



## Original Research Article

## Histopathological spectrum of neoplastic lesions: A two year study

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## ABSTRACT

**Background:** Cancer is the second most common disease after cardiovascular disorders for maximum deaths in the world. The present research was undertaken to study the histopathological spectrum of neoplastic lesions in Rural Tertiary Care Hospital in Maharashtra.

**Materials and Methods:** This retrospective study was carried out in the Department of Pathology at Shri Vasantao Naik Government Medical College (VNGMC) Yavatmal, Maharashtra during October 2016 to November 2018. A detail history, diagnosis, primary site, morphology of neoplastic lesions and histopathological examination of all the specimens were done.

**Results:** Out of 3608 specimens examined, 724 cases had neoplastic lesions of which 499 cases were benign and 225 cases were malignant. The most commonly reported malignant tumors were those of oral cavity (47), breast (44), and gastrointestinal tract (22). Most commonly reported benign tumors in females were female genital tract lesions which constituted 170 cases followed by benign breast lesion (126) while in males, out of 123 cases, lipoma was diagnosed in 30 cases, followed by prostate hyperplasia (28) and other soft tissue tumor (28).

**Conclusions:** In both the gender oral malignancies were commonest, while in males' gastrointestinal tract malignancies and in females' carcinoma of breast were the most frequent malignancies after oral malignancies. Commonest benign lesions in males were lipoma and while in female lesions of genital tract and breast were common.

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## 1. Introduction

Cancer has been a scourge on the human population for many years. With changing lifestyle, improved longevity and better control of infectious diseases, non-communicable diseases like cancer have emerged as major health problems worldwide, more so in developing countries.<sup>1,2</sup> The burden of cancer is growing, and it is one of the leading causes of death worldwide. Every year nearly 10 million people are being diagnosed with cancer out of which about 6 million die per year.<sup>3</sup>

Globally lung, stomach and colorectal cancers are the leading cancers in males, whereas, breast, lungs and stomach cancer constitute top three leading cancers in females.<sup>4</sup> In Indian population, all types of cancers have

been reported. The top five cancers among men are lung, head and neck region (mouth, tongue and larynx), colorectum and oesophagus while among women - breast, cervix, ovary, oral cavity and uterine cancer are most common.<sup>5</sup> There is significant geographical variation in the incidence of cancer in India. Incidence, pattern, histopathological variants of neoplastic lesions are an important aspect for knowing the magnitude and nature of cancer in a particular area.<sup>6</sup> Hence, the present study was undertaken to know the status of various types of cancers in Rural Tertiary Care Hospital at Yavatmal district in the Vidharbha region of the Western State of Maharashtra.

## 2. Materials and Methods

The present retrospective study was carried out at Tertiary Care Hospital for the period of two years from October 2016

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to November 2018. This tertiary level teaching hospital situated in rural area of Yavatmal district of western Maharashtra and the study population was mainly from places around Yavatmal. A proforma was used to collect data such as age, sex and place of residence. Percentages for parameters such as age distribution to gender wise, system wise, organ wise were recorded. A detail history was taken, diagnosis, primary site, morphology of neoplastic lesions and histopathological examination of all the specimens were done during the study period. We have not received specimens of CNS, liver, heart, mediastinal masses, as we don't have super specialty, these operative procedures are not carried out.

### 3. Observations and Results

During two years of study period, total of 3608 specimens were examined among them 724 cases had neoplastic lesions in which 205 (28.31%) were males and 519 (71.68%) were females. Out of 724 neoplastic lesions, 499 (68.92%) cases were benign and 225 (31.07%) cases were malignant. The majority (60; 26.66) of malignancy cases were in the age group of 61-70 years followed by 51-60 years (52; 23.11%) as shown in Table 1.

**Table 1:** Age wise distribution of malignant cases (225 cases)

Age (in years)	No. of cases	Percentage
0-10	01	0.44
11-20	05	2.22
21-30	14	6.22
31-40	38	16.88
41-50	36	16
51-60	52	23.11
61-70	60	26.66
71-80	15	6.66
81-90	04	1.77

Among 225 malignant cases, 143 (63.55%) were females and 82 (36.44%) cases were males. The most commonly reported tumors were those of oral cavity (47), breast (44), gastrointestinal tract (22) and other tumors are shown in Table 2.

