

Natural History of Cervical Intraepithelial Neoplasia During Antepartum and Postpartum Periods in Pregnant Women with High-Risk HPV Positivity and Abnormal Cervical Cytology

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ABSTRACT

Objective: The colposcopic evaluation of the high-risk human papillomavirus positive and abnormal cervical cytological test results from cervix uteri cancer screening tests taken during pregnancy and comparison of the cytological and histopathological results in the antenatal and postpartum periods were aimed.

Methods: The study included 32 pregnant women over the age of 25 who had HPV positive and abnormal cytological results in cervix uteri cancer screening tests conducted during routine antenatal follow-ups between 2022-2025. Our study includes cases of women who presented during pregnancy, where HPV and cervicovaginal smear tests were conducted during the initial assessment and whose results showed high-risk HPV positive and/or abnormal cytological changes.

Results: Upon examination of the overall results of our study. According to the smear cytology conducted at the 6th month postpartum, the NILM or healing rates were higher in the group without dysplasia compared to the group with dysplasia, 46% versus 11%, and a statistically significant difference was observed between the two groups ($p:0.038$). When the colposcopic evaluation and biopsy results conducted at the 6th week postpartum were compared with the colposcopic evaluation and biopsy results taken during the antenatal period, it was observed that 9% of all cases progressed, 63% persisted, and 28% regressed. Upon examining the impact of the delivery method on histopathological results and associated rates, it was observed that there were regression rates of 38% in 6 cases in normal spontaneous vaginal delivery and 19% in 3 cases in caesarean delivery, and that the regression rates after normal delivery were significantly high.

Conclusion: Based on the results of high-risk HPV positivity and/or abnormal cytological tests conducted during pregnancy, alongside colposcopic evaluation, only conservative approach during pregnancy and a colposcopy and biopsy approach in the postpartum period are readily implementable.

INTRODUCTION

1-3% of women diagnosed with cervical uterine cancer are in the antenatal or postpartum period at the time of diagnosis.^[1] Cervical uterine cancer is among the most common malignancies observed during pregnancy, with estimated incidences ranging from 0.8 to 1.5 per 10,000 births.^[2] Most cases are diagnosed at an early stage of the disease due to frequent routine prenatal screenings.^[3] Despite low pregnancy rates, particularly in advanced

disease cases, the progression and prognosis of cervical cancer detected during pregnancy are similar to those of non-pregnant women for disease-free survival and overall survival.^[3] Among women diagnosed with abnormal cervical cytopathology, the rate of development of high-risk HPV types is approximately 90%.^[4]

Cervical lesions may be detected or palpated during a speculum examination at almost every week of gestation. Vigilance is necessary regarding ectropion, decidual alter-

ations, cyanosis, erythema, a sensitive cervical structure with fragile bleeding, vascular congestion in the pelvic area, cervical stromal oedema, cervical softening, prominence of vaginal rugae, fatal pressure, sensations of pressure from pregnancy products, and cervical maturation, which are typical physiological changes often seen during pregnancy. Screening and diagnostic tests should be conducted by proficient specialists in reputable facilities. It may lead to challenges and false positive results, particularly in the objective physiological evaluation of colposcopy.^[5,6] In general, the management of pregnant women with abnormal cervical cytology is the same as for non-pregnant women. Nonetheless, conization by diagnostic excisional procedure including expedited treatments like LEEP, is unacceptable without prior colposcopy. Furthermore, endocervical curettage and endometrial biopsy should not be conducted as part of colposcopic evaluation. The endocervical canal can be gently sampled with a cytobrush.^[5]

Conflicting reports exist regarding the natural history of cervical intraepithelial neoplasia (CIN) in pregnant women. Origoni et al.^[6] reported that high-grade cervical intraepithelial lesions (HGSIL/CIN2-3) are exceedingly uncommon, with a rate of progression to invasive cervical cancer of 0.4%. Coppolillo et al.,^[7] on the other hand, found that high-grade intraepithelial lesions of the cervix may progress at a rate of 13.3%, with a rate of progression to microinvasive cancer in four out of every 30 women.

