

# A STUDY OF HISTOPATHOLOGICAL SPECTRUM OF LESIONS IN CERVIX BIOPSIES IN A TERTIARY CARE HOSPITAL

## ABSTRACT:

**INTRODUCTION:** Uterine cervix is prone ~~for~~to numerous infections, inflammations and malignancy. Cervical cancer is the most common cancer in women which may be detected early with the aid of doing screening examination.

**AIM:** This study ~~is~~was done to examine and analyze the histopathological lesions of cervix and to evaluate the frequency of these lesions, to understand the spectrum of various neoplastic and non-neoplastic cervical lesions and to study the incidence and frequency of various cervical lesions in different age groups so as to target them for various diagnoses, early detection and raising awareness.

**STUDY DESIGN:** Retrospective cross-sectional study.

**PLACE AND DURATION OF STUDY:** The study was conducted for a duration of 15 months from January 2019 to March 2020 retrospectively. Different types of pathological lesions in cervix were analyzed in the department of Pathology ~~in~~at Saveetha medical college.

**METHODOLOGY:** This study consists of a total of 534 cases, Patients' available clinical profile and the histopathologic diagnosis were noted from the registers and all cases of cervical biopsies over the above time period were included for this study. The diagnoses ~~was~~were then classified into non-neoplastic, pre-invasive and invasive lesions and statistical analysis was done using IBM SPSS statistical package version 23 and JASP statistical package version 0.13.1.

**RESULTS:** In this study, 534 cases are studied. ~~Most~~The most common age group associated with the occurrence of cervical lesions were 41-50 years, among them the most common non-neoplastic lesion was chronic cervicitis and the most common malignant lesion observed was squamous cell carcinoma.

**CONCLUSION:** In this study, non-neoplastic lesions were more common as compared to neoplastic lesions, adding to that chronic cervicitis being the most common. Histopathological examination and tissue biopsy helps in the early detection and diagnosis of malignant and premalignant conditions. These prognostic measures could help the patients to have better treatment options and can at times reduce the fatality rate.

**KEYWORDS:** Cervical lesions, Chronic cervicitis, Squamous cell carcinoma, Cervix

## 1. INTRODUCTION:

36 The uterine cervix is bounded above by internal os and below by external os. The mucosa lining  
37 of cervix differs from body of the uterus by the absence of a sub-mucosa.<sup>[1]</sup> Anatomically the  
38 cervix is differentiated into the ectocervix and the endocervical canal. The ectocervix is covered  
39 by a mature squamous epithelium. The endocervix is lined by columnar epithelium, mucus-  
40 secreting epithelium. In this squamocolumnar junction, the epithelium is variable and changes  
41 with age and hormonal influence. The "transformation zone" that is where squamous and  
42 columnar meets predisposes to highly susceptible infections with HPV and neoplasms.<sup>[2]</sup> Thus,  
43 this acts as a "gateway" for various infections, cervical precursor lesions, which affects the  
44 cervix.<sup>[3]</sup> The cervical lesions are characterized into-as nonneoplastic, preinvasive and invasive  
45 neoplastic lesions.<sup>[4]</sup> Several Bacterial, viral, protozoan and fungi microorganisms cause infective  
46 forms of acute and chronic cervicitis. Recent studies indicate that chronic granulomatous  
47 cervicitis, though rare, is mostly caused by tuberculosis.<sup>[5,7]</sup> HPV cervicitis predisposes to pre-  
48 invasive cervical intraepithelial neoplasia (CIN I, II, III) and eventually to invasive cervical  
49 carcinoma.<sup>[5,6]</sup> The various measures towards a proper diagnosis of the patient involves  
50 categorization, recognition and familiarization of the cervical non-neoplastic lesions with their  
51 histomorphologic findings.<sup>[5]</sup> This type of cervical lesions are-is due to a reduction in immunity  
52 and hormonal replacement therapy.<sup>[8]</sup> Cervical cytology, histopathological and colposcopic  
53 examination are some of the diagnostic utilities used for cervical lesions.<sup>[9]</sup>

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## 55 **2. MATERIAL AND METHODS :**

56 This study consists of a total of 534 cases, collected retrospectively from the department of  
57 Histopathology, Saveetha Medical College, Chennai over a period of 15 months from January  
58 2019 to March 2020. Patients' available clinical profiles s and the histopathologic diagnosis were  
59 noted from the registers and all cases of cervical biopsies over the above time period were  
60 included for this study. Scanty and autolyzed specimens were excluded from this study.

