Cytopathological Overview of Cervical Smear in Maro Sebo Village, Jambi Provence, Indonesia

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Abstract. Cervical cancer is the second most common cancer and the highest cause of death in women in Indonesia. One of the checks that can be applied is the Pap smear. The purpose of this study was to examine the clinical and cytopathological features of cervical precancerous lesions according to the 2014 Bethesda classification. This study was a descriptive study with a cross-sectional approach. Data collection techniques using purposive techniques. The data used is primary data obtained in August 2022, with a sample of 27 patients and will be analyzed univariately. The most clinical characteristics of the patients were in the age group of 25–35 years, namely 11 patients (40.7%), 20 patients (74.0%) multiparous patients, 9 patients who did not use any contraception. Patients (33.4%), non-menopausal 21 patients (77.8%), 15 patients (55.5%) without complaints, 15 patients (55.5%) without findings, 1 patient (3.7%) with gynecological diseases, 27 patients (100%) patients without a risk relationship, 2 patients (7.4%) were smokers, the most menarche age was in the age group over 12 years, 15 patients (55.5%) and based on cytopathology results obtained 9 patients (33.4%) with NILM, 2 patients (7.4%) NILM-AS, 4 patients (14.8%) chronic cervicitis non-specific ASC-US, 11 patients (40.7%) with chronic cervicitis non-specific NILM, and 1 patient (3.7%) with NILM - Acute cervicitis. NILM non-specific chronic cervicitis was the most common cytopathological outcome, followed by NILM, ASC-US non-specific chronic cervicitis, NILM-AS, and NILM Acute Cervicitis.

Keywords: cervical pap · cytopathology · muaro sebo

1 Introduction

Cervical cancer is a malignancy of the cervix that occurs due to the abnormal growth of cervical epithelial tissue due to continuous oncogenic human papillomavirus (HPV) infection (HR-HPV), this virus is generally transmitted through sexual intercourse, more than one sexual partner and women. Who started sexual intercourse before the age of 18 years will be five times more at risk of developing cervical cancer, this happens

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because cervical columnar cells are more sensitive to metaplasia in adulthood [1, 2]. Cervical cancer is the fourth most common cancer in women with an estimated 570,000 women diagnosed with cervical cancer and 311,000 women dying from cervical cancer in 2018. The incidence of cervical cancer or cervical cancer that occurs in Indonesia is 23.4 per 100,000 population with an average death rate figure of 13.9 per 100,000 population [3]. Cancer can be treated with primary prevention in the form of HPV vaccination and secondary prevention in the form of cervical cancer screening tests such as the Papanicolaou cytological examination (Pap test) and visual examination with acetic acid. (IVA) [4–6]. The sensitivity of the pap smear test in detecting high-grade squamous intraepithelial lesions (HSIL) is 70.80% [7]. The purpose of this study was to examine the clinical and cytopathological features of cervical precancerous lesions according to the 2014 Bethesda classification.

2 Method

This research is a descriptive study with a cross-sectional approach to find out the clinico-cytopathological description of cervical precancerous lesions which will be carried out in August 2022 starting with coordination with the PIR II Bajubang Health Center and the activity location at Muara Sebo Village Assistant Health Center. The smears were stained with Papanicolaou stain and observed under a light microscope. The microscopic assessment used the Bethesda 2014 system. The clinical variables assessed were age, parity, type of contraception, menopause, complaints, gynecological history, risk association, smoking history, menarche age, and locality status, while the cytopathological variables were cervical precancerous lesions according to Bethesda 2014 criteria [8].

3 Result

There are 27 women from Muara Sebo Village who are married or have sexual relations with an age range of 25–55 years. Table 1 describes the characteristics of all patients according to age, parity, contraception, menopause or not, complaints, localization status, patients with gynecological diseases, risk relationships, smoking and cytopathology results. The mean age was 25.0–55.0 years with 1 or 3.7% nulliparas, 6 or 22.2% primiparas and 20 or 74.0%. There were 6 or 22.2% menopausal patients and 21 or 77.8% no menopausal patients. There were 5 or 18.5% of patients using IUD 2 or 7.4% using pills, 2 or 7.4% using injections, 7 or 26.0 using implants, 1 or 3.7% using MO and 9 or 33, 3% did not use any contraceptive method.