All cases of carcinoma of oral cavity were squamous cell carcinomas (SCC) (47) - well differentiated SCC -28, moderately differentiated -15 and poorly differentiated SCC -4. Salivary gland malignancies were of mucoepidermoid carcinoma seen in 3 cases (Figure 1a), acinic cell carcinoma and adenoid cystic carcinoma (Figure 1b) was seen in 1 case each. Respiratory tract cancer including larynx, bronchus and lung of total 9 cases among them 5 cases were of squamous cell carcinomas and 4 of adenocarcinoma. Thyroid cancer in 17 cases of which follicular carcinoma in 4 cases, papillary carcinoma in 8, medullary carcinoma 2 (Figure 1c), follicular variant of papillary carcinoma 2 and anaplastic carcinoma was seen in 1 case. Breast

carcinoma was observed in 45 cases among them 35 were infiltrating ductal carcinoma, 2 intraductal, 3 lobular, 1 colloid, 3 medullary and 1 papillary carcinoma, (Figure 1d). Cervical carcinoma in 18 cases of which squamous cell carcinoma of cervix in 13 cases (well differentiated SCC=6, moderate differentiated SCC=4 and poorly differentiated SCC=3), adenocarcinoma in 4, adenosquamous in 1 case. Uterus malignancies were seen in 8 cases, of which adenocarcinoma in 7 and leiomyosarcoma in 1 case. Gastrointestinal tract carcinoma was seen in 22 cases of which esophagus in 4 (SCC in 3 and adenocarcinoma in 1 case), stomach in 5 (adenocarcinoma), colorectal carcinoma in 11 (adenocarcinoma) and Anorectal in 22 (SCC) cases. Urinary tract carcinoma was seen in 8 cases among them, renal cell carcinoma in 4, Wilms' tumor in 1 and urinary bladder cancer in 3 cases (transitional cell carcinoma). Carcinoma of the skin was observed in 9 cases of which SCC in 5, basal cell carcinoma in 2, and melanoma in 2 cases. Soft tissue sarcoma and bone malignancy observed in 6 cases of which fibrosarcoma=2, malignant fibrous histiocytoma =1, osteosarcoma=1 Ewing's sarcoma =1, malignant peripheral nerve sheath tumor=1. Testicular cancer was seen in 6 cases among them 4 were seminoma and 2 were malignant mixed germ cell tumor. Ovarian tumor in 11 cases of which serous cystadenocarcinoma =3, mucinous cystadenocarcinoma =2, dysgerminoma =1, malignant brenner tumor=1, malignant mixed germ cell tumor=1, yolk sac tumor=1 and granulosa cell tumor =2. Pancreatic adenocarcinoma was seen in 5 cases and gall bladder (adenocarcinoma) in 3 cases. All cases of carcinoma of prostate were adenocarcinomas (7).

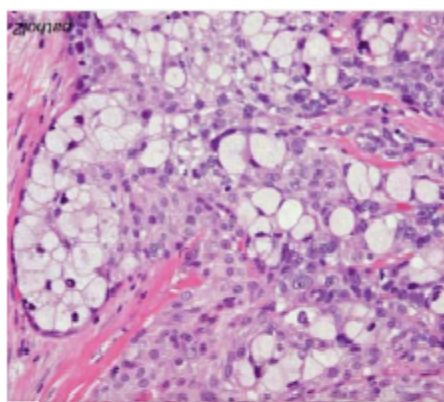
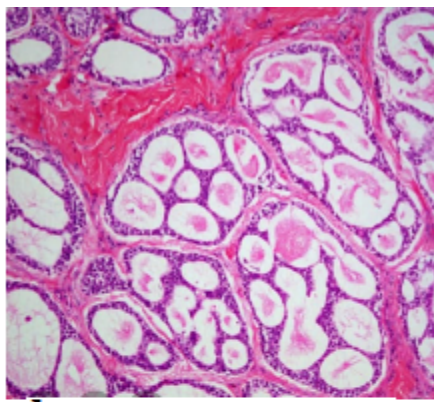
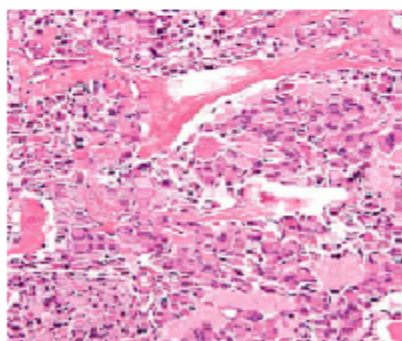
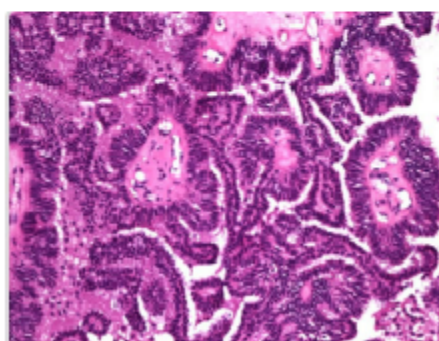
Maximum numbers of benign cases (28.05%) were observed in 31 to 40 years age group followed by in 41-50 years (20.64%) as shown in Table 3.