61 The diagnoses was then classified into non-neoplastic, pre-invasive and invasive lesions and  
62 statistical analysis was done using IBM SPSS statistical package version 23 and JASP  
63 statistical package version 0.13.1.

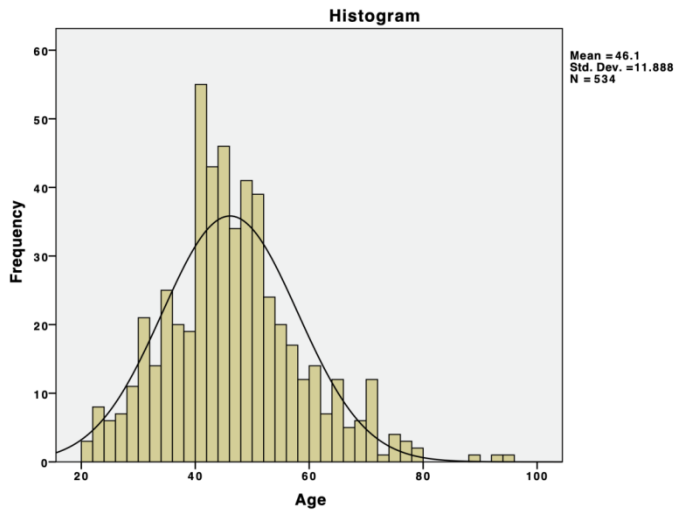
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## 65 **3. RESULTS AND DISCUSSION:**

### 66 **3.1 RESULTS**

67 This study included a total of 534 cases, with ages s ranging from 21 years to 95 years with a  
68 mean of 46.1 years and SD of 11.888 which showed a normal distribution. [Figure 1]

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71 **Figure 1: Age distribution of cervix biopsy cases**

