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A HOSPITAL BASED STUDY OF HISTOLOGICAL SPECTRUM OF CERVICAL CARCINOMA

Pathology

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ABSTRACT

Introduction: It is estimated that cervical cancer will occur in approximately 1 in 53 Indian women during their lifetime compared with 1 in 100 women in more developed regions of the world. The statistics are under reported, more often in rural India.
Objectives: The purpose of this study was to assess the histological profile of cervical cancer patients referred to a comprehensive cancer centre in rural India.
Material And Methods: Retrospective analysis of data from pathological records of 556 patients of cervical carcinoma was carried out for a period of 2 years.
Results: 29.68 % of the patients were in the age group of 51 – 60 years. Squamous cell carcinoma was the commonest histological variant. Predominant presentation of non keratinizing variant, with moderate differentiation was noted.
Conclusions: Effective screening measures are the need of the hour strategy in India's attempt to reduce its cervical cancer burden.

KEYWORDS

Carcinoma Cervix, Squamous Cell Carcinoma, Differentiation

INTRODUCTION:

India alone accounts for one-quarter of the world wide burden of cervical cancers. In India, it is estimated that one woman dies of cervical cancer every 8 minutes.[1] Various studies across India have attributed this risk of cervical carcinoma to rural marginalization of population and low socioeconomic conditions.

Infection by high risk Human Papilloma Virus (HPV) is a necessary, but not a sufficient, cause for cervical cancer.[2] It has been assumed that other factors contribute to modulate the risk of time bound transition from cervical HPV infection to cervical cancer. They include early marriage, high parity, multiple sexual partners, poor genital hygiene, nutritional deficiency, hormonal contraceptives and smoking.[3] Higher prevalence of these cofactors has been well established in rural and poor population backgrounds.

Lack of health awareness, poor accessibility to health care, timeliness of data and follow up have also challenged Population Based Cancer Registries (PBCRs) in their attempts to construct a rural model of cervical carcinoma. Moreover these registries cover only 10% accounting for only 0.1% of rural population in India.[4]

This study was conducted to identify the prevalence and histomorphological patterns of cervical cancer in a rural cancer institute.

MATERIALS AND METHODS:

This retrospective analysis was done at Indian Red Cross Society Cancer Hospital, Nellore, a charitable trust hospital providing state of art cancer treatment at an affordable cost.

It was conducted by retrieving data from the archives of department of Pathology. It includes a total of 556 patients of cervical carcinoma (Both in situ and invasive cancers) diagnosed in a span of 2 years between January 2018 to December 2019. The standard Formalin Fixed Paraffin Embedding (FFPE) technique of tissue processing was performed on cervical biopsy specimens and slides were stained using Haematoxylin and Eosin dyes.

Slides were reviewed by two experienced Surgical Pathologists individually and data was categorized into age, histological type and tumour grade or differentiation.

WHO classification of cervical tumours (2003) was used for tumour classification.

Tumour grade was recorded as well-differentiated (grade 1), moderately-differentiated (grade 2) and poorly-differentiated (grade 3).

RESULTS :

Table 1 : Age Distribution of Malignancy

Ageinyears	NumberofCases	Percentage
21-30	09	1.62%
31-40	69	12.41%
41-50	144	25.90%
51-60	165	29.68%
61-70	124	22.30%
71-80	42	7.55%
Above80	03	0.54%

Table2: Histological Variants of Cervical Carcinoma & Precursors

S.No	HistologicalVariant	Number of Cases	Percentage
1.	Squamous Cell Carcinoma	443	79.68%
2.	Adenocarcinoma	19	3.42%
3.	AdenosquamousCarcinoma	18	3.24%
4.	Microinvasive Squamous Carcinoma	10	1.80%
5.	Neuroendocrine Carcinoma	02	0.36%
6.	Squamous Cell Carcinoma In situ	58	10.43%
7	Adenocarcinoma In situ	06	1.07%

Table 3 : Histological Variants Of Squamous Cell Carcinoma

Variant	Number of Cases	Percentage
NonKeratinizing	228	41.00%
Keratinizing	202	36.34%
Basaloid	02	0.36%
Verrucous	07	1.26%
Papillary	04	0.72%