There are 7 or 26.0% with vaginal discharge, 1 or 3.7% de vaginal itching, 3 or 11.1 with vaginal discharge and itching and 15 or 55.5 without complaints. There were 1 or 3.7% with gynecological disease, 26 or 96.2% without gynecological disease. There are 27 or 100.0% who do not have a risky relationship. There were 2 or 7.4% who smoked and 25 or 92.5% who did not smoke. The age of menarche was the most in the age group over 12 years, with 15 patients or 55.5%. Obtained 2 or 7.4% with plant cysts, 4 or 11.1% with fluorine albus, 2 or 7.4% with portio erosion, 1 or 3.7% with papillae, 1 or 3.7% with polyps, 15 or 55.5% not found. There were 9 or 33.4% with NILM results, 1 or 3.7% with NILM-Atrophic Smear (AS), 11 or 40.7% with NILM non-specific chronic

cervicitis, 4 or 14.8% with non-specific chronic cervicitis ASC-US, 1 or 3.7% with NILM Acute Cervicitis.

Figure 1 illustrates the cytopathological features by age. The highest NILM results were in the age group 31–40 6 years or 66.6%, in the NILM-Atrophic Smear divided into the 41–50 group and the age group >50 was 1 or 50.0%, in the NILM non-specific chronic cervicitis it was in the age group 20–30 is 4 or 36.3%, in ASC-US non-specific chronic cervicitis is in the 41–50 age group is 3 or 75.0%, in Acute Cervicitis NILM is in the 20–30 age group is 1 or 100, 0%.

Figure 2 illustrates the features of cytopathology based on parity. The most NILM cytopathology results were 8 or 88.9% multiparous patients, the NILM-Atrophic Smear (AS) cytopathology results were 2 or 100.0% multipara, the most ASC-US nonspecific chronic cervicitis cytopathology results were 3 or 75.0% multipara, the most nonspecific chronic cervicitis cytopathology NILM multipara 7 or 63.6%, NILM Acute Cervicitis cytopathology 1 or 100.0% pimipar.

Figure 3 illustrates the cytopathological features by type of contraceptive. The results showed that more patients did not use any contraceptive method, 3 or 33.3% in NILM, 2 or 100.0% in NILM-Atrophic smear (US), 5 or 38.4% in NILM nonspecific chronic cervicitis, while the Cytopathology results of NILM-Acute Cervicitis were 1 or 100.0% of patients using IUDs.

Figure 4 illustrates the cytopathological features by menopausal status. NILM results were more common in non-menopausal patients (8 or 88.9%). NILM-Atrophic smear (AS) results occur in postmenopausal patients (2 or 100.0%). NILM non-specific chronic cervicitis was more common in non-menopausal patients (9 or 81.8%). Non-specific chronic cervicitis ASC-US results were more common in non-menopausal patients (3 or 75.0%), and outcomes in NILM-non-menopausal acute cervicitis (1 or 100%).

Figure 5 depicts the cytopathological features by complaint. At NILM, the most complaints were leucorrhoea, 2 or 22.2%. In the NILM-Atrophic Smear (AS) examination, 2 or 100.0% did not find any complaints. In NILM non-specific chronic cervicitis, the most common complaint is leucorrhoea as much as 4 or 36.5%. In nonspecific ASC-US chronic cervicitis, 3 or 75.0% have no complaints, and in acute NILM-Cervicitis vaginal discharge is 1 or 100.0%.

Figure 6 illustrates the cytopathological features based on the gynecological history. Most of the cytopathology results were found in patients who had no gynecological history. 9 or 100.0% on NILM, 2 or 100.0% on NILM -Atrophic smear (US), 4 or 100.0% on ASC-US nonspecific chronic cervicitis, 11 or 100.0% on NILM nonspecific chronic cervicitis, whereas in NILM-Acute Cervicitis 1 or 100% with a history of gynecological disease.

Figure 7 illustrates the cytopathological features based on the historical risk association. There is no history of risk relationship either in NILM, NILM-Atrophic smear (AS), ASC-US non-specific chronic cervicitis, NILM non-specific chronic cervicitis, and in NILM Acute Cervicitis.

