International Journal of Reproduction, Contraception, Obstetrics and Gynecology
Anjum S et al. Int J Reprod Contracept Obstet Gynecol. 2025 Sep;14(9):3015-3020
www.ijrcog.org
pISSN 2320-1770 | eISSN 2320-1789

DOI: https://dx.doi.org/10.18203/2320-1770.ijrcog20252734

Original Research Article

Comparative study between Reid's colposcopic index score and Swede's score in women with cervical precancerous lesions

Shazia Anjum[1]*, Sweta[1], Oshan Saini[2], Vandana Saini[1]

[1]Department of Obstetrics and Gynecology, Hindu Rao Hospital and associated NDMC Medical College, Delhi, India
[2]Department of Pathology, Pondicherry Institute of Medical Sciences, Puducherry, India

Received: 14 July 2025
Revised: 12 August 2025
Accepted: 13 August 2025

***Correspondence:**
Dr. Shazia Anjum,
E-mail: drshaziaanjum18@gmail.com

ABSTRACT

Background: Colposcopic indexes including Reid's index and Swede's score were developed to make the colposcopy more objective. The aim of this study was to compare two widely used colposcopic indices Reid's index and Swede's score for the detection of premalignant lesions of the cervix.
Methods: This prospective observational study was conducted on 125 women who attended gynecology OPD with gynecological complaints in June-2018 to July-2019 in the department of obstetrics and gynecology at Hindu Rao Medical College New Delhi over a period of one year. Colposcopic examination was done in all patients RCI score and Swede's score were calculated from the colposcopic findings. Biopsy was taken and histopathology results were recorded.
Results: Majority of women enrolled in the study were between 41-50 years (36%), 88.00% were married staying with husband. Around 41.60% were illiterate, it was observed that majority of women 70.40% had first sexual inter course at ≤18 years. There was an excellent correlation between RCI and Swede's score p value was <0.001. Larger size of lesions was associated with malignant cases.
Conclusions: Swede's score and RCI score have good correlation in detecting cervical cancer. However, Swede's score is better than RCI score for predicting cervical intraepithelial neoplasia 1 (CIN 1).

Keywords: Cervical cancer, Reids colposcopic index, Swede score

INTRODUCTION

Cervical cancer is one of the most common cancer worldwide, ranking as fourth for both incidence and mortality among all gynecological malignancies.[1] Squamous cell carcinoma (SCC) is the most frequent followed by adenocarcinoma (AC), which accounts for approximately (10-25%) of cervical cancers.[2] Cervical cancer has a long progression period from premalignant lesions to the invasive cervical cancer.[3] Globally 660000 new cases and around 350000 deaths in 2022 highest rates of cervical cancer incidence and mortality are in low- and middle-income countries.[4] This reflects major inequalities driven by lack of access to national HPV vaccination, cervical cancer screening, and treatments services, social and economic determinants. Cervical cancer is caused by persistent infection with human papillomavirus (HPV).[5] Women living with HIV are 6 times more likely to develop cervical cancer compared to women without HIV. Prophylactic vaccination against HPV, screening and treatment of precancerous lesions are effective strategies to prevent cervical cancer and are very cost-effective.[6] India, alone accounts for roughly 1.2 lakh new cases and 67000 deaths annually.[7] With early detection, the cure rates of cervical cancer approach 100%.[8] Many screening methods have been developed like Pap smear, VIA, VILI and colposcopy.[9-11] Colposcopy was developed by Hans Hinselmann in 1925.[12] Colposcopy biopsy and

histopathological examination remains the gold standard for the diagnosis of cervical cancer. Colposcopy enables precise biopsies from abnormal areas taking biopsy in every patient is not possible in developing country with limited resources. Therefore, scoring systems were developed for making the colposcopy more objective and to screen the high-risk cases. RCI and Swede's score have been incorporated. RCI was developed by Reid and Scalzi in 1985.[13] Swede's score was developed in 2005 by Bowring et al.[14] In addition to the parameters used in RCI it incorporated lesion size as a variable.

The aim of present study was to evaluate and compare the diagnostic efficacy of colposcopy using RCI and Swede's score in the diagnosis of premalignant lesions of the cervix.

METHODS

This prospective observational study was conducted in the department of obstetrics and gynecology Hindu Rao Hospital, New Delhi. 125 women attending gynecology OPD for gynecological complaints in June-2018 to July-2019 over a period of one year and the patients give written consent for study which will fulfil the inclusion criteria.