In a separate study, spontaneous regression was observed in 16.7-69.3% of pregnant women with CIN 2/3 who did not receive any treatment after delivery.^[8] To this end, there is evidence that the overexpression of sex hormones during pregnancy may promote cervical carcinogenesis by inducing squamous metaplasia in the transformation zone and modifying the local immune system. The enhanced regression may be attributed to the decrease in sex hormones following delivery.^[9] The impact of the standard spontaneous vaginal delivery or the operative delivery method is not yet definitive.^[10]

The objective of the study is to conduct a colposcopic assessment during the antenatal and postpartum phases in pregnant women with high-risk HPV positivity (type 16 and 18) and abnormal cervical cytopathological results, to meticulously analyse the histopathological findings, and to determine their impact on regression, persistence, or progression rates by comparing them with the postpartum period and mode of delivery.

MATERIALS AND METHODS

The study included 32 pregnant women who tested positive for HPV and exhibited abnormal cytological results in cervical uterine cancer screening conducted during routine antenatal follow-ups between 2022 to 2025. The data from the electronic archive system were retrospectively analysed in the study conducted with the approval of the Clinical Research Ethics Committee dated 18.04.2025

and numbered 4/5. In compliance with the Declaration of Helsinki, participants were apprised of the study, and informed consent was secured from all women for their participation.

Our study comprises cases of women who presented during pregnancy, had HPV and cervicovaginal smear tests at their first evaluation, and exhibited high-risk HPV positivity (type 16 and 18) and/or abnormal cytological changes. The study included cases over the age of 25 with HPV-positive, abnormal cytological results in cervical cancer screening tests conducted during pregnancy, who subsequently delivered via normal spontaneous vaginal delivery or caesarean section at term. Cases that were non-pregnant, exhibited normal cervical cytology, tested positive for low-risk HPV, and presented with invasive cancer histopathology, as well as those that were pregnant but experienced threatened abortion or vaginal bleeding, threatened premature birth or had a history thereof, displayed apparent benign or malignant mass lesions in the vulva, vagina, and cervix upon speculum examination, and declined follow-up or colposcopic evaluation were excluded from the study. Cases inaccessible for cytological and histopathological results during the postpartum period, together with those with insufficient birth information, were excluded from the study.

For individuals aged 25 and older who are pregnant, high-risk HPV positive, and exhibit abnormalities in smear cytology, a biopsy was performed on the most suspicious area of the cervix uteri using biopsy forceps when a suspicious lesion or significant finding indicative of invasion was identified during pregnancy via colposcopy. Colposcopic examination of 32 pregnant cases was performed in the gynecological lithotomy position. Since the active and original squamocolumnar junction and the transformation zone between the two regions were clearly observed in the cervix uteri examination of all cases, our colposcopic care was considered sufficient.

Cytological and pathological evaluations were conducted by pathologists specializing in gynaecological oncology. Subsequent treatment decisions were predicated on cytological data, HPV testing, and histological findings. Data from all pregnant women were gathered retrospectively. All cases were monitored every six weeks throughout the course of pregnancy. The decision concerning the birth method was made routinely based on the delivery methods of prior pregnancies or standard follow-up until the 40th week in first pregnancies. The initial follow-up occurred six weeks post-delivery.

The cervical cytology test was SurePath™ (BD SurePath™ Liquid-Based Cytology test), while the HPV test was Hybrid capture 2 (digeneR Hybrid capture 2 HPV DNATest (QIAGE, Germantown, MD, USA). The Bethesda 2001 classification was employed to evaluate cytological evaluations.

Not all pregnant cases who underwent colposcopic ex-

aminations and biopsies underwent endocervical curettage (ECC). All cases were monitored until 37 weeks and above term delivery weeks and until 6 weeks postpartum. The study included cases of normal spontaneous vaginal delivery or caesarean delivery at term.

The study aimed to evaluate age, gravida, parity, gestational week at delivery, BMI, smoking history, alcohol consumption status, gestational weeks, HPV vaccination status, HPV types, smear cytology, delivery types, and colposcopic assessment, as well as to compare histopathological and cytological results during pregnancy and at six weeks postpartum.

