

# Significance of Persistent Inflammatory Cervical Smears in Sexually Active Women of Reproductive Age Group—A Prospective Study

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## Abstract

To study the significance of persistent inflammatory cervical Papanicolaou smears, in sexually active women of reproductive age group attending the out patient department of department of obstetrics and gynecology, Sarojini Naidu Medical College and Hospitals, Agra were recruited. Patients with persistent inflammatory cervical smears were subjected to Schiller directed cervical biopsy for histopathological examination.

Persistent inflammatory changes were seen in 37.6% cervical smears.

Underlying cervical intraepithelial neoplasia (CIN) on histopathologic examination was found in 13.6% persisters. Prevalence of CIN was higher in women over 30 years and significantly so in women with parity higher than 2. It was further observed that severity of underlying CIN lesions increased with increasing duration of marital life.

*Objective:* To study the significance of persistent inflammatory cervical smears in sexually active women of reproductive age.

*Study design:* A prospective tertiary teaching hospital based study on 3000 sexually active women aged between 18 to 45 years attending the OPD from October 2006 to December 2008.

*Material and methods:* Sexually active women aged between 18 to 45 years with inflammatory smears attending the OPD of the department of obstetrics and gynecology, SN Medical College and Hospital were recruited for the study.

Repeat cervical smears were taken after 3 months of systemic antimicrobials plus local antiseptics.

Patients with persistent inflammatory cervical smears were subjected to Schiller directed cervical biopsy for histopathological examination. Relationship of age, parity, duration of marital life, different contraceptive practices and other high-risk factors were studied vis-à-vis histopathological findings of cervical intraepithelial neoplasia.

*Results:* Persistent inflammatory changes were noted in 37.6% cervical smears.

Underlying cervical intraepithelial neoplasia (CIN) on histopathologic examination was seen in 13.6% persisters. Prevalence of CIN was higher in women over 30 years, and over para 3 uninfluenced by the presence of cervical lesion. Severity of underlying CIN lesions increased with increasing duration of marital life.

*Conclusion:* Women with persistent inflammatory cervical smears, especially if she is above 30 years, sexually active for 10 years and is third para, should have further evaluation with cervical biopsy.

**Keywords:** Sexually active women, persistent inflammatory changes, cervical intraepithelial neoplasia.

## INTRODUCTION

The apparently prolonged natural history of precancerous lesions of uterine cervix and accessibility of cervix for visual examination and to obtain exfoliative cells had made screening for cervical cancer most popular. The frequency of atypia on cervicovaginal smears, reported as class II Papanicolaou smears range at 1.6 to 5.4%.<sup>6</sup> These minimal nuclear and cytoplasmic squamous cell changes in Papanicolaou smears often have been attributed to infection (Kiviat et al, 1985)<sup>9</sup> and referred as inflammatory smears.

Contrary to the initial belief that cervical atypia represents a benign process, several investigators have documented that 10 to 25% of patients with initial atypical cytology will eventually be found to harbor significant cervical dysplasia.<sup>4,8</sup> This is found to be more apparent in patients with persistent inflammatory smears.<sup>19</sup>

## AIMS

Present study was designed to validate the clinical importance of the cytologic diagnosis, by ascertaining rate of CIN underlying persistent inflammatory cervical smears (PICS).

**MATERIAL AND METHODS**

3000 sexually active women aged between 18 to 45 years attending the OPD of the department of obstetrics and gynecology, SN Medical College and Hospital from October 2006 to December 2008 were randomly recruited for the study.

Surface scrape biopsy of vaginal cervix using Ayre's spatula was taken in the 3000 consecutive sexually active women.

The smears on staining according to modification of Papanicolaou technique and these were considered as inflammatory, when they showed increased parabasal eosinophilic cells with pyknotic or slightly enlarged nucleus having regular but blurred chromatin pattern within thickened nuclear membrane along with evidence of neutrophils, inflammatory exudate, plasma cells or clumps of pathogens.

Patients with inflammatory cervical smears (1128 cases) were given treatment-Trimethoprim 80 plus Sulphamethoxazole 400 mg. Twice daily for 7 days or Doxycycline 100 mg. Once daily for 14 days orally, along with vaginal insertion for 6 nights or Clotrimazole 100 mg suppositories.

Patients were considered to have persistent inflammatory cervical smear, if the cervical smear repeated after 3 months of antimicrobial-antiseptic treatment reported again as inflammatory. There were 442 such cases and were subjected to cervical biopsy from Schiller negative areas to detect underlying CIN lesions.

Relationship of general characteristics like age, parity, duration of marital life and clinical variables were studied in patients with PIGS vis-à-vis histopathological examination findings of cervix.

**RESULTS**

On studying the general characteristics of women with persistent inflammatory smears is shown in Table 1.

Women with PIGS had an average age of 35.4 + 7.1 years, parity 2.4 + 1.8 and marital life of 12.9 + 5.4 years were mostly illiterate, urban Hindu women belonging to low socioeconomic status with a VDRL positivity of 2.8%.

It was sad to note that, no contraception was practised by 36.1% women and barrier method was adopted by only 9.1% women with PIGS (Table 1).

Inflammatory smears, grouped as class II Papanicolaou smears were reported in 1128 of 3000 (37.6%) smears (Fig. 1).

Inflammatory smear persisted in 442 of these 1128 (39.2%) cases.

The prevalence of underlying CIN lesions at histopathological examination among 442 cervixes with PIGS was 13.6%, excluding 10.6%, with koilocytotic features (Table 2).

