

# CARCINOMA OF CERVIX IN WESTERN ORISSA

Clinico-Pathological Study of One Hundred Cases

by

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With increase in longevity of man and eradication of many communicable diseases, neoplastic disorders are attracting the attention of present day medical personnel throughout the world. In women, carcinoma of the uterus is one of the common neoplasms, only comparable with malignant growth of the breast. Carcinoma of the cervix is met with 3 to 4 times more often than that of the body of the uterus.

In India many cases of carcinoma of cervix have been reported from different parts of the country extensively (Gault *et al* 1951, Reddy *et al* 1956, Mitra 1957, Wahi and Mali 1962).

The aetiology of carcinoma of cervix like all other neoplasms remain in a fluid stage. Repeated childbirth resulting in trauma and infection, hormonal stimulation, role of smegma and senility have all been incriminated to solve the riddle, though nothing is definite so far. Study of cancer cervix in India stresses the presence of infection and the role of

smegma (Rao and Reddy, 1963 a) as the possible aetiological agents. Experimental evidence of the positive role played by oestrogen in the causation of cancer might be applicable for the human being too (Rao and Reddy, 1963 b).

In Orissa, even though the cervical neoplasms are very common, no serious attempt has been made so far to study the cases in detail, and the cause of prevalence of this disease in this region is ill understood.

In the present study an attempt has been made to throw some light on the incidence of carcinoma of cervix in this part of the country, to study their histological pattern and to find out the possible aetiological factors.

## Material & Methods

1. One hundred cases admitted into Burla Medical College Hospital during the year 1963 to 1965, diagnosed as carcinoma cervix and other cases of erosion of cervix and cases having healthy cervix were the material for study.

2. Specimen collected and tests performed:-

i. Vaginal secretion—For study of reaction, exfoliative cytology by Papanicolaou method.

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ii. Peripheral blood — Demonstration of malignant cells in smears from buffy coat and stained by Papanicolaou method.

iii. Urine samples — Demonstration of malignant cells in urinary sediment, stained by Papanicolaou method.

iv. Toluidine blue test (Richart, 1963) — To delineate the area of malignancy.

v. Biopsy study — From suspected cases of malignancy and cases of chronic cervicitis.

### 3. Clinical history taking:

In order to find out the possible aetiological factors, detail history-taking of proved cancer cases was done to find out the following information—

Frequency of intercourse, time period between the commencement of sexual life and the development of growth, economic status, history of venereal disease and personal hygiene.

#### Observations

The age incidence of cases of carcinoma of cervix has been analysed in Table 1.

TABLE I  
Age group in cases of carcinoma cervix

Age in years	Percentage
Below 20	0
21-30	12
31-40	37
41-50	27
51-60	21
61 and above	3

All the women were either Hindu or Christian. No significant differ-

ence was noted in the age of menarche and menstrual cycles between the cancer and other patients.

The age of marriage in the same group of patients was analysed and it was found that 77% of cases of cancer cervix had married before the 15th year of life. Maximum number of cases (39.3%) showed symptoms after 21 to 30 years of the first intercourse. Only 3.6% cases developed the complaint before 10 years of the first intercourse. Only in 9.1% of cases did the patients give a history of venereal disease.

Regarding the number of pregnancies, the maximum number of patients were 5th and 6th gravida (Table II).

TABLE II  
Number of pregnancies in cases of carcinoma cervix

Number of pregnancy	Percentage
0	3
1-2	9
3-4	18
5-6	34
7-8	24
8 and above	12

Only 3% were nulliparae. Marital status and pregnancy in 100 patients of cancer of the cervix were analysed and it was seen that 97% were married parous women and 3% were married nulliparous women but there was not a single case of carcinoma of cervix in unmarried women.

As regards the economic status, 86% patients belonged to the lower economic status having an income of below Rs. 100/- per month.



Analysis of the age at first coitus revealed that 74% of cases had the first coitus before the age of 15 years and 1% only between 24 to 26 years. The incidence of cancer gradually fell as the age at first coitus advanced. In none of the cases was there a history of coitus later than the 26th year.

An analysis of the interval between the commencement of sexual life and the development of symptoms showed that the maximum number of cases developed symptoms after an interval of 21 to 30 years of the first coitus (Table III).

TABLE III  
*Interval between the first sexual intercourse and development of symptoms*

Interval in years	Number positive	Percentage
Below-10	2	3.6
10-20	10	17.8
21-30	22	39.3
31-40	16	28.6
41-50	4	7.1
51 and above	2	3.6

Peculiarly enough, the women in this locality use protective pads not only during the menstrual cycle but throughout the month, starting from childhood onwards and even after menopause. Most of them did not take care to clean the pad properly.

Majority of cases gave a history of whitish discharge per vaginam for a few years prior to the development of the growth. The study of pH of vaginal secretion in a number of cases of carcinoma showed the range varying from 4.8 to 7.2 and the control cases showed 4.4 to 7.2.

Suspected cases of carcinoma of cervix were subjected to toluidine

blue test. In 90.6% of cases the test was positive and only in 9.4% of cases it was negative. Vaginal cytological study undertaken in 32 cases gave positive results in 6 cases.