Figure 8 illustrates the cytopathology based on smoking history.

Most of the patients have no history of smoking. While NILM found 2 or 22.2% with a history of smoking.

Table 1. Clinical characteristics

Age (years)	**n = 27**
20–30	
31–40	6(22.2%)
41–50	9(33.3%)
>50	8(29.6%) 4(14.8%)
Balance	
Nullipara	1(3.7%)
Primipara	6(22.2%)
Multiparous	20 (74.0%)
Menopause	
Yes	6(22.2%)
No	21(77.8%)
Contraception	
IUDs	5(18.5%)
Pills	2(7.4%)
Injection	2(7.4%)
Implants	7(26.0%)
MOW	1(3.7%)
No	9(33.3%)
Complaint	
Vaginal Discharge	7(26.0%)
Vaginal Itching	1(3.7%)
Vaginal Discharge + Itching	3(11.1%)
No Complaint	15(55.5%)
Gynecological History	
Yes	1(3.7%)
No	26(96.2%)
Risky Relationships	
Yes	0(0.0%)
No	27(100.0%)
Variables	n = 100
smoked	
Yes	2(7.4%)

(*continued*)

Table 1. (*continued*)

Age (years)	**n = 27**
No	25(92.5%)
Menarche	
	12(44.4%)
9-12	15(55.5%)
>12	
Localist Status	3(11.1%)
Fluorine Albus	2(7.4%)
Erosion Portion	1(3.7%)
Papil	1(3.7%)
Polyps	2(7.4%)
Naboti Cyst	15(55.5%)
No	
Cytopathology	9(33.34%)
NILM	2(7.4%)
NILM-US	4(14.8%)
non-specific chronic cervicitis NILM	11(40.7%)
non-specific chronic cervicitis ASC-US	1(3.7%)

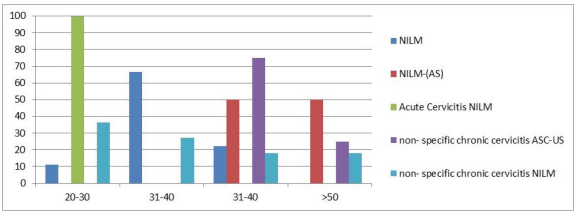

Fig. 1. Cytopathological picture of cervical smear based on age

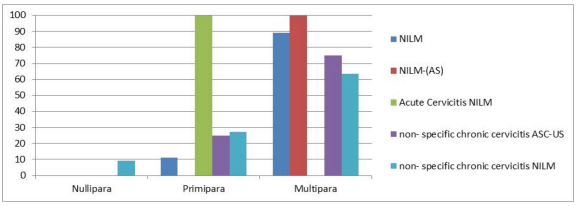

Fig. 2. Cytopathological picture of cervical smear based on parity

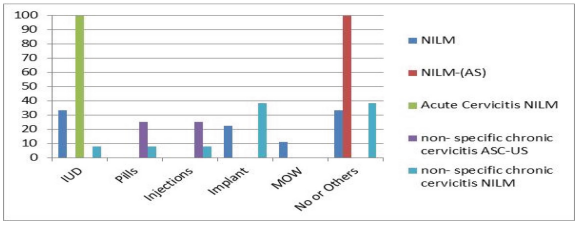

Fig. 3. Cytopathological picture of cervical smear based on contraceptive method

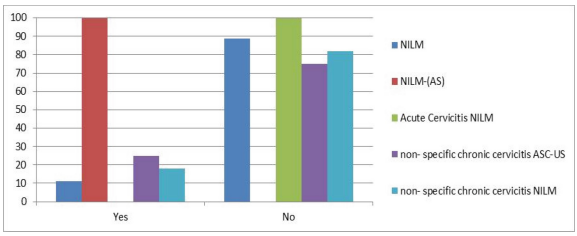

Fig. 4. Cytopathological picture of cervical smear based on menopausal status

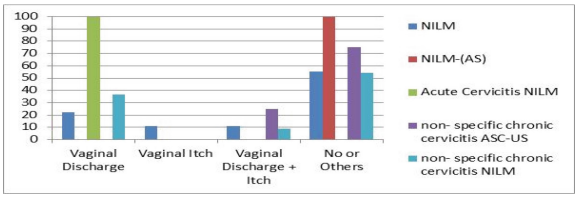

Fig. 5. Cytopathological picture of cervical smear based on complaints

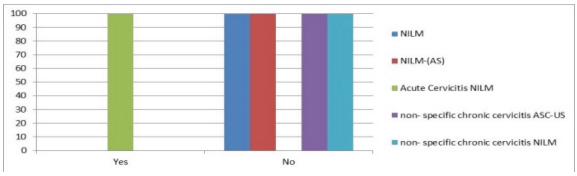

Fig. 6. Cytopathological picture of cervical smear based on gynecological history.