Inclusion criteria

Sexually active women with suspicious findings on per-speculum examination, include cervical ectropion, cervical polyp, leukoplakia, endometriosis and nabothian cysts. Age 21-65 years. Women complaining of post coital bleeding /postmenopausal bleeding and abnormal vaginal discharge. Positive Pap smear/ VIA/VILI.

Exclusion criteria

Women who did not give consent for participation. Women with diagnosed carcinoma cervix. Pregnancy, postpartum.

Ethical committee of the institute approved the study. A detailed history was taken including demographic details, age, menarche, age at first sexual intercourse, number of conceptions; inter pregnancy interval and history of sexual intercourse with multiple partners.

General and systemic examination was done, speculum examination of cervix was done to see for any vaginal/cervical ectropion, polyp, nabothian follicle, inflammation, condylomata, ulcer, growth or any lesions in the cervix and vagina. All women were subjected to pap smear for cytology, after confirming the women is not in menstrual phase, abstinence for 2 days, per speculum examination was done long end of the Ayre's spatula was rotated at external os, keeping the short end inside and smear is obtained. Endocervical cytology smear was taken using endocervical brush. After preparing the smear on the glass slide, it was fixed in 95% ethyl alcohol. The sample was graded as per the Bethesda system of classification.[14]

Table 1: Reid's colposcopic index.

Colposcopy signs	Score 0	Score 1	Score 2
Margin	Condylomatous or micropapillary contour. Flocculated or feathered, jagged, angular, satellite lesion, AWA beyond original squamo-columnar junction	Regular lesion with smooth indistinct borders.	Rolled, peeling edges, sharp margins
Colour	Shiny, snow white, areas of faint (semi-transparent) whitening	Intermediate shade (shiny but grey white)	Dull, Oyster grey
Vessels	Uniform, fine caliber non dilated capillary loops fine punctuation or mosaic	Absence of surface vessels	Definite, coarse punctuation or mosaic.
Iodine staining	Any lesion staining Mahagony brown; mustard yellow staining by a minor lesion (by first three criteria)	Partial iodine uptake (mottled pattern)	Mustard yellow staining of a significant lesion (an acetowhite area scoring 3 or more points by the first three criteria)

Table 2: Swede score.

Colposcopysigns	Score 0	Score 1	Score 2
Margins and surface	0 or diffuse	Sharp but irregular, jagged, geographical satellites	Sharp and even, difference in surface level including cuffing
Aceto uptake	0 or transparent	Cloudy, milky	Distinct, opaque white
Vessels	Fine, regular	Absence of surface vessels	Coarse or atypical vessels
Iodine staining	Brown	Faintly or patchy yellow	Distinct yellow
Lesion size	<5 mm	5-15 mm or 2 quadrants	>15 mm

Statistical analysis

Statistical evaluation was done by SPSS software version 26.0 for calculating sensitivity, specificity, PPV, NPV. Pearson and spearmen correlation coefficient for correlation of RCI and swede's score with biopsy findings.

RESULTS

A total 125 women attending gynecology OPD at Hindu Rao Hospital, for gynecological complaints and unhealthy cervix on clinical suspicion were examined by Pap smear, colposcopy and biopsy. The colposcopic impression was graded using the Reid's and Swede's index. Biopsies were taken from the colposcopically abnormal areas.

Table 3: Categorization of women according to age and parity.

Category	N	%
Age (in years)		
<30	5	4.00
31-40	37	29.60
41-50	45	36
51-60	31	24.80
>60	7	5.60
Parity		
≤2	66	52.80
3-4	54	43.20
≥5	5	4.00
Total	125	100

Table 4: Categorisation of women according to marital, education and socioeconomic status.

Marital/education/ socioeconomic status	N	%
Married staying with husband	110	88.00
Widow	10	8.00
Divorce	5	4.00
Illiterate	52	41.60
Primary	38	30.40
Middle school	25	20.00
High school and above	10	8.00
Upper middle	5	4.00
Middle	33	26.40
Lower middle	52	41.60
Lower	35	28
Total	125	100

It was observed that most of the women attending the OPD with gynaecological complaints were between 41-50 years of age which is approximately 36%, around 29.6% were between 31-40 years. The percentages of women between 51-60 years were 24.8%. The rest of the women were <30 years (4%) and the remaining 5.60% were >60 years. It is hence observed that majority of the women in the study group were of parity ≤2 (52.8%), women of parity 3-4 were 43.2% and 4% were of parity ≥5.

