

**ROLE OF COLPOSCOPY USING MODIFIED REID'S INDEX IN SCREENING OF CERVICAL CANCER IN WOMEN WITH ABNORMAL CERVIX ON NAKED EYE EXAMINATION**Deshpande Sonali<sup>1</sup>, Yelikar Kanan<sup>2</sup>, Andurkar Smita<sup>3</sup>, Dahitankar Suvarna<sup>4</sup>**HOW TO CITE THIS ARTICLE:**

Deshpande Sonali, Yelikar Kanan, Andurkar Smita, Dahitankar Suvarna. "Role of Colposcopy using Modified Reid's Index in Screening of Cervical Cancer in Women with Abnormal Cervix on Naked Eye Examination". Journal of Evolution of Medical and Dental Sciences 2014; Vol. 3, Issue 04, January 27; Page: 902-906, DOI: 10.14260/JEMDS/2014/1922

**ABSTRACT: OBJECTIVE:** To assess the validity of Colposcopy using Modified Reid's Index as a screening tool in cervical cancer in women with abnormal cervix on naked eye examination. **METHODS:** This observational study was carried out in Government medical college, Aurangabad from June 2011 to May 2013 . Total 392 women with abnormal cervix on naked eye examination of underwent colposcopy and diagnosis was made on the basis of Modified Reid's Index. Colposcope directed biopsies were obtained from the abnormal areas. In women with normal colposcopic findings four quadrant biopsies from squamo-columnar junction were taken .Eight women were excluded from analysis owing to unsatisfactory colposcopy. Results of colposcopy were validated by calculating sensitivity, specificity, positive predictive value, negative predictive value in diagnosing histopathologically confirmed lesions which served as gold standard. **RESULTS:** Overall sensitivity of colposcopy in all grades of lesions is around 90% or more, touching 100% in high order of histological lesions. Overall specificity is also high. It does have an excellent negative predictive value but comparatively lower positive predictive value especially in high order lesions with fair degree of accuracy in all grades of lesions in the hands of an experienced operator. **CONCLUSION:** Colposcopy using Modified Reid's Index with high sensitivity and specificity is a good screening tool for cervical cancer.

**KEYWORDS:** Colposcopy ,Modified Reid's Index, screening of cervical cancer.

**INTRODUCTION:** Cervical cancer is a global health problem. Although it can be prevented easily by early detection of premalignant lesions as it does have a long latent phase; it remains as one of the leading causes of death amongst women in developing countries<sup>1</sup>.

Colposcopy an optical biopsy is an examination of tissue, without its actual sampling can be an useful screening tool owing to its high sensitivity for detection of an abnormality & comparatively low cost amongst various screening procedures like pap smear, visual inspection of cervix with acetic acid, visual inspection with Lugol's iodine & HPV DNA testing. Colposcopy and if needed directed biopsy will pick up the maximum number of cases of premalignant lesions & thus will help to reduce the disease related mortality and morbidity<sup>2</sup>. Colposcopic grading using modified Reid's index makes colposcopy less subjective as it relies on critical analysis rather than pattern recall serving as a meaningful guide to histopathological severity.<sup>3</sup>

This study aims to assess the validity of colposcopy using modified Reid's index as a screening tool in cervical cancer in women with abnormal cervix on naked eye examination keeping histopathology as a gold standard.

## ORIGINAL ARTICLE

**MATERIAL & METHODS:** This was an observational study carried out in Government medical college & hospital, Aurangabad from November 2011 to November 2012.

Total 392 women with abnormal cervix on naked eye examination underwent outpatient colposcopy using ASCON model AC-3-2000SN colposcope having focal length 250 – 300 mm with magnification of 7.5 X - 10 X. Diagnosed and treated cases of cervical cancer, women with obvious cervical growth on per speculum examination, women on oral contraceptive pills & pregnant women were excluded from study. Abnormal colposcopic findings if any like aceto-white areas, their margins and surface configurations, atypical vessels and abnormal iodine staining were analyzed & graded using modified Reid's index.

Score 0-2 - Likely to be CIN I (low grade lesion)

Score 3-4 - Intermediate –grade lesion-likely to be CIN I-CIN II. (Overlaps between LGL and HGL)

Score 5-8 - Likely to be CIN II-CINIII (high grade lesion)

Colposcopy directed biopsies were obtained from the abnormal areas. Women in whom colposcopy was normal, four quadrant cervix biopsies were taken from transformation zone. Women in whom transformation zone was not visualized were excluded from the analysis. Biopsy results were categorized as benign, CIN I, CIN II, CIN III and invasive cervical cancer & histopathological diagnosis was taken as the gold standard.