Out of 499 benign cases, 123 (24.64%) were males and 376 (75.35%) were females. Most commonly reported benign tumors were female genital tract lesions constituted 170 cases (leiomyoma= 107 + cervical and endometrial polyps = 16 + benign ovarian tumors = 47) followed by benign breast lesion (126) and lipoma (18). In males, out of 123 cases, lipoma was diagnosed in 30 cases, followed by benign prostate hyperplasia (28) and other soft tissue tumor (28), (Table 4).

Out of total 128 cases of benign neoplasm of breast 6 were benign phyllodes tumor (2 seen in male breast), 2 intraductal papilloma, 2 apocrine adenoma, 2 lactating adenoma, 114 were fibroadenoma (Figure 2a). Out of 47 benign ovarian neoplasms, 17 were serous cystadenoma, 13 mucinous cystodermis, 10-ovarian teratoma, 2 cystadenofibroma, 3-thecoma-fibroma, 1 benign Brenner tumor and 1 ovarian stromal tumor. Other soft tissue tumor included 42 cases of which 3 were fibrous, 6 lymphangioma, 18-neurofibroma, 10-Schwannoma, 5 benign Fibrous histiocytomas. Benign salivary neoplasm included 20 cases, 12 pleomorphic

**Table 2:** Site and sex wise distribution of malignant cases

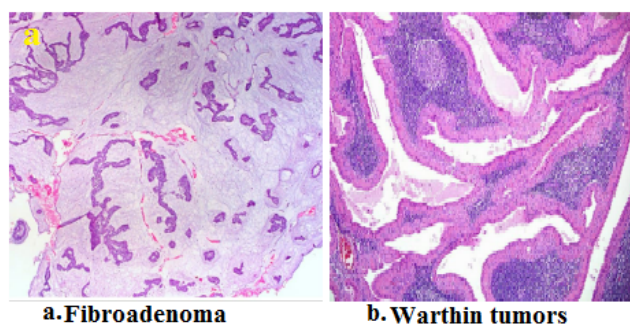
Site	Male	Female	Total
Oral cavity	25 (11.11%)	22 (9.77%)	47 (20.88%)
Salivary gland	2 (0.88%)	3 (1.33%)	5 (2.22%)
Respiratory tract	5 (2.22%)	4 (1.77%)	9 (4.0%)
Thyroid	6 (2.66%)	11 (4.88%)	17 (7.55%)
Breast	2 (0.88%)	42 (18.66%)	44 (19.55%)
Cervix	0 (0.0%)	18 (8.0%)	18 (8.0%)
Uterus	0 (0.0%)	8 (3.55%)	8 (3.55%)
Gastrointestinal tract	10 (4.44%)	12 (5.33%)	22 (9.77%)
Urinary tract	5 (2.22%)	3 (1.33%)	8 (3.11%)
Skin	5 (2.22%)	4 (1.77%)	9 (4.0%)
Soft tissue and bone	4 (1.77%)	2 (0.88%)	6 (2.66%)
Testis	6 (2.66%)	0 (0.0%)	6 (2.66%)
Ovaries	0 (0.0%)	11 (4.88%)	11 (4.88%)
Pancreas and gall bladder	5 (2.22%)	3 (1.33%)	8 (3.55%)
Prostate	7 (3.11%)	0 (0.0%)	7 (3.11%)
Total	82 (36.44%)	143 (63.55%)	225 (100%)