Figure 9 illustrates the cytopathological features based on the age of menarche. In the NILM, the most menarche events in the age group over 12 years were 6 people or 66.7%. NILM Atrophic Smear (USA) is divided into 1 or 50.0% for the age range of 9–12 years and 1 or 50.0% for the age above 12 years. In the CKNS-NILM, the most menarche age group was more than 12 years, 8 or 72.7%. In ASCUS-CKNS, the most menarche age group is 9–12 years, 4 or 100.0%, and in NILM-Acute Cervicitis, the menarche age group is more than 12 years, 1 or 100.0%.

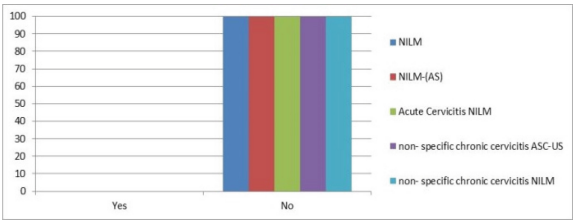

Fig. 7. Cytopathological picture of cervical smear based on risk relationship.

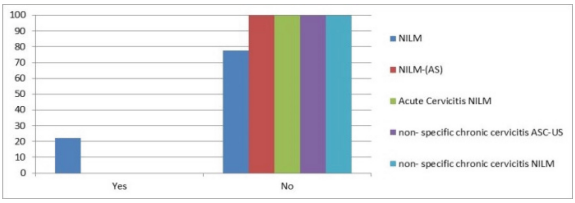

Fig. 8. Cytopathological picture of cervical smear based on smoking history

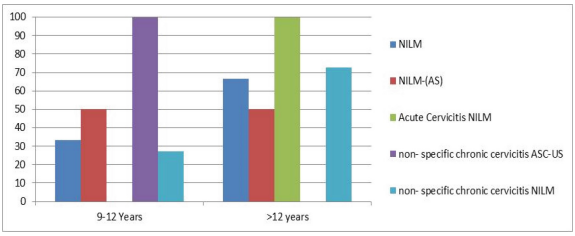

Fig. 9. Cytopathological features of cervical smear by age menarche

Figure 10 illustrates cytopathological features based on local status. Most cytopathology results occur in patients without any findings. 6 or 75.0% in NILM, 2 or 50.0% in ASCUS-CKNS, 6 or 54.5% in CKNS-NILM, 1 or 100.0% in NILM-Acute Cervicitis. While the NILM-Atrophic Smear (AS) is divided into 1 or 50.0% without findings and 1 or 50.0% with complaints of naboti cysts.

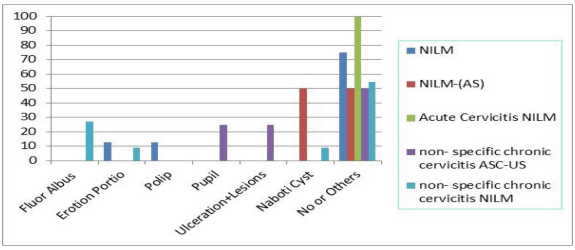

Fig. 10. Cytopathological features of cervical smears by status of locality

4 Discussion

Based on the 2014 Bethesda System, specimen adequacy evaluation is the most important quality assurance component in reading pap smear results. There are two categories, which are defined as "satisfactory" and "unsatisfactory" specimens. Specimens satisfactory to evaluate indicate the presence or absence of endocervical components/transformation zones and other quality indicators, such as some camouflage by blood, inflammation, etc. that are plausible. As for specimens that are unsatisfactory for evaluation, specimens are rejected/unprocessed for some reason or specimens are processed and examined, but are not satisfactory for epithelial abnormality evaluation for several reasons (8). In this study, of 27 patients who underwent Pap smear examination, all specimens were found satisfactory for further evaluation.