Results of colposcopy were validated by calculating sensitivity, specificity, positive predictive value, negative predictive value in diagnosing histopathologically confirmed lesions.

Formulae used were sensitivity =  $TP/TP+FN$ , specificity =  $TN/TN+FP$ , positive predictive value =  $TP/TP+FP$ , negative predictive value =  $TP/TN+FN$ , accuracy =  $TP+TN / Total$ . Where TP - true positive, TN - true negative, FP - false positive, FN - false Negative.

**RESULTS:** Of 392 women enrolled, 8 were excluded from analysis due to unsatisfactory colposcopy as the transformation zone was not visualized. Mean age of the study group was 36.5 years with a range of 21-63 years, 91% of them were multiparous. The chief complaints were white per vaginal discharge (85%), backache (23.45%), menstrual disorder (11.8%), postmenopausal bleeding (8.16%) & something coming out of introitus (6.1%). Cervical erosion (62.12%) was the commonest finding on naked eye examination followed by hypertrophied cervix (31.64%), contact bleeding (5.22%) & keratinization (1.02%).

According to International colposcopic terminology 1990, findings were abnormal in 360 women (91.84%), normal in 24 women (6.12%) & unsatisfactory in 8 women (2.04%).

Modified Reid's index on colposcopy	Number of cases	% of cases
Likely to be CIN I (0-2)	276	76.66
Likely to be CIN I-II (3-4)	56	15.56
Likely to be CIN II-III (5-8)	28	7.78
<b>Total</b>	<b>360</b>	<b>100</b>

Table I - Distribution of cases according modified Reid's index on abnormal colposcopy

## ORIGINAL ARTICLE

Histopathology report	Number of cases	Percentage of total cases
Benign	60	15.62
CIN I	264	68.75
CIN II	36	9.37
CIN III	16	4.16
Invasive cervical cancer	08	2.08
<b>Total</b>	<b>384</b>	<b>100</b>

Table II - Distribution of cases according to histopathology report

Colposcopy Findings	Histopathology report					
	Benign	CIN I	CIN II	CIN III	Invasive cervical cancer	Total
<b>Abnormal (Modified Reid's index)</b>						
Score 0-2 (Likely to be CIN I)	28	248	0	0	0	276
Score 3-4 (Likely to be CIN I-II)	8	16	32	0	0	56
Score 5-8 (Likely to be CIN II-III)	0	0	4	16	8	28
<b>Normal</b>	24	0	0	0	0	24
<b>Total</b>	<b>60</b>	<b>264</b>	<b>36</b>	<b>16</b>	<b>8</b>	<b>384</b>

Table III – Correlation between colposcopic findings with histopathology reports.

Modified Reid's index	Over estimation	Accurate estimation	Under estimation	Total
Likely to be CIN I (0-2)	28(10.14%)	248(89.85%)	0	276
Likely to be CIN I-II (3-4)	24(42.85%)	32(57.14%)	0	56
Likely to be CIN II-III (5-8)	4(14.28%)	16(57.14%)	8(28.57%)	28
<b>Total</b>	<b>56</b>	<b>296</b>	<b>8</b>	<b>360</b>

Table IV - Evaluating validity of colposcopy using modified Reid's index with histopathology

Statistical parameter	Women with colposcopic finding (Modified Reid's index)		
	Likely to be CIN I	Likely to be CIN I-II	Likely to be CIN II-III
Sensitivity	93.93	88.89	100
Specificity	76.66	93.10	96.74

## ORIGINAL ARTICLE

Positive predictive value	92.53	57.14	57.14
Negative predictive value	85.18	98.79	97.72
Accuracy	88.54	92.70	100

Table V - Table showing statistical parameters

Amongst 360 women with abnormal colposcopic findings 276 (76.66%) were likely to be CIN I (score 0-2), 56 (15.56%) were likely to be CIN I- II (score3-4) and 28 (7.78 %) were likely to be CIN II-III (score 5-8) according to modified Reid's index (Table I).

On histopathology the commonest lesion found was CIN I (68.75%) followed by benign lesions (15.62%), CIN II (9.37%), CIN III (4.17%) while the diagnosis turned out to be invasive cervical cancer in 8 (2.07%) women. (Table II).

Correlation between colposcopy & histopathology was high especially in low grade lesion CIN I where findings matched in 89.85%women, which decreased in CIN II (57.14%), CIN III (57.14%) (Table III).

On colposcopy, no case of low grade lesion was underestimated indicating its high sensitivity while 8 cases of malignancy were falsely labeled as CIN III thus stressing the importance of confirmation of colposcopic diagnosis of high grade lesions (Table IV).

