

Retrospective study of enormity of cancer in a tertiary care centre in Punjab, India**Mandeep Randhawa¹, Jiteshwar Singh Pannu², Inderpal Kaur³, Jasmeet Singh⁴, Inderpal Singh Grover^{3*}**¹Department of Pathology, Government Medical College Amritsar, India²Intern, Kasturba Medical College, Manipal, India³Department of Pharmacology, Government Medical College Amritsar, Amritsar, Punjab, India⁴Department of Surgery, Government Medical College Amritsar, Amritsar, Punjab, India**Received:** 11 May 2019**Accepted:** 05 June 2019***Correspondence to:**Dr. Inderpal Singh Grover,
Email: inderpalpharma@gmail.com**Copyright:** © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.**ABSTRACT****Background:** Cancer is uncontrolled growth of cells with potential of local invasion and distant metastasis. The risk of developing cancer is affected by important demographic and geographic factors in addition to specific risk factors associated with individual cancers. Cancer is uncontrolled growth of cells with potential of local invasion and distant metastasis. The risk of developing cancer is affected by important demographic and geographic factors in addition to specific risk factors associated with individual cancers.**Methods:** This was a retrospective and an observational study comprising of 142 histopathologically diagnosed cases of cancer. Study was carried out in the department of Pathology using retrospective data of the year 2017 from January till December. Hematological malignancies were not included.**Results:** At the end of study highest incidence of GIT and oral cancer was observed in 35.2% samples followed by cancer breast 28.1% and uterus and adnexa in 15.4%. In 6% and 4.2% of biopsies cancer of skin and soft tissues and prostate was verified respectively. Very few cases of thyroid, renal, lymphnode and bladder cancers were observed in the present study.**Conclusions:** Awareness and screening programs regarding risk factors of cancer and its early diagnosis along with stringent action by the Government to restrict the use of pesticides is the need of the hour to control cancer in Punjab.**Keywords:** Breast, Cancer, Oral cavity, Punjab**INTRODUCTION**

Cancer has a major impact on society in India and across the world. According to ICMR, the incidence of cancer in India in 2016 is over 14 lacs and is expected to increase.

Overall, the cancer prevalence is estimated to be 83/1,00,000 population.¹ All cancers contributed 5.0% of the total DALY's (Disability Adjusted Life Years) and 8.3% of the total deaths in India in 2016 with increase of 90.9% and 112% respectively from 1990. The variable

cancer pattern in different regions of India is dependent on environmental, genetic, dietary, social and other risk factors.² The high incidence of cancer in state of Punjab is attributed to overuse of alcohol, tobacco, pesticides, radiation and toxic industrial waste.³ The present study has been undertaken to present a comprehensive picture of types of cancers in different genders and age groups reported in tertiary care centre.

METHODS

The present study was conducted to find out incidence and magnitude of cancer amongst the people in North India. This was a retrospective and an observational study comprising of 142 microscopically diagnosed cancer patients whose biopsies were received by the department of Pathology. This retrospective data is of the year 2017 from January till December during which biopsies sent from various surgical branches of a tertiary care centre in Punjab for histopathology were included in the study.

After the removal, the biopsy specimens were put in a container with a mixture of water and formaldehyde (formalin) to preserve it. The containers were labelled with the patient’s name, their identifying information and the exact site of biopsy. After this the gross examination including the tissue sample’s size, color, consistency, and other characteristics were noted which helped pathologist to identify the crucial parts of a large biopsy to be looked at under a microscope.

The tissue was then put into small containers called cassettes. After processing the tissue samples were put into a mold with hot paraffin wax to form a solid block. These paraffin wax blocks with the embedded tissue were cut into very thin slices which were placed on glass slides and then stained before microscopic examination.

Hematological malignancies were in the exclusion criteria. Detailed history of each patient which included the demographic profile and type of cancer was noted. Record was tabulated and analysed statistically.

Aim and objectives

- To study the incidence of cancer in patients attending outpatient department/ward of different surgical departments of a tertiary care hospital.
- To study the incidence of different types of cancers in different genders and age groups.

RESULTS

Biopsies of 52 male and 90 female patients were received in the Department of Pathology of a tertiary care hospital. Maximum number of patients was between the age group of 30-60 years and there were 32 males and 61 females in this age group. Only 8 patients in age group 0-30 years and 36 patients in age group of 60 and above reported with cancer (Table 1).

Table 1: Age wise distribution of cancer amongst males and females.

Age range	Females	Males	Total
0-30	5	3	8
30-60	61	32	92
60 and above	24	17	42
Total	90	52	142

Different tissues received for histopathological examination included breast, urogenital tissues, GIT, thyroid, CNS and skin and soft tissue. Maximum number of tissues were from GIT in males and breast in females. The detail has been summarized in Table 2.

Table 2: Gender wise distribution of cancer affected tissues.