**a.** Mucoepidermoid carcinoma**b.** Adenoid cystic carcinoma**c.** Medullary Thyroid carcinoma**d.** Papillary carcinoma of Breast**Fig. 1:** Microscopy of rare malignancy

**Table 3:** Age wise distribution of benign cases (499 cases)

Age (in years)	No. of cases	Percentage
0-10	06	1.20
11-20	60	12.02
21-30	90	18.03
31-40	140	28.05
41-50	103	20.64
51-60	65	13.02
61-70	32	6.41
71-80	03	0.60
81-90	00	0.00

adenoma, 2 monomorphic adenomas, 3 oncocytoma, 2 warthin tumors (Figure 2b), 1-sebaceous lymphadenoma. Benign thyroid neoplasm included 22 cases of which 18 were follicular adenoma, 4 hurthle cell adenoma. Skin and adnexal tumor were 22 of which 6 skin- squamous papilloma and 16 adnexal tumors. Adnexal tumor included eccrine poroma=4, nodular hidradenoma =3, basal cell adenoma=2, Keratoacanthoma =2, Syringocystadenoma papilliferum =2, pilomatrixoma =2. Benign bone tumor =5- a) osteochondroma =2, b) osteblastoma=1, c) giant cell tumor=2.

**Fig. 2:** Microscopy of some benign neoplasm

#### 4. Discussion

A general way of assessing the dimension of the cancer problem in a given cancer hospital/centre is the number of cancer diagnoses per year in the concerned hospital. It is observed that cancers are increasingly seen in both genders and all the age groups due to a complex interaction of various risk factors.<sup>7</sup> Studies on incidence or risk for development of the disease pattern provide useful summary of disease burden. Several studies reported trends in cancer incidence for various sites.<sup>8,9</sup> In present study, histopathological spectrums of neoplastic lesions were study. Total 724 cases had neoplastic lesions out of which, 499 cases were benign and 225 cases were malignant. Similarly Mankar and Sonawane study the spectrum of neoplastic lesions in North West Maharashtra.<sup>6</sup> In their study, total 759 cases had neoplastic lesions of which

559 were benign and 200 cases were malignant. The minimum age of patient was 8 year female with ovarian germ cell tumor and the maximum age was 84 year old male with prostatic adenocarcinoma. Out of 724 cases, 205 cases (28.31%) were male and 519 (71.68%), were female patients, it was clearly reprehensive that there was female preponderance in the study. It is because of more cancers of female genital organs, breast and thyroid malignancies along with high incidence of oral cancers. Malhotra et al found that females outnumbered males in the incidence of cancer, with male to female ratio being 1:1.09 in Ludhiana, Punjab.<sup>10</sup> Talukder et al also reported female preponderance in their study; this study was carried out at National Institute of Cancer Research and Hospital (NICRH), Bangladesh.<sup>11</sup> The age standardized rates (ASR) for cancer (all sites) in Hyderabad, Pakistan were 91.6/100,000 in males and 96.0/100,000 in females.<sup>12</sup> In contrast to our study Mehrotra et al reported male predominance with male: female ratio of 1.5:1 in the Allahabad region of North India.<sup>13</sup>

Presently, oral cancer is the fourth common type of malignancy after lung, stomach and liver in males. It is the fifth common cancer after cervix, breast, stomach and lung cancer in females.<sup>14</sup> In current study oral cancer was most commonly reported malignant tumor, out of 47 oral cancers, 25 were male and 22 were female which was also seen in younger population, minimum being 24 years. Higher prevalence and early age of presentation of oral cancers is due to increased tobacco use in one form or other in rural areas of India starting at an early age which is comparable with previous studies.<sup>6,7,13</sup> Regional Cancer Centre (RCC) Kerala reported about 14% oral cancer patients out of which 17.0 and 10.5% cases were in males and females, respectively.<sup>15</sup>