A search was made for the presence of malignant cells in the urinary deposit of patients with frank carcinoma of the cervix. Only 4% out of the 50 cases studied showed malignant cells in the urinary sediments.

Clinical examination to note the state of the disease when patients presented themselves in hospital showed that 54% of cases were in stage IV, 25% in stage III, 17% in stage II and only 4% in stage I.

Examination of biopsy revealed that 99% cases were of the squamous variety and 1% was adenocarcinoma.

The analysis of cell type in carcinoma of cervix is shown in Table IV.

TABLE IV  
*Cell type in carcinoma of cervix*

Cell type	Incidence	Percentage
Spinal	12	13.2
Transitional	39	42.9
Spindle	54	37.4
Carcinoma in situ	6	6.6

Histological gradation of the tumour showed that 25.27% of cases were in grade I, 53% in grade II, 10.99% in grade III and 5.49% in grade IV.

The changes in the stroma were studied. The common pathological findings besides infiltration with malignant cells were mononuclear cell infiltration, increased vascularity and necrosis.

Malignant cells were searched in

the buffy coat of the peripheral blood and were discovered in only 3 out of 30 cases of carcinoma cervix.

### Discussion

One hundred cases of carcinoma of the cervix admitted to Burla Medical College Hospital were studied in detail. The high incidence of cancer cervix in this area suggests some local factor as the causative agent.

The maximum number in the group of 100 cases belonged to the age group between 31 to 40 years. The incidence was high in persons below 40 years of age, the average age being 36 years. The youngest patient was 23 years old and oldest was 72 years. Cancer of the cervix in this study definitely showed a predilection for comparatively younger individuals in comparison to other workers, the average age in their series being above 50 years (Maliphant 1949, Felmus 1952). This may be due to early sex life, repeated childbirth and bad vaginal hygiene. In 77% of cases the marriage took place before the 15th year of life. Early marriage is prevalent among uneducated people in this part of the country. The significant association of early marriage and early and frequent coitus with the incidence of cancer of cervix has been reported (Jeffcoate 1957). Frequent coitus in young women might lead to frequent trauma and irritation leading to infection. Holland and Bourne (1958) thought that coitus at an early age might stimulate excessive endocrine secretion and cancer cervix might be the result of the long effect of these hormones.

It was observed that the maximum number of cases belonged to the group having 3 to 4 deliveries. It is probable that the increased number of pregnancies exert a maximum hormonal effect on the female genitalia and the increased number of deliveries without proper maternity care might give rise to tears followed by infection which might be the major predisposing factors. Further, the chronic infection produced by the constant use of unclean protective pads might be playing some role in causation of cancer in this part of the country.

In our group most of the patients were poor. Poverty might have led to poor nutrition and vitamin deficiency which were incriminating aetiological factors (Ayre 1947, Herbut 1953).

Investigations carried on suspected cases of cancer showed that the toluidine blue test was positive in 90.6% of cases. This test suggested the area of involvement. Vaginal cytology study was positive only in 18.7% of cases. The poor result might be due to the advanced stage of the disease in some and presence of infection in others as evidenced by presence of large number of inflammatory cells. Examination of venous blood for malignant cells in cases of cancer cervix showed positive result in 6% of cases. In 4.1% of cases malignant cells were revealed in the urinary sediment. The percentage of positive result was 15.2% and 21.1% for blood and urinary deposit respectively (Diddle *et al*, 1962). This difference might be due to a difference in the method of collection.

Histologically, the growth was



squamous cell type in 99% cases. In only one case there was adenocarcinoma. The incidence of adenocarcinoma in cervical growths has been less than 5% with the majority of the workers (Boyd, 1961, Lawson 1964). The typing of squamous cell carcinoma according to cell type showed transitional variety in 42.9% of cases, closely followed by spindle cell type (37.4%). Spinal cell type and carcinoma in situ were present in a small percentage of cases. The result varied with different workers. Martzloff (1923) reported the percentage of transitional, spindle and spinal cell as 66%, 12% and 22% respectively.

Gradation of the growth according to the percentage of mature cells showed that 25.24% were grade I, 58.24% were grade II, 10.99% were grade III and 5.49% were grade IV.

The stroma showed changes like necrosis, increased vascularity and mononuclear cell infiltration in a number of cases. Inflammatory cell infiltration, mostly by mononuclear cells, revealed the presence of some chronic inflammation which might have existed prior to the malignant conversion. Infection as a causative factor of malignancy has been described by Lombard and Potter (1950), Gagnon, (1950), Brewer (1958) and Howkins (1962). Repeated pregnancies, bad vaginal hygiene and poor standard of the women all predispose to inflammation of the lower genital tract. A history of previous vaginal discharge further suggests the role of infection as a causative agent. This could be helped by hormonal influences over the vaginal and cervical mucosa.

With the present knowledge and observation, repeated infection after delivery influenced by hormones during pregnancy, might have some role to play as the causative agent. The role of smegma as a predisposing factor, of course, cannot be ruled out. Further study of cases followed by experimental work would throw more light on the subject.

#### Summary

A clinicopathological study was carried out in one hundred cases of carcinoma of the cervix admitted to Government Medical College Hospital, Burla. The possible aetiological factors, common types prevalent and some diagnostic methods with results have been discussed.

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