The objective of this retrospective analysis was to compare pregnant women who were diagnosed with abnormal cytology and histopathology in the cervix based on various variables, such as pregnancy period, postpartum period, and delivery methods.

The term "regression of lesions" refers to the identification of a lower-grade lesion in the postpartum period (6 weeks after delivery) compared to the initial examination. Persistence was defined as the identification of a cervical intraepithelial neoplasia (CIN) lesion of the same grade as at the initial diagnosis during the postpartum histopathological evaluation. Histological evidence of a higher grade of CIN or cancer on colposcopic examination and biopsy at 6 weeks after delivery in comparison to the antenatal biopsy was used to define disease progression.

In all cases, the antenatal period and postpartum period were compared and the persistence, the persistence, regression, and progression rates were assessed based on the histological findings obtained from the biopsy samples. The colposcopic examination, biopsy, and cervical cytology test were conducted again after the sixth week postpartum to diagnose regression, progression, and persistence in the patients. The results were compared between the antenatal and postpartum periods. Furthermore, the objective was to conduct a cytological and histopathological comparison of the lesions in the cervix in accordance with the delivery methods.

Statistical Methods

Data analysis was performed using IBM SPSS Statistics 26. Categorical independent variables were presented as frequencies and percentages with cross-tables, and their distributions were compared using the "Chi-Square" test and "Fisher's Exact" test. The "Mc Nemar" test was used to determine whether there was a difference in terms of dependent categorical variables. The "Shapiro-Wilk" test was applied to continuous variables, and it was seen that they did not meet the "Normal Distribution" conditions. Comparisons of independent groups were performed using the nonparametric "Mann-Whitney U" test, and median min and max values were presented. In all statistical comparison tests, type-I error was determined as $\alpha=0.05$ and two-tailed tests were performed.

RESULTS

The average age of the 32 cases in our study was 29.8 ± 2.7 years, with the youngest participant being 26 years old and the oldest pregnant woman being 36 years old. The average body mass index (BMI) was 28.5 ± 6.6 , with values ranging from 18.3 to 41.2.

The most common HPV types are 16 and 18, accounting for around 68.7% of cases. According to the colposcopic examination and biopsy results of the cases with high-risk HPV positive and abnormal findings in smear cytology, dysplasia was detected in 23 cases in 72% (CIN3 in 6%, CIN2 in 19% and CIN1 in 47%). The colposcopic evaluation and biopsy conducted at six weeks postpartum revealed a dysplasia rate of 59% in 19 cases (25% CIN2, 34% CIN1), with no cases of CIN3 found, and a regression of dysplastic lesions was noted. Cervical cytology indicates that HGSIL and ASC-H lesions during the antenatal period have regressed compared to cytology obtained at six months postpartum (13% vs. 9% and 6% vs. 3%) (Table 1).

Upon comparing cases of varying degrees of cervical intraepithelial neoplasia (dysplasia) with cases without of dysplasia following colposcopic biopsy at six weeks postpartum, no statistically significant differences were found in age, BMI, gravida, parity, gestational weeks, and types of birth. In the dysplasia group, the BMI value was slightly elevated (30.2 compared to 28.6), but no statistically significant difference was noted (Table 2).

Upon comparison of the colposcopic biopsy results at the sixth postpartum week, it was shown that regression rates were higher in the group without dysplasia (38% vs. 21%), while progression rates were lower (0% vs. 16%). The smear cytology conducted at the sixth postpartum month indicated that the NILM (Negative Intraepithelial Lesion or Malignancy) or healing rates were much higher at 46% compared to 11% in the group without dysplasia, with a statistically significant difference detected between the two groups ($p=0.038$) (Table 3).

Upon comparison of the colposcopic biopsy results from the antenatal and postpartum periods, it was noted that 1 of 9 cases without dysplasia exhibited progression to CIN 1, 8 of 15 CIN 1 cases demonstrated persistence, 2 progressed, and 5 regressed. Additionally, 4 of 6 CIN 2 cases showed persistence while 2 regressed, and all CIN 3 cases regressed, subsequently categorizing them within the CIN 2 group (Table 4).

