

Original Research Article

Pap smear in antenatal women: a valuable opportunity for screening and awareness

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ABSTRACT

Background: Pregnancy creates an important opportunity to screen the cervix for neoplastic and infectious diseases and to spread awareness. A pap smear is simple, cost effective and safe in pregnancy. In low resource countries, this may be the only opportunity when the woman visits a health centre. It also helps identify and treat infections that could hamper the pregnancy outcome. Objective of the study is to determine the awareness of pap smear as a cervical cancer screening test in antenatal women; to determine the incidence of cervical neoplasia and premalignant lesions of the cervix in antenatal women.

Methods: A cross-sectional study was carried out between November 2018 to April 2019. Inclusion criteria were pregnant women in the first trimester. Exclusion criteria were pregnancy greater than 12 weeks, symptoms of vaginal infection, history of sexual intercourse or vaginal medication or bleeding in the last 48 hours or a normal pap smear in the last 3 years. The reporting was done as per Bethesda 2014.

Results: 308 women underwent a pap smear in their 1st trimester. 94% were satisfactory smears and 3(0.9%) an abnormal smear (2 LSIL and 1 ASCUS). 31.2% had inflammatory smears. Only 15 women were aware of pap smear as a test for cancer cervix screening and all these women were graduates and above. No women had ever had a pap smear test in the past. One fifth of women studied had 1 or more risk factor the commonest being early age at first intercourse.

Conclusions: The antenatal period should be utilized as an opportunity to screen women for cancer cervix.

Keywords: Antenatal screening, Awareness, Cervical cancer screening, Pap smear

INTRODUCTION

Cancer cervix is amongst the commonest cancers affecting women in India along with breast cancer. In a year more than 100,000 women are afflicted by this disease.¹ India had a population of more than 400 million women aged 15 years and older who are at risk of developing cervical cancer and has the largest burden of cervical cancer patients in the world.^{2,3}

India accounts for about 15 % of the total cervical cancer deaths in the world and this incidence continues to be high.² The usual progression from mild dysplasia to carcinoma cervix is about 10 to 20 years. The dysplastic

features can be seen on screening tests and hence carcinoma cervix is a preventable disease. The issues faced in a large country like India is where the difficulty arises and in the absence of awareness and good screening programs, women are usually diagnosed late.¹

The Papanicolaou smear (Pap smear) is one of the most sensitive and specific screening test for cervical cancer in reducing mortality and morbidity of women.⁴ However, a high incidence and mortality rates continue in developing countries due to the lack of well-defined screening programmes.¹ Pregnancy creates an important opportunity to screen the cervix for neoplastic and infectious diseases and to spread awareness.^{3,5} Studies

report that 10-70% of dysplasia cases diagnosed during pregnancy regress and sometimes even disappear postpartum while persistence of cervical neoplasia is reported in 25-47% of cases and progression in 3-30% of cases.³ It is thus important to offer appropriate advice to women diagnosed with cervical dysplasia in the antenatal period. The Pap smear should best be performed at the first prenatal visit regardless of the duration of pregnancy to establish the presence or absence of cervical or vaginal infection, cervical dysplasia or frank malignancy (rare). All these represent a risk to the fetus and the mother.⁶ This initial smear will establish a baseline diagnosis and can be followed up accurately throughout pregnancy or following delivery and the puerperium by repeated examinations or biopsy as deemed necessary.

Reported incidence of abnormal Pap smears detected during pregnancy varies with the study population. A 1% to 8% incidence of abnormal cervical cytology is commonly reported.⁵

Cervical cancer can be detected at an early stage by a Pap smear. This is a simple, cost effective, easy to perform test and is safe to be carried out in pregnancy without jeopardising the outcome.⁷ Visits for antenatal check-ups by women are a potential opportunity to perform this test and educate them regarding the significance of screening. In a country like India, this may be the only opportunity when the woman visits the hospital or health centre and educating her is therefore necessary. In addition, it helps in identifying and treating infections that could play a role in the pregnancy outcome.⁵

The aim of the study was to utilize the antenatal check-up visit as a screening opportunity for cervical neoplasia and premalignant lesions of the cervix. The objectives were to determine the awareness of pap smear as a screening test for cervical cancer amongst antenatal women and to determine the incidence of cervical neoplasia and premalignant lesions of the cervix in antenatal women and offer them appropriate management.

METHODS

A cross sectional study was carried out at ESIC Medical College & Hospital, Faridabad which is a tertiary care hospital with a dedicated antenatal clinic that caters to both rural and urban populations. The study was carried out between November 2018 to April 2019.

Inclusion criteria

- pregnant women presenting to the antenatal clinic in the first trimester (≤ 12 weeks by last menstrual period or by a 1st trimester ultrasound if unsure of dates).

