ORIGINAL PAPER

[1]Gynecology Centre „Dr Mahira Jahić" Tuzla, Bosnia and Herzegovina

[2]Faculty of Medicine, University of Tuzla, Tuzla, Bosnia and Herzegovina

[3]Department of Gynecology and Obstetrics, University Clinical Center Tuzla, Bosnia and Herzegovina

Corresponding author: Prof. Mahira Jahic, MD, PhD. Gynecology Centre „Dr Mahira Jahić", University of Tuzla, Faculty of Medicine Tuzla Bosnia and Herzegovina. Tel:+387 61 100 195. E mail: mahira.j@bih.net.ba. ORCID ID:https:// orcid. Org:0000-0001-7551-5656.

Cytological, Colposcopic and Pathohistological Correlation of HSIL and ASC H Findings

Mahira Jahic[1,2], Azra Hadzimehmedovic[2,3]

ABSTRACT

Introduction: Cervical cancer can be successfully prevented by timely detection of changes that precede it such as atypical (ASC-H) and high grade squamous lesions (HSIL). **Aim:** To investigate the correlation between Pap smear and colposcopy in the detection of premalignant and malignant cervical lesions based on a pathohistological finding. **Methods:** In a retrospective study 118 patients with HSIL and ASC-H findings were examined. A Pap smear, colposcopic examination and cervical canal biopsy were performed. The study was conducted at the Gynecological Center "Dr Mahira Jahic" Tuzla and the Clinical Center Tuzla, Department of Gynecology and Obstetrics. **Results:** 1049 abnormal Pap tests were analyzed, ASCUS in 51,8% (N-544), LSIL 32,1% (N-337), HSIL 7,7% (N-81) and ASC-H 3,5% (N-37), AGC 4,8% (N-51). The mean age of the subjects with the abnormal Pap test was 46.33 ± 3.2. The age of patients with ASCUS lesion was 38,6 , LSIL 41,0, ASC-H was 47,3 , HSIL (CIN II and CIN III) 45,8 , while patients with CIS were 51,2 years. Pathological histology HSIL confirmed a high grade lesion in 67,7% (CIN II, CIN III and CIS) (N-55), in 32% (N-26) a lower grade CIN I in 18,5% and chronic cervicitis in 13,5% (N-11). In ASC-H lesion pathohistological HSIL was found in 13,5% (N-5), CIN I 13,5% (N-5) and chronic cervicitis 48,6 % (N-18). Abnormal colposcopic imaging with HSIL lesion was found in 72,9% (N-69), in 8,6% (N-7) was unsatisfactory and in 18,5% (N-15) the colposcopic finding was normal. In ASC-H lesions, abnormal colposcopic imaging was found in 40,5% (N-15), unsatisfactory findings in 10,8% (N-4), and normal findings in 48,6% (N-18). **Conclusion:** Colposcopy has proven to be better method than cytology with an accuracy of 72,9% in high-grade lesion such as HSIL and ASC-H.

Keywords: Colposcopy, Pap test, HSIL, ASC-H, Cervical carcinoma.

1. INTRODUCTION

Cervical carcinoma is the third most common carcinoma in women and second most common cause of death, including 300,000 deaths annually (1). In Bosnia and Herzegovina 556 cases of cervical carcinoma are diagnosed annually, and 141 women die of it according to the ICO/IARC report from 2019 (2, 3). PAP test is an affordable, simple and most commonly used method for screening of cervical carcinoma and preinvasive cervical lesions, and combined with colposcopy can discover changes up to 95% (4, 5). Cervical carcinoma can be prevented successfully if the preceding changes like atypical (ASC-H) and squamous lesions of high grade (HSIL) are discovered in time. It is considered that it takes around 10 years in order for a low grade lesion to develop into cervical carcinoma, although in practice it comes to a faster development of this carcinoma (6). Cytology and colposcopy are used for screening of cervical carcinoma, whereas a definitive diagnosis is concluded based on pathohistological findings i.e. biopsy of cervix. The success rate of detecting early forms of cervical cancer by methods such as the PAPA test and colposcopy has been controversial for a long time. The success of the methods depends on a number of factors, but they are still methods of choice that can hardly be abandoned.

2. AIM

To examine the correlation of Pap smear and colposcopy in the detection of premalignant and malignant lesions of the cervix on the basis of pathohistological findings.

3. PATIENTS AND METHODS

In a retrospective study over the last 4 years from 2016 to 2019, 118 pathological PAPA tests, colposcopic examinations and pathohistological findings were analyzed. The study was conducted at the Gynecological Center "Dr Mahira Jahic" Tuzla and the Clinical Center Tuzla, Department of Gynecology and Obstetrics. The results of the PAPA test were analyzed from the gynecological computer program (GynObst), and the histopathological findings were read from the histopathological form provided by the patients as a result of the recommended biopsy and the data stored in the program. Patients with HSIL lesion and ASC-H were required to be examined colposcopically, and a biopsy was performed after the colposcopic examination. Pap smears were taken using the conventional method, stained with the Papanicolaou method and viewed with a Kruss microscope. A Zeiss 150 FC colposcope was used for colposcopic examination. During the examination, 3% acetic acid was applied and changes in the cervix were read, followed by applying of iodine. All patients with ASC-H and HSIL lesions were recommended for biopsy. Based on the data collected in GynObst, an analysis was made and the data obtained were analyzed using the X^2 test for statistical data analysis.