Upon comparing the cytological results collected during the antenatal period with those from cervical cytology obtained at six months postpartum, it was observed that 6 out of 12 ASCUS cases regressed to the negative (NILM) group, 5 cases persisted, and 1 case progressed to the LGSIL group. One case in the LGSIL group progressed to the HGSIL group; however, no invasive carcinoma progression was noted in the HGSIL and ASC-H groups, and 75% of the lesions regressed to low-grade lesions (Table 5). Upon comparing the colposcopic evaluation and biopsy

Table 1. Demographic, clinical and histopathological features of the cases

	Mean±SD	Median (Min-Max)
Age	29.8±2.7	30 (26-36)
BMI	28.5±6.6	29.5 (18.3-41.2)
Gravida	2.3±1.4	2 (1-5)
Parity	1±1.1	1 (0-4)
Pregnancy Week	14.7±8.2	11 (6-34)
Delivery Weeks	38.2±1.4	38 (36-42)
	N	%
Education		
University	1	3
High School	9	28
Primary School	19	59
Not	3	9
Co-morbidity		
Yes	3	9
No	29	91
Smoke		
Yes	14	44
No	18	56
Alcohol		
Yes	9	28
No	23	72
Abortion		
Yes	9	28
No	23	72
Delivery Type		
CS	16	50
NSVD	16	50
HPV Vaccination		
Not	32	100
HPV DNA		
HPV type 16	16	50
HPV type 18	6	18.7
Others	32	31.3

Colposcopy (Antenatal)		
Cin 3	2	6
Cin 2	6	19
Cin 1	15	47
No Dysplasia	9	28
Colposcopy (Antenatal)		
Dysplasia	23	72
No Dysplasia	9	28
Colposcopy (PP 6th Week)		
Cin 2	8	25
Cin 1	11	34
No Dysplasia	13	41
Colposcopy (PP 6th Week)		
Dysplasia	19	59
No Dysplasia	13	41
Recovery (PP 6th Week)		
Regression	9	28
Persistent	20	63
Progression	3	9
Cytology (Antenatal)		
ASCUS	12	38
LGSIL	14	44
HGSIL	4	13
ASC-H	2	6
Cytology (PP 6th Month)		
ASCUS	9	28
LGSIL	11	34
HGSIL	3	9
ASC-H	1	3
NILM	8	25
Cytology (PP 6th Month) NILM		
Yes	8	25
No	24	75
ECC (PP 6th Week)		
Chronic cervicitis	18	56
LGSIL	14	44

Table 2. Risk factors for dysplasia in colposcopic biopsy at 6th postpartum week

	Colposcopy (PP 6th Week)				P*
	Dysplasia		No Dysplasia		
	Median	(Min-Max)	Median	(Min-Max)	
Age	30	(26 - 36)	30	(26 - 35)	0.892
BMI	30.2	(19.2 - 38.5)	28.6	(18.3 - 41.2)	0.744
Gravida	2	(1 - 5)	2	(1 - 5)	0.952
Parity	1	(0 - 4)	1	(0 - 3)	0.745
Pregnancy Week	10	(6 - 33)	12	(8 - 34)	0.408
Delivery Weeks	38	(36 - 42)	38	(36 - 40)	0.567

Table 3. Risk factors for dysplasia in colposcopic biopsy at 6th postpartum week (continued)

	Colposcopy (PP 6th Week)				P*
	Dysplasia		No Dysplasia		
	N	%	N	%	
Comorbidity					
Yes	2	11	1	8	1.000
No	17	89	12	92	
Smoke					
Yes	11	58	3	23	0.112
No	8	42	10	77	
Alcohol					
Yes	6	32	3	23	0.704
No	13	68	10	77	
Abortion					
Yes	5	26	4	31	1.000
No	14	74	9	69	
Colposcopy (Antenatal)					
Cin 3	2	11	0	0	NA
Cin 2	6	32	0	0	
Cin 1	10	53	5	38	
No Dysplasia	1	5	8	62	
Colposcopy (Antenatal)					
Dysplasia	18	95	5	38	0.180 ^M
No Dysplasia	1	5	8	62	
Delivery Type					
CS	9	47	7	54	1.000
NSVD	10	53	6	46	
Natural History (PP 6th Week)					
Regression	4	21	5	38	NA
Persistent	12	63	8	62	
Progression	3	16	0	0	
Cytology (Antenatal)					
ASCUS	3	16	9	69	NA
LGSIL	10	53	4	31	
HGSIL	4	21	0	0	
ASC-H	2	11	0	0	
Cytology (PP 6th Month)					
ASCUS	4	21	5	38	NA
LGSIL	9	47	2	15	
HGSIL	3	16	0	0	
ASC-H	1	5	0	0	
NILM	2	11	6	46	
Cytology (PP 6th Month) NILM					
Yes	2	11	6	46	0.038
No	17	89	7	54	
ECC (PP 6th Week)					
C. Cervicitis	8	42	10	77	0.112
LGSIL	11	58	3	23	