Exclusion criteria

- Pregnancy greater than 12 weeks
- Presence of symptoms of vaginal infection

- History of sexual intercourse in the last 48 hours
- History of vaginal medication in the last 48 hours
- Presence or history of vaginal bleeding in the last 48 hours or
- A Pap smear taken in the last 3 years which was reported as normal

Taking the literature reported prevalence of abnormal smears as 8% and with a 3% precision, a sample size of 315 women was necessary.³ The number of patients included in the study were 314. Women who fit the inclusion criteria were given a patient information sheet regarding the procedure and a written informed consent was obtained. A routine antenatal history was taken, and this included her awareness regarding Pap smear and whether she had been earlier screened for cervical cancer. Risk factors for cervical cancer including family history, early age at marriage and multiple partners was asked. Examination was performed including weight, blood pressure, cardiovascular and respiratory system examination. If pregnancy had not been earlier confirmed, the pap smear was taken before a routine bimanual examination.

Pap smears were collected as per the conventional method. The woman was placed in a dorsal position. After exposing the cervix using a Cusco's speculum, the ectocervix was first sampled using an Ayres spatula. The Ayers spatula was placed at the cervical os such that the longer end went inside the cervical canal and the shorter end rested on the ectocervix. The spatula was then rotated by 360° maintaining contact on the ectocervix. The spatula (both sides) was then smeared on the slide and fixed immediately using a fixative. The endocervix was then sampled using a cytobrush and smeared on a slide and fixed similarly. Patient details were then clearly written on the slides along with the requisition form mentioning patient details and clinical findings and sent to the laboratory. The report was collected by the investigator and the patient contacted telephonically to fix an appointment to discuss the findings. Routine antenatal care was provided to all women participating in the study. Any findings on the pap smear were treated as per existing guidelines. The cytological abnormalities were reported as per modified Bethesda classification (2014).

Statistical analysis was carried out with Microsoft Excel 2016.

RESULTS

The number of women recruited in the study was 314. Out of these a pap smear was successfully done in the first visit in 308 patients. The remaining 6 patients had evidence of bleeding on per speculum examination and hence the pap smear was deferred.

The mean age of the women in the study was 25.4 years and the mean gestational age when the pap smear was taken was 8.9 weeks (Table 1). The distribution of patients by parity is given in Table 2. There were 105

primigravid women accounting for 34.1% of all women. The remaining 65.9% were multigravid and grandmultigravid women.

Only fifteen women (4.7% of all women) were aware that a pap smear is a screening test for cervical cancer, and this correlated well with their education. All these 15 women were graduates or postgraduates. Despite awareness of a pap smear, none of the 15 women had ever undergone a pap smear or any other cervical cancer screening method (Table 3).

However, majority of the women in the study had only primary education and none in this group had heard of a pap smear as a test for cancer cervix screening.

Table 1: Distribution of women according to age.

| | Mean ± SD |
|-----------------|------------|
| Age | 25.4 ± 4.5 |
| Gestational age | 8.9 ± 2.1 |

Table 2: Distribution of women according to parity.

| Parity | No of Women (%) |
|------------------|-----------------|
| Primigravid | 105 (34.1) |
| Multigravid | 177(57.5) |
| Grandmultigravid | 26 (8.4) |
| Total | 308 (100) |

Table 3: Awareness of cancer cervix screening by pap smear.

| Education | Total No | Aware that pap smear is a screening test for cervical cancer (%) | History of pap smear screening in the past (%) |
|----------------------------|------------|--|--|
| Illiterate | 38 (12.3) | 0 (0) | 0 (%) |
| <10 th standard | 163 (52.9) | 0 (0) | 0 (%) |
| 12 th standard | 93 (30.2) | 0 (0) | 0 (%) |
| Graduate | 18 (5.8) | 10 (55.6) | 0 (%) |
| Postgraduate | 2 (0.6) | 1 (6.7) | 0 (%) |
| Total | 308 | 11 | 0 |

Table 4: Risk factors for cervical cancer.

| | No. of women |
|--|--------------|
| One or more risk factor for cervical cancer (early age at marriage, family history, multiple partners, spouse with multiple partners, smoking) | 65 (20.7) |
| No risk factor | 249 (79.2) |
| Total | 314 (100) |

As none of the women had an HPV test ever done, we asked history of risk factors for HPV infection and cervical cancer and this included early age at marriage/first intercourse, multiple partners or spouse with multiple partners, family history of cervical cancer and smoking. Sixty-five women had one or more risk factors for cervical cancer, the most common being early age at marriage. The prevalence of risk factors for cervical cancer is given in Table 4.

Table 5 shows the abnormalities detected in the pap smear reports as per the Modified Bethesda classification 2014. No high grade squamous intra epithelial lesions (HSIL) was detected. Two low grade squamous intraepithelial lesions and 1 Atypical squamous cells of undetermined significance (ASCUS) were detected, and these were managed as per guidelines. They are currently on follow up. There were 96 inflammatory smears (30.5%) and these women were treated based on the type of infection. The majority (61.7%) were smears with no intraepithelial lesion or malignancy (NILM) and the

remaining 6% were unsatisfactory smears which were repeated and these all were reported as NILM.