Earlier cervical cancer was most common cancer in Indian woman but now the incidence of breast cancer has surpassed cervical cancer and is leading cause of cancer death, although cervical cancer still remains most common in rural India.<sup>16</sup> However, cancers, namely those of oral and lungs in males and cervix and breast in females, account for over 50% of all cancer deaths in India.<sup>17</sup> In present study, carcinoma of breast and cervix were predominant cancers in females, comparable with the study done by Mankar

**Table 4:** Site and sex wise distribution of benign lesion

Site	Male	Female	Total
Breast	02 (0.40%)	126 (25.25%)	128 (25.65%)
Leiomyoma	0 (0.0%)	107 (21.44%)	107 (21.44%)
Ovaries	0 (0.0%)	47 (9.41%)	47 (9.41%)
Lipoma	30 (6.01%)	18 (3.60%)	48 (9.61%)
Other soft tissue tumor	28 (5.61%)	14 (2.80%)	42 (8.41%)
Prostate	28 (5.61%)	0 (0.0%)	28 (5.61%)
Salivary gland	09 (1.80%)	11 (2.20%)	20 (4.00%)
Thyroid	06 (1.20%)	16 (3.20%)	22 (4.40%)
Cervical and endometrial polyp	0 (0.0%)	16 (3.20%)	16 (3.20%)
Nasal polyp	06 (1.20%)	08 (1.60%)	14 (2.80%)
Skin and adnexae tumor	12 (2.40%)	10 (2.00%)	22 (4.40%)
Bone tumor	02 (0.40%)	03 (0.60%)	05 (1.00%)
Total	123 (24.64%)	376 (75.35%)	499 (100%)

and Sonawane,<sup>6</sup> Bhurgri et al<sup>13</sup> and Bhagyalakshmi et al.<sup>18</sup> Nulliparity and late age at first birth are the most consistently observed risk factors for breast cancer.<sup>19,20</sup> Women who start menstruating early in life or have a late menopause also have an increased risk of developing breast cancer.<sup>21</sup> Whereas, early marriage, lower socioeconomic status of women, education, age at first childbirth and multiparity among the local population are important risk factors for cervical cancer. The increased awareness and education of families at grass root level, regular Pap smear examination of perimenopausal women and health camps arrangement has immensely helped to reduce the incidence of carcinoma of cervix in our scenario.<sup>6</sup>

Out of 22 cases of gastrointestinal tract cancers 10 were male and 12 were female which is comparable with previous studies.<sup>18,22</sup> Kalyani et al<sup>23</sup> study the cancer profile at Kolar, Karnataka based on Pathology Department records and they reported predominance of upper gastrointestinal cancers in both genders. Leiomyoma of uterus comprised of 21.44% and carcinoma of thyroid in 11.95% with female preponderance. Incidence of carcinoma of prostate and skin was 8.72% and 8.40% respectively. The commonest benign lesions in males were lipoma and prostate. These findings are correlated well with the study done by Mankar and Sonawane.<sup>6</sup> Darkly pigmented skin, chronic scarring and areas of chronic inflammation seen in farmers could be the cause for higher incidence in our setup.

## 5. Conclusion

In the present study, incidence of neoplastic lesions was predominant in females. In both the gender oral malignancies was the commonest, also in males' gastrointestinal tract malignancies and in females' carcinoma of breast and cervix were the most frequent malignancies. Commonest benign lesions in males were lipoma and prostate while female genital tract and breast in females. The prevalence of cancer in present study is due to lack of awareness among people, self-neglect, late presentation, prevalent tobacco and alcohol

use and limited resources. However this study provide leads for further etiological research, identify cancers that are more common in rural area and helps to take-up cancer preventive measures and screening programmes in early detection of cancer. Understanding cancer magnitude, risk and trends will be of help in cancer control in future.

## 6. Source of Funding

None.

## 7. Conflict of Interest

None.