Another interesting observation was that the proportion of underlying CIN lesion was more than twice among women aged beyond 30 years than those younger by that age. Similar was

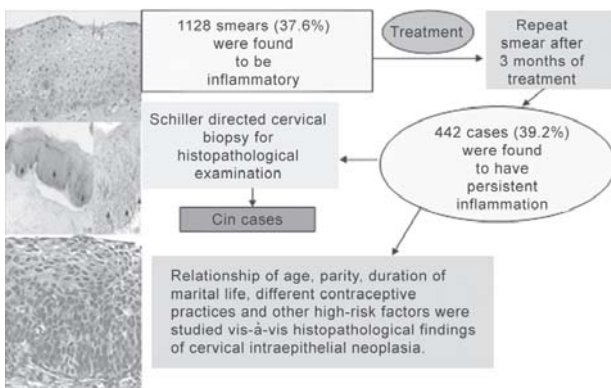
**Table 1:** General characteristics of women with PIGS

Parameter	Mean
Mean age	35.4 ± 7.1 years
Mean age of menarche	12.44 ± 0.97 years
Mean age of marriage	16.15 ± 2.48 years
Mean age of coitarche	17.0 ± 1.14 years
Mean age of first pregnancy	18.3 ± 1.48 years
Mean parity	2.4 ± 1.8
Mean age of marital life	12.9 ± 5.4 years
<b>Contraception</b>	
No	36.1%
Barrier	9.1%
Others	45.2%
<b>Residence</b>	
Urban	64%
Rural	36%
<b>Socioeconomic status</b>	
High	4.42%
Middle	24.8%
Low	70.8%
<b>Religion</b>	
Hindu	84.2%
Muslim	9.4%
Christian	6.4%
<b>Education</b>	
Literate	23.6%
Illiterate	76.4%
<b>VDRL</b>	
Positive	2.8%
Negative	97.2%

**Table 2:** Details of histopathological findings of women with persistent inflammatory cervical smears (442 cases)

S.no.	Histopathological findings	Number of cases	Percentage of cases
1.	Chronic cervicitis	315	71.3
2.	Mild atypia with koilocytes	47	10.6
3.	CIN 1	32	7.2
4.	CIN 2	19	4.3
5.	CIN 3	9	2.0
6.	Invasive carcinoma	2	0.5
7.	Tubercular cervicitis	18	4.1
<b>Total</b>		442	100.0

3000 sexually active women aged between 18 to 45 years attending the OPD of the department of obstetrics and gynecology, SN Medical College and Hospital were recruited for the study. All these women were subjected to Pap smear.



**Fig. 1:** Summarizing the material and methods

**Table 3:** Correlation of age and parity in women with PICS and CIN

Parameter	Total no. of cases	CIN 1	CIN 2	CIN 3	Total no.	Percentage
<i>Age in years</i>						
Less than 30	120	2	3	3	8	1.8
More than 30	322	30	16	6	52	11.7
<b>Total</b>	442	32	19	9	60	13.6
<i>Parity</i>						
Less than 3	273	18	5	4	27	6.1
More than 3	169	14	14	5	33	7.5
<b>Total</b>	442	32	19	9	60	13.6

**Table 4:** Relation between grade of CIN and mean duration of marital life

S.no.	Grade of CIN	Mean duration of marital life
1.	CIN 1	8.6 + 4.3 years
2.	CIN 2	14.5 + 4.2 years
3.	CIN 3	15.8 + 2.6 years
	Mean duration of marital life of PICS	12.9 + 5.4 years

the proportion seen in women who had borne three or more times than the less parous ones (Table 3).

It was found that mean duration of marital life became higher as the grade of CIN increased (Table 4).

## DISCUSSION

Prevalence of inflammatory smears and that of PICS, reported as 39.2%, was 4 to 5 times higher than those observed by other workers.<sup>13,19</sup> These higher figures, though not controlled, could be attributed to due:

- To diagnostic bias.
- Population characteristics.
- Significantly lower acceptance rate (9.1%) for barrier contraceptives.
- Compliance to advice of consuming the prescribed medicines was not tested.
- Information regarding sexual activity in the period before repeat cervical smear was also not sought.

CIN lesions on histopathologic examination were found in 13.6% of cases with PICS. Varying incidences have been noted by different authors as 11.5 to 44.5%.<sup>4,11,13-15</sup>

This wide variation is difficult to explain, but it should be enough to warn clinicians not to ignore PICS.

In the present study histopathologic evidence of CIN was seen to be significantly more prevalent after the age of 30 years and among parous (> 3 parity) women. Preponderance of CIN among parous was also noted by other workers.<sup>12</sup>

Present study showed an increasing trend in the occurrence of CIN with age and parity.

An observation which may have bearing on understanding of evolution of CIN, especially among patients with PICS was that of an average age of marital life of 8.6 years for women with CIN-1 lesions being significantly lower than 15.8 years for women with higher CIN-3 lesions. There are reports of incidence of dysplasia being double in women with more than 10 years of marital life than these with lesser duration.<sup>16</sup>

90.9% of women had either adopted contraception other than barrier method or no contraception.

This could be considered as one of the contributory factors in ushering cervical squamous lesions due to possible exposure to various infective oncogenes.

It may be recalled that consistent use of barrier methods has been shown to decrease the risk of cervical cancer.<sup>20</sup>

## CONCLUSION

PICS *per se* seems to have some contributory effect in addition to other influencing factors studied like age, parity, duration of marital life and interplay of contraceptive nonusage for the causation of CIN. Hence, based on the observations made, it is recommended that a woman with PICS should be subjected to cervical biopsy for histopathologic scrutiny, especially if she is above 30 years, is /has been sexually active for 14 years and is at least a third para.

This paper and work is specially designed for resource poor settings where expensive machines and skilled personnel are in short and simple techniques like application of iodine and visual inspection of the cervix can help to save women attending outdoors in resource poor settings from the deadly cervical cancer.

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