Tissue type	Female patients	Male patients	Total
Breast	40	0	40
Uterus and Adenexa	22	0	22
GIT and Oral cavity	19	31	50
CNS	1	1	2
Skin and soft tissue	4	5	9
Thyroid	1	0	1
Kidney	2	1	3
Lymph Nodes	1	3	4
Bladder	0	1	1
Prostate	0	6	6
Bone	0	4	4
Total	90	52	142

All the 40 samples of breast tissue were of females. Histopathological examination revealed that amongst 40 breast cancer females 31 had infiltrating duct carcinoma (IDC), 3 had lobular, 4 were of spindle cell carcinoma and one each of anaplastic and squamous cell carcinoma (SCC). These results have graphically been represented in Figure 1.

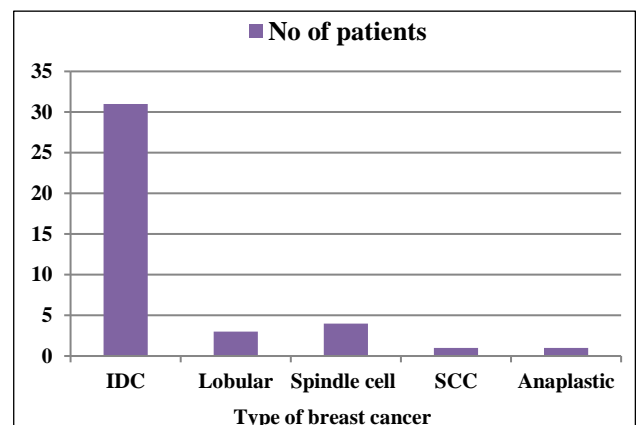


Figure 1: Histopathological findings of breast cancer.

There were 22 samples histopathologically verified to be cancer of uterus and adenexa. Carcinoma cervix (86.3%) outnumbered carcinoma endometrium (13.7%). 14 out of 22 cases were between age group of 30-60 years and 8 cases were above 60 years. Squamous cell carcinoma is the most common form of cancer cervix (84.2) followed by adenocarcinoma 15.8%. All cases of carcinoma endometrium were adenocarcinoma. The results have been displayed in Figure 2.

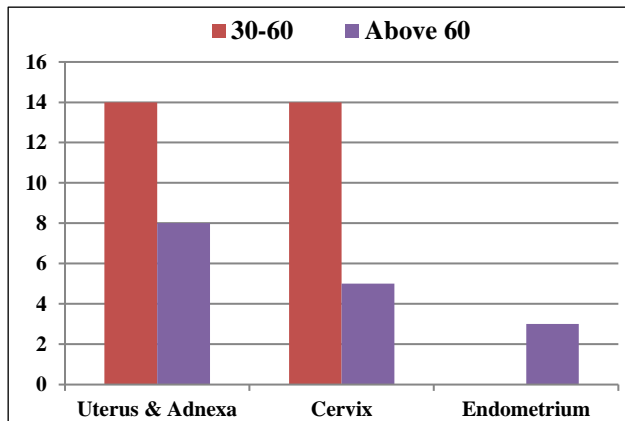


Figure 2: Distribution of Carcinoma uterus and adenexa in two different age groups.

Maximum number of GIT cancer cases (35.2%) were reported in the study period. Out of these most common cancer was seen in the oral cavity (36%) which included carcinoma tongue, buccal mucosa and palate. This was followed by carcinoma colon (18%). Carcinoma gall bladder (14%) with higher incidence in females (71.4%). Cancer larynx and pharynx seen only in males (14%) Details of these results have been shown in the Table 3.

Table: 3 Gender wise distribution of cancer GIT.

Part of GIT involved	Females	Males	Total
Ca tongue/buccal mucosa/palate	6	12	18
Ca Salivary gland	2	0	2
Ca Esophagus	1	1	2
Ca Rectum	1	2	3
Ca Anus	1	0	1
Ca Gall bladder	5	2	7
Ca Liver	0	1	1
pharynx and larynx	0	7	7
Ca Colon	3	6	9
Total	19	31	50

DISCUSSION

Cancer is uncontrolled growth of cells with potential of local invasion and distant metastasis. The risk of developing cancer is affected by important demographic

and geographic factors in addition to specific risk factors associated with individual cancers.

In the present study out of a total of 142 cancer patients (histopathology proven cancer cases) in the Department of Pathology in a tertiary care centre of Punjab in the year 2017, females comprised 90 cases (63.38%) and males 52 cases (36.62%). According to ICMR, it is difficult to explain why more women in India are diagnosed with cancer than men. Breast, cervical, uterine and ovarian cancer account for more than 70% of cancers in women in India.