*Chi-Square or Fisher's Exact Test. M= McNemar Test HPV: Human papillomavirus; PP: Postpartum; NILM: Negative Intraepithelial Lesion or Malignancy; NSVD: Normal Spontaneous Vaginal Delivery; CIN: Cervical Intraepithelial Neoplasia; ASCUS: Atypical Squamous Cells of Undetermined Significance; LGSIL: Low-grade squamous intraepithelial lesion; HGSIL: High-grade squamous intraepithelial lesion; ASC-H: Atypical squamous cells; CS: Cesarean delivery.

Table 4. Comparison of antenatal and postpartum 6th week colposcopic biopsy results

	Colposcopy (Antenatal)									
	No Dysplasia		Cin 1		Cin 2		Cin 3		Overall	
	N	%	N	%	N	%	N	%	N	%
Colposcopy (PP 6th Week)										
No Dysplasia	8	89	5	33	0	0	0	0	13	41
Cin 1	1	11	8	53	2	33	0	0	11	34
Cin 2	0	0	2	13	4	67	2	100	8	25
Overall	9	100	15	100	6	100	2	100	32	100

CIN: Cervical Intraepithelial Neoplasia.

Table 5. Comparison of antenatal and postpartum 6th week cervical cytology results

	Cytology (Antenatal)									
	ASCUS		LGSIL		HGSIL		ASC-H		Overall	
	N	%	N	%	N	%	N	%	N	%
Cytology (PP 6th Month)										
NILM	6	50	2	14	0	0	0	0	8	25
ASCUS	5	42	3	21	1	25	0	0	9	28
LGSIL	1	8	8	57	2	50	0	0	11	34
HGSIL	0	0	1	7	1	25	1	50	3	9
ASC-H	0	0	0	0	0	0	1	50	1	3
Overall	12	100	14	100	4	100	2	100	32	100

HPV: Human papillomavirus; PP: Postpartum; NILM: Negative Intraepithelial Lesion or Malignancy; NSVD: Normal Spontaneous Vaginal Delivery; CIN: Cervical Intraepithelial Neoplasia; ASCUS: Atypical Squamous Cells of Undetermined Significance; LGSIL: Low-grade squamous intraepithelial lesion; HGSIL: High-grade squamous intraepithelial lesion; ASC-H: Atypical squamous cells.

Table 6. Comparison of postpartum 6th week natural history histological results according to delivery types

	Delivery Type					
	CS		NSVD		Overall	
	N	%	N	%	N	%
Natural history (PP 6th Week)						
Regression	3	19	6	38	9	28
Persistent	12	75	8	50	20	63
Progression	1	6	2	13	3	9
Overall	16	100	16	100	32	100

NSVD: Normal Spontaneous Vaginal Delivery; CS: Cesarean delivery.

results from the 6th week postpartum with those from the antenatal period, it was noted that 9% of cases progressed, 63% persisted, and 28% regressed. Upon examining the impact of the delivery method on histopathological results and associated rates, it was observed that the regression rate was 38% in 6 cases of normal spontaneous

vaginal delivery and 19% in 3 cases of caesarean delivery, with significantly higher regression rates following normal delivery. Given the limited number of cases, it was noted that the persistence rates were elevated in caesarean deliveries compared to vaginal deliveries (75% vs. 50%), while the progression rates lowered (6% vs. 13%) (Table 6).