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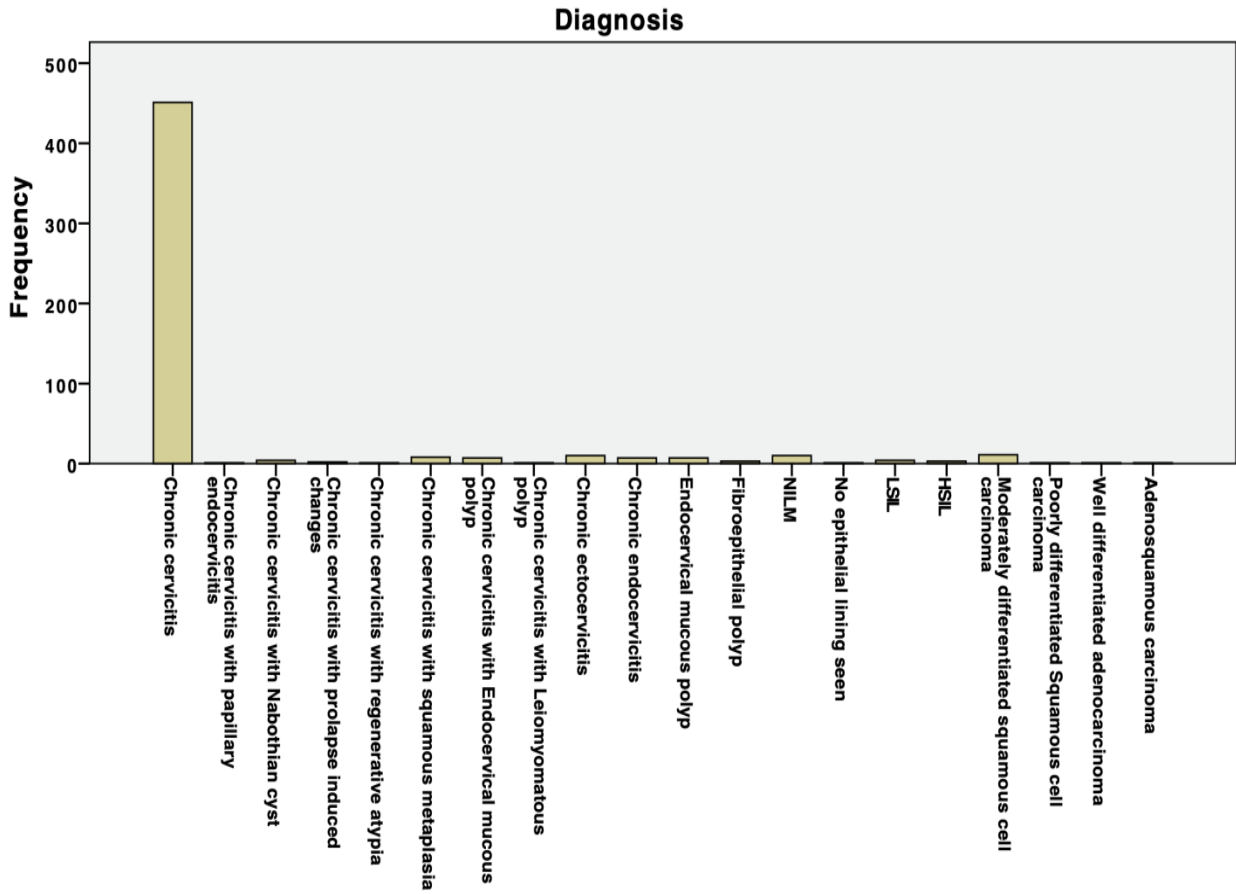
73 Of the 534 cases, 512 cases (95.89%) were ~~non~~-non-neoplastic, 7 cases (1.3%) were precursor  
 74 lesions, 15 cases (2.8%) were neoplastic of which 1 was benign (which is a leiomyomatous  
 75 cervical polyp) and 14 were invasive malignancies. [Table 1]

76 **Table 1: Distribution of cervix biopsy cases**

	Frequency	Percentage
Nonneoplastic lesions	512	95.9 %
Benign neoplasms	1	0.2 %
Precursor lesions	7	1.3 %
Malignant neoplasms	14	2.6 %
Total	534	100 %

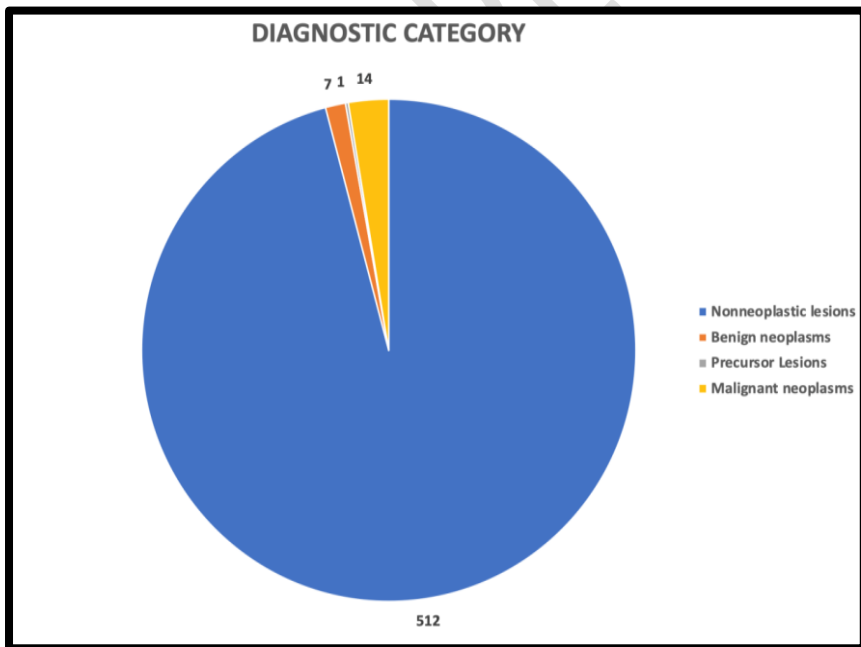
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80 **Figure 2: Distribution of the total number of cervical biopsy cases**

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84 **Figure 3: Distribution of various cervical lesions**

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88 | **Distribution to frequency of cervical lesions in different age groups:**

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90 The commonly affected age groups are 41-50 years 213 cases (39.89%); followed by 31-  
91 40years 122 cases (22.85%) and 51-60years 93 cases (17.42%).