Overall sensitivity of colposcopy in all grades of lesions is around 90% or more, touching 100% in high order of histological lesions thus no case with advanced disease will be missed. Specificity is also high especially in high grade histological lesions thus higher the histological order of lesion lesser is the possibility of having false positive colposcopy report. Which implicates that at population level colposcopy can be a very useful screening tool owing to its high sensitivity & specificity as there is less likely possibility of missing an abnormality especially high grade histological lesions, maximum number of cases will be picked & subjected to confirmatory test. But comparatively low specificity in low grade histological lesions will cause over estimation of diagnosis that means higher number of normal people will be subjected to unnecessary evaluation so as to confirm the diagnosis.

It does have an excellent negative predictive value especially in higher order histological lesions means less number of cases will be missed & the possibility of having an abnormality in spite of normal colposcopy will be minimal. Comparatively lower positive predictive value in high order lesion means that all such lesions should be confirmed by the diagnostic test. Thus at an individual level it will be helpful in ruling out an abnormality in presence of normal Colposcopic finding but positive results on colposcopy will need further evaluation so as to confirm the diagnosis. It does have a fair degree of accuracy in all grades of lesions hands of an experienced operator (Table V).

**DISCUSSION:** In this clinical study, efficacy of colposcopy for screening of cervical cancer using modified Reid's index was evaluated and it was validated with histopathology. We found a significant correlation between colposcopic impression using modified Reid's index & histopathology.

In comparison to study by Mousavi A.S.et al<sup>4</sup> higher sensitivity and similar specificity was found for diagnosis of cervical lesions in present study.

GeetaDurdi et al<sup>5</sup> found higher sensitivity and specificity for higher grade lesions with a high degree of correlation between colposcopic impression and histopathology similar to present study.

## ORIGINAL ARTICLE

Although accuracy of colposcopy partially depends the operator expertise, colposcopists may not be entirely responsible for the disagreement between the colposcopic impression and histologic diagnosis, as a certain degree of inter observer variability occurs among the pathologists while histologically grading CIN. Proper training and certification of colposcopies gives a satisfactory level of accuracy to the colposcopy and can make it the reference standard test for diagnosis of premalignant lesions of the cervix.

To conclude, colposcopy with high sensitivity & specificity is a good screening tool in cervical cancer especially in high grade lesions but comparatively low specificity in low grade histological lesions will cause overestimation of diagnosis. Also the limiting factor is that the accuracy of the method is directly related to the expertise of its operator.

### REFERENCES:

1. Kathy S, Emma O, Patricia C, Janet P. Comprehensive cervical cancer control: a guide to essential practice. World Health Organization 2006.
2. John W. Sellors, R Sankarnarayanan; Coploscopy and Treatment of Cervical Intraepithelial Neoplasia. Chapter 4. Pg.30.
3. Ceballos KM, Chapman W, Daya D. Reproducibility of the histological diagnosis of cervical dysplasia among pathologists from four continents. Int J Gynecol Pathol. 2008; Vol.27: Pg.101-7.
4. Mousavi AS, Fakour F, Gilani MM, Behtash N, GhaemmaghmiF, Karimi Zarchi M. A prospective study to evaluate the correlation between Reid colposcopic index impression and biopsy histology. J Low Genit tract Dis. 2007; 11: 147-50.
5. Geeta Durdi, Bhavana Sherigar, Anita Dalal. Correlation of colposcopy using Reid colposcopic index with histopathology a prospective study. J Turkish – German GynecolAssoc2009; Vol.10: Pg 205-7.

### AUTHORS:

1. Deshpande Sonali
2. Yelikar Kanan
3. Andurkar Smita
4. Dahitankar Suvarna

### PARTICULARS OF CONTRIBUTORS:

1. Associate Professor, Department of Obstetrics and Gynaecology, Government Medical College and Hospital, Aurangabad, Maharashtra.
2. Professor & Head, Department of Obstetrics and Gynaecology, Government Medical College and Hospital, Aurangabad, Maharashtra.
3. Assistant Professor, Department of PSM, Government Medical College and Hospital, Aurangabad, Maharashtra.

4. Junior Resident III, Department of Obstetrics and Gynaecology, Government Medical College and Hospital, Aurangabad, Maharashtra.

### NAME ADDRESS EMAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Sonali Deshpande,  
#8, Amitnagar, Nandanwan Colony,  
Aurangabad – 431005.  
E-mail: sonalisd97@yahoo.co.in

Date of Submission: 31/12/2013.

Date of Peer Review: 01/01/2014.

Date of Acceptance: 10/01/2014.

Date of Publishing: 23/01/2014.