4. RESULTS

Total amount of 1049 abnormal Pap tests were analyzed. ASCUS was found in 51.8% (N-544), LSIL in 32.1% (N-337), HSIL in 7.7% (N-81), ASC-H in 3.5% (N-37) and AGC in 4.8% (N-51) of cases (Table 1).

The mean age of all patients tested with abnormal PAPA findings was 46.33 ± 3.2 years.

Pap test findings	Results
Abnormal PAP smears	1049 (100%)
Atypical	
ASC-US	544 (51.8%)
ASC-H	37 (3.5%)
Atypical glandular cells	51 (4.8%)
LSIL	337 (32.1%)
HSIL	81 (7.7%)

Table 1. Results of abnormal Pap tests

Pathohistological findings	ASC-H (N-37)	%	HSIL (CIN II i III) (N-81)	%	p<0.05
No biopsy	9	24.2	0	0	
Cervicitis chr	18	48.6	11	13.5	p<0.01
LSIL	5	13.5	15	18.5	p>0.05
HSIL (CIN II)	0	0	33	40.7	
HSIL (CIN III)	4	10.8	17	20.9	p>0.05
CIS	1	2.7	5	6.1	p>0.05

Table 2. Cervical biopsy results—pathohistological findings in relation to abnormal cytological findings (N-118)

Patients with CIS histopathological findings had an average of 51.2 years, HSIL (CIN II, CIN III) averaged 45.8 years, ASC-H 47.3 years, LSIL 41.0 years, and ASCUS 38.6 years.

Pathological histology HSIL confirmed a high grade lesion indicated by a cytological finding in 67.7% (CIN II, CIN III and CIS) (N-55), while in 32% (N-26) the lesion was slightly lower grade CIN I 18.5%, and chronic cervicitis 13.5% (N-11) (Table 2).

In ASC-H lesions, pathohistological HSIL was found in 13.5% (N-5) and CIN I in 13.5% (N-5), while chronic cervicitis was found in 48.6% (N-18). Pathohistology was not performed in 24.2% (N-9) patients.

Colposcopy findings	ASC-H (N-37)	%	HSIL (CIN II, CIN III CIS) (N-81)	%	p<0,05
Normal findings	18	48,6	15	18,5	p<0,05
AW epithelia	5	13,5	38	46,9	p<0,05
Mosaic	4	10,8	9	11,1	p>0,05
Punctures	2	5,4	5	6,1	p>0,05
Abnormal vascularization	4	10,8	7	8,6	p>0,05
Unsatisfactory	4	10,8	7	8,6	p>0,05

Table 3. Results of colposcopic imaging in cytological abnormal findings (N-118)

Abnormal colposcopic image of patients with HSIL lesion was found in 72.9% (N-69), 8.6% (N-7) was unsatisfactory for interpretation and in 18.5% (N-15) the colposcopic finding was normal. In ASC-H lesions, abnormal colposcopic imaging was found in 40.5% (N-15), unsatisfactory findings in 10.8% (N-4), and normal findings were found in 48.6% (N-18) (Table 3).

5. DISCUSSION

Analyzing 1049 abnormal cytologic findings, the results showed that the highest number of ASCUS lesions was 51.8% (N-544), LSIL 32.1% (N-337), HSIL 7.7% (N-81) and ASC-H, 3.5% (N-37), AGC, 4.8% (N-51). The mean age of the subjects with the abnormal Pap test was 46.33±3.2. The age of patients with ASCUS lesion was 38.6 years, LSIL 41.0 years, ASC-H was 47.3 years, HSIL (CIN II and CIN III) 45.8 years, while patients with CIS were 51.2 years. In the study of pathological lesions in women, the average age was 45.15 ± 10.78, and the percentage of ASCUS lesions was found in 64.4%, ASC-H 5.6%, LSIL 8.2% and HSIL 12.8% (7). Cervical precancerous lesions can be detected ten years before they become cancer with a Pap test. Comparing the age of the patient between CIN I and cancer, Abali found a mean age of 40.14 in the CIN I lesion in the study, while in squamous cell carcinoma the average age was 51.2 and the difference was over 10 years. In our study, we did not have squamous cell carcinoma, but we did find Carcinoma in situ and the age of patients was 51.2, while for LSIL it was 41.0 years and also the difference over 10 years between low and high rates of lesion, indicating the time required for development of cervical cancer.

