus is now known to induce premalignant changes in epithelial cells ultimately leading to cancer after several years. For cervical cancer, the relationship to HPV and the presence of a recognizable premalignant stage of the disease called cervical intraepithelial neoplasia (CIN) provide multiple planks for preventive efforts.<sup>13</sup> Out of all cervical tumor most commonly seen was invasive squamous cell carcinoma, non-keratinizing type. This is similar to results done by Malla VK et al and Dhakal HP where squamous cell carcinoma was seen in 91.5% and 94% respectively.<sup>6,7</sup> Non keratinizing type is the most common type seen in other studies done in Nepal.<sup>6,14</sup> Cervical tumor was seen in patients in their 50's. This is similar to findings in other studies.<sup>7,9,15</sup> A rare high grade neuroendocrine tumor was seen in a 70 year old female. Other studies have also shown

that this is a rare tumor with poor prognosis.<sup>16,17</sup>

The incidence of ovarian cancers ranks below only carcinoma of cervix and endometrium among the cancers of the female genital tract. It accounts for 3% of all cancers in female.<sup>18</sup> The second common tumor in our study was ovarian carcinomas 2.3% (n=5) which is similar to the findings in a study done by Kayastha S. where malignant ovarian tumor was seen in 9.5%.<sup>19</sup> High grade serous tumor carcinoma was seen in 1.3% of all gynecology cases. Other rarer tumors were one case each of sex cord stromal tumor, ovarian endometrioid carcinoma. Sixty percent cases were bilateral which is similar to a study done in a cancer hospital, Nepal where they found 62.3% cases to be bilateral. So, bilateral ovarian tumors might be malignant whereas unilateral ovarian tumor might be benign unless proved otherwise. The age group affected the most was seen to be above 45 years of age. This is similar to the study done in South Asia.<sup>1,4,19-21</sup>

We did not come across any endometrial tumors in this study. The reason being the duration of the study is short and the hospital service was limited by the Covid-19 prevention rule.

## CONCLUSIONS

Cervical cancer was commonly found than other gynaecological malignancies which were followed by cancers of ovary. Most of the patients were in the 41-50 years age group. Squamous cell carcinoma was the most frequent malignant tumor of the cervix. Adenocarcinoma was the most common malignancy in ovary. Tumor imprint cytology could guide operating surgeons for the extent of oncosurgery even in absence of frozen section facility. More than one-third of histopathology samples were from gynaecological specimens in the multi-specialty teaching hospital even during Covid-19 pandemic.

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