Table 4: Modified Three Tier Grading Of Squamous Cell Carcinoma

Differentiation	Number of Cases	Percentage
WellDifferentiated	07/443	1.58%
Moderately Differentiated	403/443	90.97%
PoorlyDifferentiated	33/443	7.45 %

Table 5 : Modified Three Tier Grading of Adenocarcinoma

Differentiation	NumberofCases	Percentage
Well Differentiated	08/19	42.10%
Moderately Differentiated	07/19	36.84%
Poorly Differentiated	04/19	21.05%

The age range of the study population was 27 to 85 years. The majority of the patients (29.68 %) were in sixth decade of life. This was followed by 25.9 % patients in the fifth decade, and 22.3 % in the seventh decade of life (Table 1).

The youngest age of presentation of invasive cancer was 30 years and the oldest being 85 years. In situ carcinoma was noted earlier, at 27 years in a patient.

79.68 % of the patients had squamous cell carcinoma followed by adenocarcinoma, adenosquamous carcinoma and other histology in 3.4 %, 3.2 % and 2.16 % of the patients respectively. Squamous cell carcinoma in situ accounted for 58 cases (10.43 %) (Table 2).

Occurrence of non keratinizing squamous cell carcinoma was highest (41 %), followed by keratinizing variant (36.34 %) (Table 3).

Of 443 cases of invasive squamous cell carcinoma, majority were moderately differentiated (403, 90.97 %), followed by poorly differentiated carcinoma (33, 7.45 %) (Table 4).

In contrast, of 19 cases of adenocarcinoma, majority were well differentiated (8,42.10 %) followed closely by moderately differentiated cancer (7, 36.84%) (Table 5).

DISCUSSION:

According to GLOBOCAN 2018 estimates, among females, breast cancer is the most commonly diagnosed cancer and the leading cause of cancer death, followed by colorectal and lung cancer (for incidence), and vice versa (for mortality); cervical cancer ranks fourth for both incidence and mortality.[5]

In India, Current data from the National Cancer Registry Program (NCRP) indicates that the two most common sites of cancer among women are the breasts and the cervix.[6] Cancer cervix is regarded as one of the most preventable types of cancer because it develops over time.

We observed a peak incidence of cervical cancer in the older (51-60) age and about 85 % of confirmed cases occurred among women aged 35 years or above. This is in accordance with the data from various cancer registries in developing countries.[7,8,9]

Our pathological data joined those already described with the large predominance of squamous cell carcinoma.[10,11,12] Study showed a spectrum of most of the subtypes of squamous cell carcinoma except the sarcomatoid and lympho epithelial like variants. This high rate of squamous cell carcinoma reflects the need for a better rural screening campaign with Pap smear cytology and other measures such as visual inspection with acetic acid (VIA).

We observed a lesser percentage of cases of adenocarcinoma (3.42 %), of which grades of well differentiation and moderate differentiation were found in 8 and 7 cases respectively. This may be attributed to the fact that in India, HPV 18 associated with adenocarcinoma worldwide is less prevalent . HPV 16 with increased prevalence is more often associated with squamous cell carcinoma.[13]

Present study showed percentage of non-keratinizing squamous cell carcinoma was 41 % and keratinizing squamous cell carcinoma was 36.34 % which is comparable to study done by Atul Jain et al, Omoniyi GOE et al.[14,15]

We noted that grade 2–3 lesions are much more common than grade 1 lesions for women with squamous cervical cancer. It is speculated that grade 1 tumours are more likely to be keratin-high tumours resulting in good prognosis; conversely, grade 2–3 tumors are more likely to be keratin-low tumours resulting in poor prognosis. Similar findings were noted in the study done by Abudu EK et al.[16,17]

CONCLUSION:

A high proportion of patients hailing from rural background, presenting with squamous cell carcinoma cervix emphasizes the need for effective cancer screening programmes and mass awareness campaigns. Larger studies with funding need to be encouraged to generate representative data on prognostic significance of histological variables.

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