CLINICOPATHOLOGICAL CORRELATION OF CERVICAL CARCINOMA BY PAP SMEAR
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ABSTRACT
OBJECTIVE: This study is conducted to assess the various predisposing factors for carcinoma cervix and to correlate the clinical and pathological findings using pap smear. BACKGROUND: Carcinoma cervix is the commonest cancer responsible for about 5% of all cancers deaths in women worldwide. The Pap smear screening test if carried out properly is sufficiently sensitive and has high specificity, is of low cost and low risk to patients. MATERIALS AND METHODS: A total of 500 cervical smears were collected from government maternity hospital, for period of one year and were studied with reference to certain predisposing factors in the department of Pathology, Sri Venkateswara Medical College, Tirupathi. RESULTS: Out of 500 smears 146 were epithelial cell abnormalities, in these 49 (33.6%) were mild dysplasias 35 (24.0%) were moderate dysplasias, 24 (16.4%) were severe dysplasias and 38 (26.0%) were frank carcinomas. CONCLUSION: This study justifies the clinical and pathological correlation of cervical carcinoma with regards to age, age at marriage, parity, clinical symptoms and per speculum findings by Pap smear.

KEY WORDS
Cervical cancer, Dysplasia, Pap smear, Screening.

1. INTRODUCTION
Carcinoma cervix is the commonest cancer responsible for about 5% of all cancer deaths in women worldwide. It’s 5th deadliest cancer in women [1]. There are 1.7 million cases in the developing world and as many as 5-13 millions women have precancerous lesions [2, 3]. It affects about 16 per 10000 women in a year and kills about 9 per 100000 per year [4]. Approximately 80% of cervical cancers occur in developing countries [5] and it’s the commonest cancer in these countries.

The incidence in US was 7 per 100000 women in 2004 [6] and it ranks 8th most common cancer of women. In United Kingdom incidence was 8.5 per 100000 per year in 2006 [8] and ranks 12th most common cancer in women. Europe and Australia have a low incidence with cervical cancer accounting for only 4-6% [8]. The lowest mortality rate is in China [9].

50 Years ago, carcinoma cervix was the leading cause of cancer death in women. But the death rate has declined by 2/3rd to its present rank as the eighth leading cause of cancer mortality because of increased detection frequency of early cancers and precancerous condition [10]. A 53% reduction in cervical cancer morbidity was attributed to the gynecological Pap smear screening... It has been estimated that 5 yearly screening should prevent 84% of invasive cancers and 3 yearly screening will prevent 91%. More frequent screenings gain no significant further advantage [11].

Persistent inflammatory smear have some contributory effect for the causation of CIN and cervical biopsy was recommended for a women with persistent inflammatory smears, especially if she is above 30 years or has been sexually active for 14 years and is at least a third para [12]. Women who have had abnormal cytology which has been treated or resolved spontaneously remain at increased risk and should be followed up
with regular smear tests [13]. Though squamous cell carcinoma is the commonest carcinoma, evidence is that the incidence of adenocarcinoma of cervix is rising [14]. The wide spread use of oral contraceptives is often cited in order to explain the rising frequency [15]. Gallop et al suggested association of adenocarcinoma with oral contraceptive use [16, 17].

Wynder et al [18] suggested that epidemiologically cervical cancer behave like a sexually transmitted disease. Robert & D Burk suggested that roughly 50% of cervical cancers worldwide contain the oncogene HPV 16 [19], other important high risk types are 18, 45 and 31.

Jones et al believed that cervical epithelium transform from dysplasia to carcinoma in situ to invasive carcinoma [20]. The Bethesda system for reporting the results of cervical cytology was developed as a uniform system of terminology that would provide clear guidance for clinical management [21].

2. MATERIALS AND METHODS

The samples were collected from government maternity hospital, Tirupathi for a period of one year. A total number of 500 cervical smears were collected as a part of screening for cervical cancer and studied particularly with reference to certain predisposing factors. The smears collected were studied in the department of Pathology, Sri Venkateswara Medical College, Tirupathi.

Details were taken with the help of semi structured proforma that includes socio-demographic details, history of present illness, menstrual history and systemic examination with per speculum findings. Smears were collected from married patients only.

Cervical smear samples were obtained by using Ayre’s spatula from ectocervix and endocervix including transformation zone. The smears collected were fixed in 95% of isopropyl alcohol. The wet fixed slide is stained with Papanicolau stain and haematoxylin & eosin. The air dried slide is stained with May Gruwald Giemsa stain. The smears were analysed and graded as mild dysplasia as in figure1, moderate dysplasia, severe dysplasia and frank carcinoma as in figure 2.