The age group suffering most from cancer was between 30-60 yrs, that is 92 cases (64.79%). There were only 8 cases (5.6%) in the age group 0-30 yrs and 42 cases (42.78%) in the age group 60 and above. In the middle age group, the exposure to occupational carcinogens and personal risk factors including sedentary life style, alcohol consumption and smoking add to increased risk of cancer.⁴

In the present study the commonest cancer in males was cancer of oral cavity (23.07%) followed by colon (11.56%) and prostate (11.54%). In females, commonest cancer site was breast (44.4%) followed by uterine , cervix and endometrium (24.45%). Similar findings have been seen in a study where breast cancer has been ranked number one amongst Indian females with the rate as high as 25.8 per 1 lakh women.⁵

Cancers in females

Breast cancer is the most common malignancy in females in this study. According to ICMR/NICPR, breast cancer is on rise primarily due to low awareness and late detection. It can be prevented by timely detection, effective treatment and good palliative care. Estrogen being the main hormone associated with breast cancer. Early menarche, late menopause and nulliparity results in prolonged exposure to estrogen.²

Cancer cervix is the second most common cancer in females in this study.⁶ Early marriage, lack of genital hygiene, infection with HPV and multiple partners are some of the contributory factors for high incidence of this cancer. The incidence of carcinoma cervix reduced over years because of government run health programmes which support deliveries in the hospital and not home deliveries by ill trained personnel. However, there is lack of health education to females regarding the screening test for early diagnosis of any inflammatory, premalignant and malignant conditions.⁷

Two cases of renal cell carcinoma were reported in females. Tobacco is the most significant risk factor beside obesity particularly in women, hypertension and unopposed estrogen therapy.

Malignancy of oral cavity which includes tongue, buccal mucosa and palate was the third most common cancer.

This could be attributed to changing pattern of dietary habits which includes smoking, consumption of alcohol, canned foods and decreased intake of fresh fruits and vegetables along with poor oral hygiene.⁸ Cancer gall bladder was reported in 5 cases only. High incidence of obesity in females leading to gall stones causing chronic inflammation which predisposes to carcinoma gall bladder.⁹

Four cases (4.4%) of skin cancers were diagnosed in females. Basal cell carcinoma is the most common invasive skin cancer and squamous cell carcinoma is the second most common tumor arising in the sun exposed sites. Five such cases have been reported in males in our study and all were in the age group of 30-60 years.¹⁰ Two cases (2.2%) of cancer of the kidney were diagnosed. Three cases (3.3%) of metastatic deposits of squamous cell carcinoma in the lymph node were reported in the present study. Carcinomas primarily metastasize to the lymph nodes.¹¹ Only one case of lymphoma and thyroid was reported in females.

Cancers in males

Cancers of the oral cavity is the commonest cancer in males, tongue (23.0%) being the commonest site of cancer. This has been proved in a study of 1151 oral biopsies where tongue was found to be the most common site of malignancy.¹² There was 13.5% of all cancer cases in males presented with cancer larynx. Combined effect of tobacco chewing, cigarette smoking, alcohol consumption and HPV is directly related to cancer of tongue and larynx.¹³

The incidence of carcinoma colon in our study was 11.5% and was seen in the age above 60 yrs. This is due to high intake of poly unsaturated fats in diet and decreased consumption of vegetables, fruits and fiber in diet.¹⁴

Prostate is another common site for cancer in males, mostly in age above 60 years. Six cases of cancer prostate (11.5%) were diagnosed in cases above 60 years. Prostate cancer development and progression is driven by androgens. The suspected risk factor for carcinoma prostate is old age, decreased physical activity and high calorie diet.¹⁵ One case of urinary bladder cancer was reported in males. These cancers are more common in males and male female ratio is 3:1. Cigarette smoking is clearly the most important influence in increasing the incidence of bladder cancer. Four (7.6%) cases of bone cancer were reported above the age of 60 years. Though primary tumors of the bone are rare accounting for only 0.2% of all malignancies but there is a bimodal distribution, one peak in adolescence and one smaller peak above 60 years.¹⁶ One case of metastatic cancer in the liver was reported. Liver is most often involved in metastatic spread of cancers. Common primary sources producing hepatic metastasis are colon, lung, breast and hematological malignancies.

This study included histopathology specimen only and hematological malignancies were not included in this study. There were certain tissues which are not received by the department of Pathology because of non-functioning super specialty units in the study centre. Incidence of lung and brain cancers could not be evaluated in the study because of lack of as mentioned facilities.

CONCLUSION

Deliberated efforts are needed for cancer prevention, particularly for those cancers that are attributable to lifestyle choices. There is an urgent need for improving cancer screening initiatives for early diagnosis and treatment. Genetic and environmental factors play an important role in increasing the risk of colon cancer. Insecticides continue to dominate market in Punjab as agriculture is one of the mainstays of economy. Many cancers can be avoided by eliminating or reducing exposure to known lifestyle and environmental risk factors. Organic Farming should be promoted by the government as it can help in reducing chemical exposure. Awareness among public about physical activities, avoiding obesities, healthy dietary practices, reducing occupational and environmental exposures, reducing alcohol uses, with focus on harmful effects of tobacco and discouraging its use are the need of the hour.

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