## References

1. Singh M, Prasad CP, Singh TD, Kumar L. Cancer research in India: Challenges & opportunities. *Indian J Med Res.* 2018;148:362–5.
2. Parkin DM, Läärä E, Muir CS. Estimates of the worldwide frequency of sixteen major cancers in 1980. *Int J Cancer.* 1988;41(2):184–97.
3. Khanna P, Singh A, Kaushal V. Smoking and cancer. *Radiat Oncol.* 2005;5:12–9.
4. Cancer Mortality, The global burden of disease 2004 Update. World Health organization. Available from: [https://www.who.int/healthinfo/global\\_burden\\_disease/GBD\\_report\\_2004update\\_full.pdf](https://www.who.int/healthinfo/global_burden_disease/GBD_report_2004update_full.pdf).
5. Dikshit R, Gupta PC, Ramasundarahettige C, Gajalakshmi V, Aleksandrowicz L, Badwe R, et al. Cancer mortality in India: a nationally representative survey. *Lancet.* 2012;379:1807–16.
6. Mankar R, Sonawane BB. Study of Spectrum of Neoplastic Lesions in North West Maharashtra. *Int J Sci Res Educ.* 2017;5(9):6862–6.
7. Deshpande JD, Singh KK, Phalke DB. Profile of Cancer Cases at a Tertiary Care Level Teaching Hospital in Rural Western Maharashtra, India. *Natl J Community Med.* 2012;3(4):607–18.
8. Elango JK, Gangadharan P, Sumithra S, Kuriakose MA. Trends of head and neck cancers in urban and rural India. *Asian Pac J Cancer Prev.* 2006;7:108–12.
9. Murthy NS, Chaudhry K, Saxena S. Trends in cervical cancer incidence – Indian scenario. *Eur J Cancer Prev.* 2005;14(6):513–8.
10. Malhotra V. Pattern of cancer in Dayanand medical College & Hospital, Ludhiana (A ten year retrospective study). *Indian J Pathol Microbiol.* 2001;44(1):27–30.
11. Talukder MH, Jabeen S, Shaheen S. Pattern of Cancer in young adults at National Institute of Cancer Research and Hospital (NICRH). *Bangladesh Med J.* 2007;16:28–33.

12. Bhurgri Y, Bhurgri A, Pervez S, Bhurgri M. Cancer profile of Hyderabad. *Asian Pac J Cancer Prev*. 1998;6(4):474–80.
13. Mehrotra R. Spectrum of Malignancies in Allahabad, North India: A Hospital-based study. *Asian Pac J Cancer Prev*. 2008;9(3):525–8.
14. Park K. Text book of Preventive and Social Medicine. India: Bhanarsidas Bhanot Publishers; 1997.
15. Padmakumary G, Vargheese C. Annual Report 1997. Hospital Cancer Registry. Thiruvanthapuram; Regional cancer centre; 2000.
16. Kaarthigeyan K. Cervical cancer in India and HPV vaccination. *Indian J Med Paediatr Oncol*. 2012;33(1):7–12.
17. National Cancer Registry Program. Consolidated report of the population based cancer registries 1990-1996. New Delhi: Indian Council of Medical Research; 2001.
18. Bhagyalakshmi A, Venkatalakshmi A, Subhash R, Kumar S. Patterns of cancer occurrence in a tertiary care centre. *Int J Res Med Sci*. 2016;4:2153–63.
19. Nagrani RT, Budukh A, Koyande S, Panse NS, Mhatre SS, Badwe R. Rural urban differences in breast cancer in India. *Indian J Cancer*. 2014;51(3):277–81.
20. Kelsey JL, Gammon MD, John EM. Reproductive Factors and Breast Cancer. *Epidemiol Rev*. 1993;15(1):36–47.
21. Shin A, Song YM, Yoo KY, Sung J. Menstrual factors and cancer risk among Korean women. *Int J Epidemiol*. 2011;40(5):1261–8.
22. Phukan RK, Zomawia E, Narain K, Hazarika NC, Mahanta J. Tobacco Use and Stomach Cancer in Mizoram, India. *Cancer Epidemiol Biomark Prev*. 2005;14:1892–6.
23. Kalyani R, Das S, Singh B, Kumar H. Cancer profile in the department of pathology of sri devaraj urs medical college, Kolar: A ten years study. *Indian J Cancer*. 2010;47(2):160–5.

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