88.00% of women in the study group were staying with husband, 8.00% were widow and 4.00% was divorced. It is hence observed that in my study group 41.60% of the women were illiterate, 30.40% women were from primary school, 20% were from middle school and 8% were from high school and above. In the present study group majority of women (41.60%) were from lower middle class, 26.40% were from middle and 28% from lower class.

Table 5: Categorization of women according to age of menarche and first sexual relation.

Age of menarche/first sexual relation	N	%
≤13 years	35	28.00
≥13 years	90	72.00
≤18 years	88	70.40
≥18 years	37	29.60
Total	125	100

In the study group majority of women (72%) had age of onset of menarche at ≥13 years. it was observed that majority of women (70.40%) had first sexual intercourse at ≤18 years of age and 29.60% of the women had their 1st sexual contact at ≥18 years.

Table 6: Categorization of women according to complaints.*

Chief complaints	N	%
Vaginal discharge	65	52.00
Pain lower abdomen with vaginal discharge	30	24.00
Post coital bleeding	10	8.00
Post-menopausal bleeding	10	8.00
Inter menstrual bleeding	10	8.00
Total	125	100

*Multiple responses

Table 7: Categorization of the women according to Pap smear report.

Interpretation of Pap	N	%
NILM	70	56.0
Inflammation	20	16.0
ASC-US	10	8.0
ASC-H	9	7.20
LSIL	8	6.40
HSIL	6	4.80
Squamous metaplastic cells	2	1.60
Total	125	100

In this study, it was observed that most of the women had complaint of vaginal discharge (52.00%), pain lower abdomen and vaginal discharge (24%), post coital

bleeding (8.00%), post-menopausal bleeding (8.00%) and Intermenstrual bleeding (8.0%).

Of the 125 women who were included in the study, 56.00% of them were negative for intraepithelial lesion/ malignancy on Pap smear (NILM), whereas 16.00% of the women were found to have inflammatory changes, 8.00% of the patients had atypical squamous cells of undetermined significance (ASC-US), 7.20% had atypical squamous cells cannot exclude high grade squamous intraepithelial lesions (ASC- H), 6.40% of them had low grade squamous intraepithelial lesion LSIL and 4.80% had high grade squamous intraepithelial lesion and 1.60% had squamous metaplastic cells.

Table 8: Categorization of the women according to RCI and Swede's score.

Reid score/ Swede's score	N	%
≤3	81	64.80
4-7	29	23.20
8-10	15	12.00
≤3	80	64
4-7	28	22.40
8-10	17	13.60
Total	125	100

Table 9: Correlation between Reid's score with histopathology report for study population.

Reid's score	Not done N (%)	Histopathology Report n=37 (%)					
		Inflammation	CIN 1	CIN 2	CIN3	Invasive cancer	Total
≤3	71 (93.4)	5 (22.7)	5 (41.7)	1 (14.3)	0	0	82 (65.6)
4-7	5 (6.6)	9 (40.9)	7 (75)	6 (85.7)	3 (50)	0	30 (24)
8	0	8 (36.4)	0	0	3 (50)	2 (100)	13 (10.4)
Total N (%)	76 (60.8)	22 (17.6)	12 (9.6)	7 (5.6)	6 (4.8)	2 (1.6)	125 (100)

Spearman's rho correlation coefficient =0.87, p value <0.0001. A positive spearman's rho correlation coefficient of 0.87 indicates that there is a relation between the increase in the grade of Reid's score and higher Histopathology findings. With a score of 8, 50% of the women were diagnosed as CIN3.

Table 10: Correlation between Swede score with histopathology report for study population.

Swede score	Not done N (%)	Histopathology report n=37 (%)					
		Inflammation	CIN 1	CIN 2	CIN 3	Invasive cancer	Total
≤3	69 (95.8)	3 (15)	0	0	0	0	72 (57.6)
4-7	3 (4.1)	4 (20)	11 (78.6)	5 (50)	3 (42.8)	1 (50)	27 (21.6)
8+	0	13 (65)	3 (21.4)	5 (50)	4 (57.1)	1 (50)	26 (20.8)
Total N (%)	72 (57.6)	20 (16)	14 (11.2)	10 (8)	7 (5.6)	2 (1.6)	125 (100)

Spearman's rho correlation coefficient =0.89, p value <0.0001. A positive spearman's rho correlation coefficient of 0.89 indicates that there is a relation between the increase in the grade of Swede's score and higher Histopathology findings.