92  
93 **Table 2: Age wise distribution of cervical lesions**

Age	Nonneoplastic <u>(n)</u>	Precursor lesions <u>(n)</u>	Benign neoplasm <u>(n)</u>	Malignant neoplasm <u>(n)</u>	Total <u>(n)</u>
21 – 30 years	48	0	0	0	48
31 – 40 years	121	0	0	1	122
41 – 50 years	199	6	1	7	213
51 – 60 years	89	1	0	3	93
61 – 70 years	39	0	0	2	41
71 – 80 years	13	0	0	1	14
81 – 90 years	1	0	0	0	1
91-100 years	2	0	0	0	2
Total	512	7	1	14	534

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95 **Distribution of non-neoplastic lesions:**

96 | In our present study, the most common lesion was chronic cervicitis which was common in 41-  
97 50 years age group individuals, comprising a total of 491 cases (91.95%).

98 Cervical low-grade intraepithelial lesion (LSIL) was noted in 4 cases (0.75%), Cervical high-  
99 grade intraepithelial lesion (HSIL) was found in 3 cases (0.56%).

100 Squamous cell carcinoma (SCC) was the most common malignancy noted in 12 cases and  
101 Adenocarcinoma in 2 cases. Among SCC, moderately differentiated SCC in 11 cases, poorly  
102 differentiated SCC in 1 case.

103 Benign neoplasm included a case of Chronic cervicitis with Leiomyomatous polyp.  
104 | Adenocarcinoma was seen in 2 cases, and the most affected age group in this malignancy was  
105 41-50 years (8 cases).

106  
107 **Table 3: Spectrum of lesions in cervix biopsies**

Diagnostic category	Diagnosis	Frequency <u>(n)</u>	Percentage <u>(%)</u>
Nonneoplastic lesions	Chronic cervicitis	491	91.95
	Endocervical mucous polyp	7	1.31

	Fibroepithelial polyp	3	0.56
	NILM	10	1.87
	No epithelial lining seen, only stroma seen	1	0.19
Precursor Lesions	LSIL	4	0.75
	HSIL	3	0.56
Benign neoplasms	Chronic cervicitis with Leiomyomatous polyp	1	0.29
Malignant neoplasms	Moderately differentiated squamous cell carcinoma	11	2.06
	Poorly differentiated Squamous cell carcinoma	1	0.19
	Well differentiated adenocarcinoma	1	0.19
	Adenosquamous carcinoma	1	0.19

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110 **Table 4: Age wise distribution of various cervical lesions**

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Diagnostic category	Diagnosis	Age range (n)								Total
		21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	
Non-neoplastic	Chronic cervicitis	45	104	176	78	32	13	1	2	451
	Chronic cervicitis with papillary endocervicitis	0	1	0	0	0	0	0	0	1
	Chronic cervicitis with Nabothian cyst	0	0	3	0	1	0	0	0	4
	Chronic cervicitis with prolapse induced changes	0	0	0	2	0	0	0	0	2
	Chronic cervicitis with regenerative atypia	0	0	1	0	0	0	0	0	1
	Chronic cervicitis	0	2	3	1	2	0	0	0	8