3. RESULTS

Out of 500 smears studied major pathological finding noted were infections with 57.2% followed by dysplasias with 21.6%, frank carcinomas with 7.6% and cervical atrophies with 1.2% as shown in the pie diagram below. The dysplasias were further studied based on the age, age at marriage, parity, presenting symptoms and per speculum findings.

a. Age

Highest incidence of mild dysplasias were noted in the age group of 20 - 39. As the age progresses there was increased incidence of moderate, severe dysplasias in 40-59 age group. 13 patients out of 47 were noted with frank carcinoma (27.65%) in 60 & above age group as in table1. Hence forth, advanced age is considered as a significant risk factor for cervical carcinoma.

b. Age at marriage

Highest incidence of moderate dysplasia was noted in patients who were married at the age of 20 -24 years. However mild, severe and frank carcinomas were noted in patients who were married at the age of 15-19 years as in bar diagram 1. Hence early marriage is considered as a significant risk factor for cervical cancer.
PERCENTAGE OF SUBJECTS BY PATHOLOGICAL FINDINGS

BAR DIAGRAM 1:
EPITHELIAL CELL ABNORMALITY Vs AGE AT MARRIAGE
BAR DIAGRAM 2:

EPITHELIAL CELL ABNORMALITY Vs PARITY

Figure 1. Smear showing squamous cells with moderate dysplasia (H & E, X400)

Figure 2. Smear showing tadpole cells, tumor giant cells and tumor diathesis in the background (H & E, X400)
c. Parity

Highest incidence of mild and moderate dysplasias was noted in women who had 3 children. Highest incidence severe dysplasia and frank carcinoma were noted in women who had 4 & above children in bar diagram 2. Hence forth it is obvious that multiparty (>3) is a significant risk factor for Carcinoma cervix.

d. Symptoms

White discharge was the most common complaint in more than 50% of women and incidence of mild, moderate dysplasias and frank carcinomas were high in these women. Women with mass per vagina had severe dysplasia in 16.6% of cases. 18 out of 38 patients (47.4%) presented with polymenorrhagia were diagnosed with dysplasias and frank carcinomas. 47.8% of women presented with post menopausal bleeding had frank carcinoma. There is least chance of development of frank carcinomas in women presenting with pain abdomen.

Highest incidence of dysplasias was noted in patients with white discharge and highest incidence of frank carcinoma was noted in patients with post menopausal bleeding as in table 2.

e. Clinical diagnosis (per speculum findings)

The least chance of frank carcinoma was noted in patients with prolapse and cervical hypertrophy. Frank carcinoma was noted even in patients who were normal clinically in 2.3%. The highest incidence of mild dysplasia, moderate dysplasia and severe dysplasias was noted in cervicitis, cervical erosion and prolapse patients respectively. The incidence of frank carcinoma was highest in patients in whom carcinoma was suspected as in table 3.

4. DISCUSSION

The incidence of dysplasias by cytology was 21.6% which is same with the reports of Shanthi and A. Rajamohan. The incidence of frank cancer by cytology in this study is 7.6% which is high when compared with the reports of Chaya devi etal (2006) [22] who reported an incidence of 3.94% and with reports of J.S. Mishra & Pandey (2003) [23] who reported an incidence of 3.3%.

The high incidence of frank carcinomas was due to exclusion of normal smears at the time of selection of cases, early age at marriage and most of the patients were of low socioeconomic status. Socioeconomic group not only denotes as it sounds, but include many factors such as nutritional and vitamin deficiencies, parity, married life, age at marriage and others based on their income. Hence socioeconomic group is the index of all the above factors which share their contribution in the genesis of cancer cervix.

In this study the patients presented in the outpatient department with many symptoms like white discharge, polymenorrhagia, pain abdomen, mass per vagina, Post menopausal bleeding. Patients with post menopausal bleeding had more frank carcinomas (11 out of 23) which is same as Shanthi’s study in which 19 patients were diagnosed with frank cancer out of 71 patients with post menopausal bleeding.

Highest incidence of dysplasias was noted in patients with white discharge. In this study incidence of mild dysplasia in patients with white discharge was 5.8% which is on par with Shanthi’s study (5.6%). In our study various clinical diagnoses were cervicitis, cervical erosion, cervix hypertrophy, prolapse, suspected carcinoma etc.,
The clinical lesions in which most of the frank carcinomas were presented is growth on the cervix which bleeds on touch (suspected carcinoma) which also been found to be same in J.S.Mishra & Pandey’s study. Many cases of dysplasias presented as cervicitis and cervical erosion. Detection of epithelial abnormalities at early stage is important for the treatment and prevention of carcinoma cervix and also the prognosis can be assessed.

5. CONCLUSION

Findings in this study clearly indicate that Pap smear is an excellent screening test for the diagnosis of carcinoma cervix. It’s a highly reliable and takes the place of invasive procedures, obviates surgical exploration, facilitating initiation of appropriate therapy and thus saving time, man power and cost of hospitalization.
Abnormal Pap smear results may suggest the presence of CIN before a cancer has developed, allowing serial examinations and possible preventive treatment. If premalignant disease or cervical cancer is detected early, it can be monitored or treated relatively noninvasively. It’s also a diagnostic test various other cervical lesions.

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