By histopathological examination of HSIL cytologic lesions, HSIL was confirmed in 67.7% (N-55), LSIL was found in 18.5% (N-15), and chronic cervicitis in 13.5% (N-11). Matsura stated in 1996 that the histological accuracy of the Pap smear could be found in 66% as well as colposcopic in 66% while cytological in 52%. In her

study of the correlation of cytopathological findings and colposcopy, Jahic found cytopathohistological accuracy in 46.1%, which is a slightly lower percentage compared to the result found (8). Abali found an increase in cyto-histological correlation with cervical intraepithelial lesion as the degree of abnormality increased and for ASCUS was 30%, LSIL 48%, HSIL 87% and 59% HISL + LSIL (9)

By histopathological examination of ASC-H, HSIL was confirmed in 13.5% (N-5), LSIL in 13.5% (N-5), chronic cervictis in 48.6% (N-18), and no biopsy was performed in 24.2% (N-9). Chronic cervicitis is significantly (p <0.05) more commonly found histopathologically in patients with ASC-H diagnosis than HSIL. Similar data were presented in the study of histopathological correlation with the cytologic finding of ASC-H lesion where in 21 cases of ASC-H: non-neoplastic changes were in 57%, LSIL 14.2%, HSIL in 28.4% (10, 11). In our study, we obtained a lower percentage of HSIL lesions of 13.5% by biopsy, probably because of 9 patients who did not have a histopathological examination.

Abnormal colposcopic findings in HSIL lesions were found in 72.9% (N-69) and in ASC-H lesions in 40.5% (N-15). Colposcopic examination has better results in differentiating high-grade lesions from lower-grade lesions and correlates with direct biopsy and is described as the gold standard in the diagnosis of precancerous lesions (12, 13, 14), as shown by our study. Colposcopy showed better sensitivity in this study in 72,9% (N-69) compared to cytology which showed 67.7% (N-55).

6. CONCLUSION

Colposcopy is a very important diagnostic method that should be used with high grade HSIL and ASC-H lesions in order to detect timely changes that precede cancer and the cervical cancer itself. Colposcopy has proven to be better method than cytology with an accuracy of 72,9% in high-grade lesion such as HSIL and ASC-H.

- **Patient Consent Form**: None.
- **Author's contribution**: Both authors were involved in all steps of this article preparation and also made final proofreading.
- **Conflict of interest**: None declared.
- **Financial support and sponsorship**: Nil.

REFERENCES

1. Arslan E, Gokdagli F, Bozgad H, Vatansever D, Karsy M. Abnormal Pap smear frequency and comparison of repeat cytological follow-up with colposcopy during patient management: the importance of pathologist's guidance inthe managment. Opstet Gynecology. 2019; 6(1): 69-74.
2. Bruni L, Albero G, Serrano B, Mena M, Gomez D, Munoz J, Bosch F, Sanjose S. ICO/IARC Information Centre on HPV and Cancer (HPV Information Centre). Human Papillomavirus and Related Disease in Bosnia &Herzegovina. Summary Report. 2019: 1-64.
3. Bassal R, Schejter E, Bachar R, Shapira H, Sanbank J, Supino Rosin J et al. Cervical pap screening among Israeli women, 2005-2010. Arch Gynecol Obstet. 2014; 289: 615-622.
4. Walboomers JM, Jacobs M, Manos MM, Borsch FX, Kummer JA, Shah KV. Human papilloma virus is a necessarycause of invasive cervical cancer worlwide. J Pathol. 1999; 189: 12-19.
5. Chandrakala J, Pratima K, Thakur N. Correlation of Pap smear and Colposcopy in Relation to Histopathological Findings in Detection of Premalignant Lesions of Cervix in A Tertiary Care Centre. International Journal of Scientific Study. 2015; 3(8): 55-60.
6. Jahic M. Cryotherapy of Erosion of Cervix and Low Grade Squamous Intraepithelial Lesion. Mater Sociomed. 2018;30(4): 294-296.
7. Abali R, Bacanakgil B, Celik S, Aras O, Koc P, Boran B, Dursun N. Histopathological correlation of Squamous cell abnormalites detected on cervical cytology. Turk ish Journal of Pathology. 2011; 27(2): 144-148.
8. Jahić M, Balić A. Corelation between cytologic, colposcopic and pathohistological findings of cervical intraepithelial lesions. Med Arh. 2012; 66(2): 122-124.
9. Yeoh GP, Chan KW: The accuracy of Papanicolaou smear predictions: cytohistological correlation of 283 cases. Hohg Kong Med J. 1997; (3): 373-376.
10. Boicena A, Patrascu A, Surlin V, Iliescu D, Schencer M, Chiutu L. Correlation betwen colposcopy and histologic results from colposcopically directed biopsy in cervical precancerous lesions. Rom Jmorphol Embryol. 2012; 53(3): 735-741.
11. Jahic M, Jahic E. Diagnostic approach to patients with atypical squamous cells of undetermined significance cytological findings on cervix. Med Arch. 2016; 70(4): 296-298.
12. Barken S, Rebolj M, Anderson E, Lynge B. Frequency of cervical intraepithelial neoplasia in weli-screened population. Int J Cancer. 2012; 130: 2438-2444.
13. Jahić M, Jahić E, Mulavdić M, Hadžimehmedović A. Difference Between Cryotherapy and Folloe Up Low Grade Squamous lesion of Cervix Uteri. Med Arch. 2017; 71 (4): 280-283.
14. Jahić M. Infekcije grlića materice i vagine i krioterapija. Tuzla. Identity. 2017: 222-223.