DISCUSSION

Upon examination of the overall findings of our study, the smear cytology performed at six months postpartum revealed that the NILM (Negative Intraepithelial Lesion or Malignancy) or healing rates were higher in the group without dysplasia compared to the group with dysplasia, at 46% versus 11%, and a statistically significant difference was observed between the two groups ($p=0.038$). Upon comparison of the colposcopic evaluation and biopsy data obtained at the sixth week postpartum with those from the antenatal period, it was noted that 9% of cases exhibited progression, 63% shown persistence, and 28% showed regression. Upon examining the impact of the delivery method on histopathological results and associated rates, it was observed that the regression rate was 38% in 6 cases of normal spontaneous vaginal delivery and 19% in 3 cases of caesarean delivery, and that the regression rates after normal delivery were significantly higher. Given the limited number of cases, it was observed that the persistence rates were higher in caesarean deliveries compared to vaginal deliveries (75% vs. 50%), while the progression rates were lower (6% vs. 13%).

In non-pregnant women, the diagnosis and treatment of HGSIL (CIN2/3) are well-defined; nonetheless, apprehensions persist due to a lack of data about diagnosis and treatment during the antenatal period. It is particularly stated in every study in the literature that it would be more appropriate to treat in the postpartum period, but that much more research is still required to facilitate the necessary diagnosis and treatment. In general, retrospective studies reveal that the regression rates of CIN2-3, particularly in the postpartum period, range from 16.7% to 69.3%, and the persistence rates range from 26.8% to 70%. However, these results are not highly consistent, and their lower and upper limits may vary depending on the demographic, cytological, and histopathological data of the population in which the studies were conducted.^[8] In another cohort study examining pregnant and non-pregnant individuals, the spontaneous regression rates of CIN lesions were 56.9% in pregnant cases and 31.4% in non-pregnant cases, with no statistically significant difference detected between the two groups ($p=0.144$); however, regression rates were higher in pregnant cases.^[11] In a systematic review study, it was stated that regression rates in clinical follow-up of CIN 2 lesions in non-pregnant women were as high as 60%, and especially in young women, regression rates were more common and higher under surveillance with conservative treatments, and progression rates were extremely rare. During the one-year follow-up after a CIN 2 diagnosis, the combined regression rates were around 46%, whereas progression rates were about 14%. It has been stated that progression rates are much lower in high-risk HPV negative cases and regression rates are lower at around 40% in high-risk HPV positive cases within 24 months.^[12] In our study, the most common HPV types were 16 and 18, and all cases were positive for high-risk HPV types. Despite this, our persistence and progression

rates were observed in accordance with the literature. In another study conducted on pregnant women, CIN2-3 was diagnosed in 46% of the antenatal period, and in their colposcopic evaluation and histopathological examination at the 8th week postpartum, regression was observed in 38%, progression in 1.6%, and persistence in 60%. And in a case with CIN 3 histopathology, microinvasive carcinoma was diagnosed in the conization pathology performed after caesarean delivery.^[8]

Despite the fact that the natural history of CIN in pregnant women is not significantly different from that of non-pregnant women, there are several significant characteristics of CIN during pregnancy. It is exceedingly uncommon for CIN to progress to an invasive state during pregnancy. Most cases persist, while a significant number of them regress.^[13] The overall regression rate for CIN during pregnancy has been estimated to be as high as 76% for low-grade squamous intraepithelial lesions (LSILs) and up to 59% for HSILs.^[14-18] The regression rate of CIN during pregnancy is generally accepted to be significantly higher than that of non-pregnant women, despite the occurrence of some heterogeneous results.^[16]

Regression rates are higher (63%-76%) for LSIL/CIN 1 that occurs during pregnancy, while progression rates are lower (6%-8%). The overall regression rate for HSIL (CIN 2/CIN 3) during pregnancy is 29%-59%.^[14,18] CIN 2 exhibited a significantly higher regression rate relative to CIN 3 (59%-88% versus 21%-29%).^[14,18] In our study, CIN 1 and CIN 3 lesions exhibited greater regression than CIN 2 lesions, in contrast, CIN 2 lesions shown to progress to CIN 3. Nonetheless, we would like to highlight that generalization is challenging due to the limited number of cases, and the results may vary with extended follow-up.