Table 5: Pap smear report.

| Finding | No of women (%) |
|----------------|-----------------|
| Unsatisfactory | 19 (6.1) |
| NILM | 194 (63) |
| Inflammatory | 96 (31.2) |
| ASCUS | 1 (0.3) |
| LSIL | 2 (0.6) |
| HSIL | 0 (0) |
| Total | 308 |

Incidental findings of cervical polyp were found in 2 women and infected looking nabothian cysts were found in 4 women. The women with cervical polyp were called 6 weeks post-delivery for repeat examination and polypectomy was done in 1 woman and reported as benign. In the other woman, the polyp had spontaneously

regressed. The 4 women with evidence of cervicitis and infected Nabothian cysts had inflammatory smears and were given a course of antibiotics.

DISCUSSION

The pap smears were satisfactory in 94% of patients in the study. The incidence of abnormal pap smears was 0.9% (LSIL & ASCUS) which has been similar to several studies of cervical cancer screening in pregnancy.^{8,9} The presence of inflammatory smears was 31.2%. Many of these women were asymptomatic. The presence of bacterial vaginosis, trichomoniasis and vaginal candidiasis has been associated with poor perinatal outcome.⁵ Routine antenatal screening for *Candida* and *Trichomoniasis vaginalis* and treating them has been found to be associated with a significantly lower risk of preterm birth.¹⁰ In another randomized trial, the authors found that treatment of asymptomatic candida infection was associated with a reduced risk of preterm delivery.¹¹ A speculum exam should be carried out in all women even in the absence of symptoms and a smear should be taken so that timely appropriate treatment in these women would result in a better maternal and perinatal outcome.

None of the women who had studied till high school were aware of cancer cervix screening by a pap smear prior to the study in contrast to 11 women who were graduates or post-graduates, but these women were only 6% of our population studied. This is similar to another Indian study where only 11% of pregnant women were aware of a pap smear.⁵ However in our study, even those with knowledge of a screening test, had never got it done. Education thus plays an important role in awareness. An even more important role is continuous motivation and the best opportunity is in the antenatal period where the woman is in repeated contact with a healthcare provider.

Behavioral risks such as age at first sexual intercourse, number of sexual partners and partner's sexual behaviour are associated with an increased risk of HPV infection, persistence of the infection and the development of neoplastic precursor lesions.¹² 20.7% of women in our study had 1 or more risk factor. As screening for HPV is not always possible in low resource settings, it is important to counsel these women for regular pap smear screening.

The antenatal period is when majority of women will have the opportunity to contact a health care worker irrespective of their educational status. It thus becomes imperative that this opportunity is not lost. Routine screening for cervical cancers in India although being carried out lacks a national policy or framework unlike western countries where women are routinely invited for testing and diligent records are kept. A robust screening system is thus the need of the hour.

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Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Srivastava AN, Misra JS, Srivastava S, Das BC, Gupta S. Cervical cancer screening in rural India: Status & current concepts. *Ind J Med Res.* 2018 Dec;148(6):687.
2. Consensus Document for the Management of Cancer Cervix Prepared as an Outcome of ICMR Subcommittee on Cancer Cervix. Available at: <https://www.icmr.nic.in/sites/default/files/reports/Cervix%20Cancer.pdf>. Accessed 25 January 2020.
3. Manikkam B. Screening for cervical cancer during pregnancy. *Int J Commun Med Public Health.* 2016 Sep;3(9).
4. Ferlay J, Shin HR, Bray F, Forman D, Mathers C, Parkin DM. Estimates of worldwide burden of cancer in 2008: GLOBOCAN 2008. *Int J Cancer.* 2010 Dec 15;127(12):2893-917.
5. Ethirajan S, Srinidhi R, Jayashree K. Pap smear in antepartum women: an opportunity to screen and create awareness. *Int J Reprod, Contracept, Obstetr Gynecol.* 2018;7(10):4094.
6. Ingprasarn A, Onaium N. Prevalence of abnormal conventional Pap smear in pregnant women, Chonburi Hospital. *J Obstet Gynaecol.* 2014;30:137.
7. Canfell K, Sitas F, Beral V. Cervical cancer in Australia and the United Kingdom: comparison of screening policy and uptake, and cancer incidence and mortality. *Med J Australia.* 2006 Nov;185(9):482-6.
8. Sreedevi A, Javed R, Dinesh A. Epidemiology of cervical cancer with special focus on India. *Int J women's Health.* 2015;7:405-14.
9. Farr A, Kiss H, Hagmann M, Marschalek J, Husslein P, Petricevic L. Routine use of an antenatal infection screen-and-treat program to prevent preterm birth: long-term experience at a tertiary referral center. *Birth.* 2015 Jun;42(2):173-80.
10. Khanuja E, Ghosh UK, Garg P, Tomar G, Madan M, Bansal R. A study of cervical intraepithelial neoplasia in pregnancy. *J Obstet Gynaecol Ind.* 2014;64:193-6.
11. Roberts CL, Algert CS, Rickard KL, Morris JM. Treatment of vaginal candidiasis for the prevention of preterm birth: a systematic review and meta-analysis. *System Rev.* 2015 Dec 1;4(1):31.
12. Ribeiro AA, Costa MC, Alves RR, Villa LL, Saddi VA, dos Santos Carneiro MA, et al. HPV infection and cervical neoplasia: associated risk factors. Infectious agents and cancer. 2015 Dec 1;10(1):16.

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