In this study, out of 125 women 64.80% had Reid score ≤3, 23.20% had Reid score 4-7 and 12.00% had Reid score 8-10. It was observed that 64.0% had Swede's score ≤3, 22.40 % had Swede's score 4-7 and 13.60% had Swede's score 8-10.

DISCUSSION

The prevalence of CIN was higher in women over 30 years Vaidya showed in his study that CIN was more prevalent in the age group of >35 years and showed more positive cases of CIN were found with parity more than 4.[15] Kushtagi showed the prevalence of CIN significantly higher in parity of more than 2.[16] Poor personal hygiene poor living conditions, unstable marriages and early age at first intercourse are factors associated with both low socioeconomic conditions and cervical cancer. The main goal of cervical screening is to identify women with moderate to severely dysplastic lesions which are the true precursors of invasive cancer and require treatment, thus ultimately decreasing morbidity and mortality due to cervical cancer. Kallner et al evaluated the diagnostic accuracy of cervical lesions by stationary colposcope and the gynocular at a cut-off 5 for Swede score, stationary colposcope had a sensitivity of 73.5% and specificity of 58.5%.[17]

Bowring et al proposed that a modified Swede score in low- resource settings could predict cervical abnormalities and avoid over treatment.[18] Single visit or two visits can reduce the life time risk of cervical cancer by 25 and 35%.[19] Health workers; can motivate women to go for Pap test. These exercises should involve community leaders and also the males in the family. It should involve a process of reconstructing concepts in the context of women's lives.[20] The primary health care facilities where cervical screening should be available are limited, under-resourced and over-burdened in most developing

countries.[21] There is evidence that visual screening can lead to a significant reduction in disease and can be used readily in all health care settings.[22] An effective way to minimize the complications of cervical cancer is through early screening. Colposcopic examination is beneficial for selecting patients who should undergo further examination by biopsy and conisation. Colposcopy is a very important step in the initial evaluation of women with abnormal screening test (Pap smear). A scoring system can facilitate learning, systematize observation, compare colposcopic performance and select appropriate patients for see and treat protocol.[18] The Reid's colposcopic index is the most known scoring system used to standardize colposcopic assessment and assist in the prediction of definite histological diagnosis.[23] Swede's score involve addition of another parameter consisting of lesion size.[24] It is well documented that the size of the lesion corresponds to its severity.[25] Swede's score created by strander et al help to predict cervical abnormalities and avoid treatment. Strander et al suggested see and treat approach in case of Swede's score >8 with the specificity of 90% for the HSIL lesions diagnosis.[24] The Swede's score showed improved sensitivity of the test which emphasizes an important role of the lesion size in colposcopic diagnosis.

There are some limitations. Women with previous cervical treatment or co-existing genital infections were excluded, which may limit the applicability of the findings to the general population of women undergoing colposcopy. In some cases, histopathological confirmation was not available for all grades of lesions, which may have affected the accuracy assessment of both scoring systems. This study did not include long-term follow-up data to assess the outcomes of women diagnosed using either scoring method, which limits evaluation of their predictive validity over time. Colposcopic scoring systems such as Reid's and Swede's scores are subject to interobserver variability. Despite efforts to minimize bias, subjective interpretation by the colposcopist may influence the scoring. This research was conducted at a single medical center, which may limit the generalizability of the findings to broader or more diverse populations and relatively small sample size, which may affect the statistical power and the robustness of comparisons between the two scoring systems.

CONCLUSION

HPV infections, especially HPV types 16 and 18 confer a higher risk of invasive cervical cancer 15-30 years after infection. Women who are at high risk screened more frequently to prevent invasive cervical cancer or diagnose it at an earlier stage those with minimal risk can be screened less often. Swede's score and RCI score have good correlation in detecting cervical cancer. However, Swede's score is better than RCI score. Swede score of 5+ is a good screening tool, with sensitivity and NPV of 100% with the addition of lesion size, Swede's score is a good predictor of high-grade lesions.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee of Hindu Rao Medical College, New Delhi with approval number 04 dated 17/05/2018

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Cite this article as: Anjum S, Sweta, Saini O, Saini V. Comparative study between Reid's colposcopic index score and Swede's score in women with cervical precancerous lesions. Int J Reprod Contracept Obstet Gynecol 2025;14:3015-20.