In a separate study, most regression in abnormal cytopathological lesions identified during the antenatal period tends to occur within the first two years post-birth. When we look at the rates, it was seen that the regression rates of the lesions were 68-70% in the first two years after CIN2 and 3 diagnosed during pregnancy.^[17] The progression rates of cervical intraepithelial lesions, a biggest problem for women's health, to invasive cancer are approximately 1% and notably low during pregnancy; hence, more conservative treatment approaches may be favoured in the management of CIN, particularly during pregnancy.^[16] In our study, the comparison of histopathology results from the antenatal period and the sixth week postpartum revealed regression rates of 28%, persistence rates of 63%, and progression rates of 9%. Although existing studies in the literature did not provide information about HPV status, it was observed that the rates of progression and persistence remained low, despite all cases in our study being positive for high-risk HPV.

High regression rates of HGSIL (CIN2-3) lesions have been reported during the antenatal period. It is stated that regression rates are notably higher following normal spontaneous vaginal delivery in comparison to caesarean delivery rates (67% vs. 13%). It is stated that physiological trauma

during normal labour, cervical ripening, inflammatory reaction in the cervix uteri epithelial structure and the reparative structure of the cytokines migrating here and the change in the cervical mucus structure help to renew the dysplastic cervix epithelial structure.^[6,19] It has been proposed that ischemia alterations resulting from the pressure exerted by the fetal head and other pregnancy products on the cervix uteri during vaginal delivery may lead to the regression of dysplastic epithelium and the creation of a new epithelial structure.^[6] There are studies that have discovered a high regression rate of 70% for HGSIL lesions, irrespective of the normal or operative delivery method. Consequently, there is no correlation between the delivery method and dysplastic epithelial regression.^[11,20]

The mechanism of CIN regression, which is prevalent during pregnancy, is not yet completely comprehended. Pregnancy-induced immunological alterations, inflammatory processes, and cervical repair associated with delivery are among the hypotheses that have been proposed. Cervical trauma and subsequent repair during vaginal delivery have been posited to contribute to regression, with several studies supporting the fact that regression is more prevalent in vaginal deliveries.^[14,21]

Our study indicates that the rates of CIN regression following normal delivery are twice as high as those following caesarean delivery. The persistence rates following both normal and caesarean deliveries align with existing literature, and we believe that progression rates are elevated in caesarean deliveries because of the limited number of cases. We could state that as the number of cases increases, these rates may also be consistent with the literature in favor of normal delivery.

Pregnant individuals with histologically proven CIN 2 or CIN 3 should undergo active surveillance with repeat colposcopy every 12 to 24 weeks. Postponing colposcopy till after delivery is permissible.^[5] Histological treatment for HSIL is not advised. Diagnostic excisional procedures or repeat biopsies should be deferred until post-delivery unless carcinoma is detected.^[5] Our study revealed no increase in the rates of progression, preinvasive, or invasive cancer diagnoses in antenatal and postpartum Pap smear testing and colposcopic biopsy results. This result indicates that patients should not hesitate to undergo vaginal speculum examinations, colposcopic evaluations, or biopsies during pregnancy due to concerns such as embarrassment, fear, or potential complications etc. It is advisable to adopt a conservative approach, relying solely on observation during pregnancy, and to conduct necessary invasive procedures six weeks postpartum.

The retrospective form of our study, coupled with a restricted number of patients and a brief follow-up time, shows its limitations. A further restriction is that pregnant women are more likely to take part in cytology screening programs compared to non-pregnant women. This may suggest that our HPV and cytological diagnosis rates surpass those of the non-pregnant routine female population, resulting in the detection of more early lesions.

Nonetheless, the presence of high-risk HPV positivity and abnormal smear cytology in all pregnant women, the comprehensive follow-ups conducted during antenatal and postpartum periods, the inclusion of all birth types, and the evaluation of cytology and histopathology by the same pathologist in a specialized gynaecologic oncology laboratory may exclude interobserver variability, thus underscoring a strength of our study. We believe that our findings possess clinical significance and can be interpreted in light of other studies reviewed in this report.