	with squamous metaplasia									
	Chronic cervicitis with Endocervical mucous polyp	1	2	3	0	1	0	0	0	7
	Chronic ectocervicitis	0	4	2	2	2	0	0	0	10
	Chronic endocervicitis	0	2	4	1	0	0	0	0	7
	Endocervical mucous polyp	1	2	2	2	0	0	0	0	7
	Fibroepithelial polyp	0	2	1	0	0	0	0	0	3
	NILM	1	2	4	2	1	0	0	0	10
	No epithelial lining seen	0	0	0	1	0	0	0	0	1
	Total	48	121	199	89	39	13	1	2	512
Precursor lesions	LSIL			3	1					4
	HSIL			3	0					3
	Total			6	1					7
Benign neoplasm	Chronic cervicitis with Leiomyomatous polyp			1						1
	Total			1						1
Malignant neoplasm	Moderately differentiated squamous cell carcinoma		1	6	3	0	1			11
	Poorly differentiated Squamous cell carcinoma		0	0	0	1	0			1
	Well differentiated adenocarcinoma		0	0	0	1	0			1
	Adenosquamous carcinoma		0	1	0	0	0			1

	Total		1	7	3	2	1			14
Total		48	122	213	93	41	14	1	2	534

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### 114 3.2 DISCUSSION:

115 This study was conducted to study the histopathological spectrum of lesions in cervical biopsies  
 116 and to assess its frequency in our hospital. A total of 534 cases were included ~~for~~in this study.  
 117 Among them, non-neoplastic lesions were found to be more common. Chronic cervicitis was the  
 118 most common lesion observed in this study. The most common age group involved was 41-50  
 119 years and the least number of cases were involved in the 81-90 year age group.

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121 **Table 5: Comparison of Age-wise distribution of cases**

	Saravanan <i>et al.</i> [12]	Pandit GA <i>et al.</i> [11]	Dubey K <i>et</i> <i>al.</i> [10]	Purushotha m R <i>et al</i> [17]	Our study
Age group	41-50 yrs (38.9%)	41-50 yrs (37.5%)	30-40 yrs (48.3%)	40-49 yrs (44.5%)	41-50yrs (39.89%)

122 In our study, the ~~age-age~~ age-wise distribution of cases was concordant with the study done by  
 123 Saravanan *et al.* [12] and Pandit GA *et al.* [11].

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125 **Table 6: Comparison of frequency of cervical lesions with other studies**

	Non-neoplastic	Preinvasive (LSIL and HSIL)	Invasive
Ali <i>et al</i> ?	46.34%	2.43%	51.2%
Kumari k <i>et al</i> ?	49.39%	15.29%	35.31%
Bagde <i>et al</i> [15]	46.51%	24.1%	13.95%
Fatima <i>et al</i> [16]	35.33%	03%	61.66%
Jain <i>et al</i> [14]	73%	23.5%	5.5
<b>This study</b>	96.07%	1.31%	2.63%

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127 This study consisted of 534 cervical biopsies. The maximum numbers of cases were of non-  
 128 neoplastic lesions- 96.07%, this was concordant to the results of Jain *et al* and Kumari K *et al* in  
 129 which non-neoplastic being the most 73% and 49.39% respectively. 14 cases were of invasive  
 130 carcinoma comprising of Squamous cell carcinoma(13cases) and 2 cases of adenocarcinoma.  
 131 Only 0.75% cases were LSIL, in which the normal epithelium could be brought back with  
 132 treatment, 0.56% cases were diagnosed as HSIL.

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### 134 4. CONCLUSION:

135 The main objective of our study was to know the histopathological spectrum of cervical diseases  
136 and their frequency in our hospital. In our study, non-neoplastic lesions were more common as  
137 compared to neoplastic lesions, adding to that chronic cervicitis being the most common  
138 Histopathological examination, tissue biopsy helps in [the](#) early detection, diagnosis of malignant  
139 and premalignant conditions. These prognostic measures could help the patients to have better  
140 treatment options and can at times reduce the fatality rate.

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142 **ETHICAL CLEARANCE:** Obtained.

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146 **COMPETING INTERESTS DISCLAIMER:**

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148 **Authors have declared that no competing interests exist. The products used for this**  
149 **research are commonly and predominantly use products in our area of research and**  
150 **country. There is absolutely no conflict of interest between the authors and producers of**  
151 **the products because we do not intend to use these products as an avenue for any**  
152 **litigation but for the advancement of knowledge. Also, the research was not funded by**  
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