The purpose of early cervical cancer screening is carried out in women aged 20 years and over, but in Indonesia the priority of early detection of cervical cancer is carried out in women aged 30 to 50 years [9]. While the American College of Obstetricians and Gynecologists (2009) recommends Pap smear examination starting at age 21 years. Women aged 21–29 years are advised to do a Pap smear every 3 years, aged 30–65 years do a Pap smear with an HPV test every 5 years, and after the age of 65 years the screening should be stopped.

The most cytopathology results in this study were 11 or 40.7% for NILM-CKNS and followed by 9 or 33.3% for second-order NINM. The same results were obtained in a previous study by Fairuz et al. in 2021, namely 40 or 68.3% for NILM, the frequency of non-specific chronic cervicitis events also occurred by 89.23% in Jayakumar NK research, 72.2% in studies by FN Nwachokor, GC Forae and 82% in studies by Olutoyin G and Omoniyi-Esan et al. [10].

Table 3 shows that cervical smear abnormalities were more prevalent in women in the multiparous group. Research by Tekalegn et al., revealed that parity was significantly associated with cervical cancer. The chances of developing cervical cancer are more than twice as high in women with high parity (≥ 3) than women with parity < 3. This finding is supported by a multicenter control case study conducted by the International Agency for Research on Cancer (IARC), where this study states that women are at lower risk of cervical cancer. Similarly, a multicenter case-control study by IARC showed that women with early HPV infection and multiple pregnancies had a higher risk of cervical cancer than women with a low number of pregnancies. In addition, several other studies have confirmed the impact of parity on cervical cancer by elucidating hormonal changes during pregnancy that may be responsible for cervical cell changes [11].

The use of hormonal contraceptives for more than four or five years can disrupt the estrogen balance in the body, which will result in abnormal cell changes. Estrogen may be one of the factors affecting the replication of Human Papilloma Virus Deoxyribonuclei Acid (HPV DNA) [12]. Atrophic smear cytopathology (AS) results are usually seen in postmenopausal women, which show many parabasal and intermediate cells that can be arranged in small groups or several individual cells [13]. Similar results were obtained in a previous study by Fairuz et al. in 2021. Most patients experienced in this study did not experience complaints by 15 or 55.5%. The same results were also obtained in a previous study by Fairuz et al. in 2021, which was 41 people or 68.3% of patients without complaints. In this study, 1 or 3.7% of patients had a history of gynecology and

26 or 96.2% of patients had no history of gynecology. There was no history of high-risk relationships in patients in the study.

Women who smoke have twice the chance of developing cervical cancer when compared to nonsmokers in this study found 2 patients who had a history of smoking. For patients who have a history of smoking, the cytopathology outcome is NILM, meaning there is no evidence of malignancy or intraepithelial lesions. Numerous studies show that women with menarche age 9 years have a higher risk of cervical cancer compared to women with menarche age more than 9 years [14]. Based on the localization status found in this study, 15 or 55.5% of patients had no findings, 3 or 11.1% of patients had fluorine albus which based on cytopathological results 3 patients in CKNS-NILM, and 2 or 7.4% of patients. Has a portion of erosion based on the results of cytopathology is NILM and CKNS-NILM. Based on research by Isfentiani et al. (2014), there is a relationship between fluorine albus and cervical cancer. So it can be concluded that it is important to do routine Pap smears every 6 months in women who experience fluorine albus or not, it is hoped that if women are detected early with cervical cancer, of course, therapy can be given immediately [15].

5 Conclusion

The most cytopathological features of cervical smears in this study were nonspecific chronic cervicitis NILM and followed by NILM. With NILM Acute Cervicitis. NILM nonspecific chronic cervicitis is the most common cytopathological outcome, followed by NILM, nonspecific chronic cervicitis ASC-US, NILM-AS, and Acute NILM-cervicitis.

Author Contributions

FZ: Data collection, article drafting, section writing, drawing figs; TSS: Collecting data, writing partial; HD: Collect data, Write sections; EAU: Section writing; MM: Writing part; SH: Collecting data.

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