Conclusion

In summary, cervical cytology and/or HPV tests are essential components of routine prenatal care and remain a crucial aspect of cervical cancer screening in pregnant women. Once invasive cervical cancer is ruled out during the antenatal period, conservative treatment of all identified cervical intraepithelial neoplasia lesions is deemed safe; however, a thorough postpartum assessment is advised irrespective of the method of delivery.

Ethics Committee Approval

The study was approved by the Osmaniye Korkut Ata University Clinical Research Hospital Ethics Committee (Date: 18.04.2025, Decision No: 4/5).

Informed Consent

Retrospective study.

Peer-review

Externally peer-reviewed.

Authorship Contributions

Concept: İ.K., F.Ç.; Design: F.Ç., Ö.B.; Supervision: Ö.B.; Funding: F.Ç.; Materials: İ.K., F.Ç.; Data collection &/or processing: F.Ç., Ö.B.; Analysis and/or interpretation: İ.K., Ö.B.; Literature search: F.Ç.; Writing: F.Ç., Ö.B.; Critical review: İ.K., Ö.B.

Conflict of Interest

None declared.

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Yüksek Riskli HPV Pozitifliği ve Anormal Servikal Sitolojisi Olan Gebe Kadınlarda Antepartum ve Postpartum Dönemde Servikal İntraepitelyal Neoplazinin Doğal Seyri

Amaç: Gebelik sürecinde alınan serviks uteri kanser tarama testlerinden yüksek riskli human papillomavirüs (HPV) pozitif ve anormal servikal sitolojik testi (CVS) sonuçlarının kolposkopik değerlendirmesi ve antenatal ve postpartum dönemde sitolojik ve histopatolojik sonuçlarının karşılaştırılması amaçlandı.

Gereç ve Yöntem: 2022-2025 yılları arasında rutin antenatal takiplerinde alınan serviks uteri kanser tarama testlerinde HPV pozitif ve anormal sitolojik sonuçları olan 25 yaş üzeri 32 gebe çalışmaya dahil edildi. Çalışmamız gebelik sürecinde başvuran kadınlardan ilk muayenede HPV ve servikojinal smear testi alınan ve sonuçlarında high risk HPV pozitif ve/veya anormal sitolojik değişiklikler olan olgulardan oluşmaktadır.

Bulgular: Çalışmamızın genel sonuçlarına bakıldığında; postpartum 6. ayda alınan smear sitolojisine göre displazi izlenmeyen grupta displazi izlenen gruba göre NILM (Negative intraepitelyal lezyon veya malignite) yani iyileşme oranlarının %46 ya karşılık %11 gibi daha yüksek olduğu ve iki grup arasında istatistiksel anlamlı farklılık izlendi ($p=0.038$). Postpartum 6. haftada yapılan kolposkopik değerlendirme ve alınan biyopsi sonuçlarının antenatal dönemde yapılan kolposkopik değerlendirme ve biyopsi sonuçları ile karşılaştırıldığında; tüm olguların %9'unun progrese, %63'ünün persiste kaldığı ve %28'inin ise regrese oldukları izlendi. Özellikle doğum şeklinin histopatolojik sonuçlara etkisi ve buna bağlı oranlara bakıldığında ise normal spontan vajinal doğumda 6 olguda %38 ve sezaryen doğumda ise 3 olgu %19 oranında regresyon oranlarını olduğu ve normal doğum sonrası regresyon oranlarının anlamlı yüksek olduğu görüldü.

Sonuç: Gebelik sürecinde alınan ve yüksek risk HPV pozitif ve/veya anormal sitolojik test sonuçlarına göre olgulara kolposkopik değerlendirilmesinin yanı sıra gebelik sürecinde sadece konservatif yaklaşım ve postpartum dönemde kolposkopi ve biyopsi yaklaşımı rahatlıkla yapılabilir.

Anahtar Sözcükler: Antenatal dönem; human papillomavirüs; kolposkopi; postpartum dönem; servikal sitoloji.