

Correlation Between Colposcopy, Cytology and Histology in Cervical Lesions

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Summary

The study was conducted at R.K. Birla Cancer Research Centre, SMS Medical College, Jaipur on 200 women at high risk for cervical cancers, to assess the reliability of colposcopy, by correlating the findings of colposcopy with cytology and histology. Routine gynaecological examination was followed by cytology, colposcopy and if required colposcopy-directed biopsy. There was correlation in 95.92% cases between colposcopy and cytology and in 93.33% between colposcopy and histology of colposcopy directed biopsy. Between cytology and histology the correlation was 93.33%.

Introduction

Cervical cancer is the most common gynaecological cancer. It is the only cancer which can be detected in precancerous stage by pap smear cytology and colposcopy. Primary focus of cervical cancer may be a minute ulceration which may be undetectable by the naked eye but might be visualized by a colposcope which uses low power magnification (10-40 times) and illumination.

Colposcopy helps in determining indications for cervical biopsy, locating sites and the extent of biopsy. It helps in avoiding traumatic diagnostic methods like cervical conisation for minor lesions and at the same time significant lesions are also not overlooked. Hence, the study was undertaken to determine the reliability of colposcopy by correlating the findings of colposcopy with cytology and colposcopy directed biopsy in cervical lesions.

Material and Method

The study was conducted on 200 women at high

risk for cervical cancer at R.K. Birla Cancer Research Centre, S.M.S. Hospital, Jaipur. The high risk factors included in the study were first sexual intercourse or first conception before the age of 18 years, multiple conceptions, multiple sexual partners, lower socio-economic status, cigarette smoking and tobacco intake, poor genital hygiene and women with sexually transmitted diseases.

In all cases, routine gynaecological examination was followed by pap smear for cytology, detailed colposcopic examination and if required colposcopic directed biopsy. Colposcopy, cytology and histology findings were compared.

Observations and Discussion

The age of patients in our study ranged between 21-75 years, maximum number of patients were in age group 31-35 years.

A per speculum examination of cervix showed normal looking cervix in 67 patients, cervical hypertrophy in 17, old cervical tear in 18 and 98 patients

had erosion. (Table I)

Pap smear study revealed 38 cases of normal cytology (grade I), 148 cases had inflammatory cells (grade II) mild dysplasia in 5 cases (grade III), 2 cases of moderate to severe dysplasia (grade IV) and in smears of 7 cases, malignant cells were seen. (Table I).

A detailed colposcopic examination was done. In 4 patients, the transformation zone could not be visualized hence in them colposcopy was considered unsatisfactory. The vascularity was seen with green filter, epithelium was examined after applying 3% acetic acid and by performing Schiller's test. Taking all these into consideration, 58 patients had grade I lesion, 21 had grade II, 11 patients had grade III and 106 patients had normal colposcopic findings (Table II).

Colposcopy directed biopsy was taken in 90 patients. Of these, histology was normal in 22 cases and 46 had chronic cervicitis. CIN I was seen in 12 cases, CIN II in 2 cases and squamous cell carcinoma in 8 cases. (Table II).

On correlating colposcopy with cytology, 106 patients with normal colposcopy and 58 patients with

grade I colposcopy had grade I (15 and 14 cases respectively) and grade II (91 and 44 cases respectively) findings on pap smear. In patients with grade II colposcopy, 5 had only mild dysplasia on pap smear, rest had grade I and II smears. In patients with grade III colposcopy, 2 had inflammatory smears, while 2 had grade IV and 1 had grade V cytology on pap smear. (Table III).

Thus, of the 196 patients with satisfactory colposcopy, 188 (95.92%) had correlation between colposcopy and cytology. 6 patients with colposcopy grade II lesions had normal cytology and 2 patients with colposcopic grade III lesion had inflammatory cytology. Thus, colposcopic diagnosis was more advanced in 8 (4.08%) patients. Talebian and Shayan (1977) showed 100% correlation and Seshadri et al (1990) showed 87.6% correlation between colposcopy and cytology (Table III). On correlating colposcopy with histology, patients with grade I colposcopy revealed normal histology findings in 18 cases and chronic cervicitis in 40 cases. In grade II colposcopy, 4 patients each had normal histology and chronic cervicitis and 12 had CIN I. Of the 9 cases with grade III colposcopic findings, 2 had chronic cervicitis on histology while 1 had CIN II and 8 had squamous cell carcinoma on histology (Table IV).

Table No. I

Per Speculum Examination of Cervix					
Cervix	Normal	Hypertrophy	Old cervical tear	Erosion	
No. of Cases	67	17	18	98	
Paps Smear Grading					
Grade	I	II	III	IV	V
No. of Cases	38	148	5	2	7

Table No. II

Colposcopic Findings in High Risk Cases						
Grade	Normal	Grade I	Grade II	Grade III	Unsatisfactory	
No. of Cases	106	58	21	11	4	
Histology of Colposcopic Directed Biopsy of Cervix						
Findings	Biopsy not Taken	Normal	Chronic cervicitis	CIN I	CIN II	Squam. Cell carcinoma
No. of Cases	110	22	46	12	2	8

Table No. III
Correlation of Colposcopic Findings with Pap Grading

Colposcopy	Pap grading					Total
	I	II	III	IV	V	
Normal	15	91	0	0	0	106
Grade I (Significant infection, not suspicious)	14	44	0	0	0	58
Grade II (Significant, suspicious)	6	10	5	0	0	21
Grade III (Highly significant, highly Suspicious)	0	2	0	2	7	11
Unsatisfactory colposcopy	0	4	0	0	0	4
Total	38	148	5	2	7	200

Table No. IV
Correlation of Colposcopic Findings with Histology of Target Biopsy

Colposcopy	No biopsy	Normal	Ch. cervicitis	Histology			Total
				CIN I	CIN II	Squam. cell carcinoma	
Normal	106	0	0	0	0	0	106
Grade I (Significant Infection, not suspicious)	0	18	40	0	0	0	58
Grade II (Significant, Suspicious)	0	4	4	12	1	0	21
Grade III (Highly Significant, highly Suspicious)	0	0	2	0	1	8	11
Unsatisfactory colposcopy	4	0	0	0	0	0	4
Total	110	22	46	12	2	8	200

Table No. V
Correlation of Pap Smear with Histology of Cervical Biopsy

Pap Grade	No biopsy	Normal	Ch. Cervicitis	Histology			Total
				CIN I	CIN II	Squam. cell Carcinoma	
Grade I (Normal cytology)	31	2	0	5	0	0	38
Grade II (Inflammatory cytology)	79	20	46	3	0	0	148
Grade III (CIN I or Mild dysplasia)	0	0	0	4	1	0	5
Grade IV (CIN II, III & carcinoma-in-situ)	0	0	0	0	1	1	2
Grade V (Malignant cells)	0	0	0	0	0	7	7
Total	110	12	46	12	2	8	200

Out of 90 cases, colposcopy had correlation with histology in 84 cases (93.33%). In 4 cases with colposcopic grade II lesion, histology was normal, while in 2 cases with colposcopic grade III lesion, histology revealed chronic cervicitis with trichomonal vaginalis. Thus 6 cases (6.66%) had less advanced lesion than expected by colposcopy. Staff and Mattingly (1973) found correlation in 85% cases, and Tovell et al (1976) showed 96.4% correlation between colposcopy and histology of directed biopsy.

Pap smear cytology and histology of cervical biopsy were correlated. All patients with chronic cervicitis on histology had grade II findings on cytology. Of the 12 patients with CIN I on biopsy, 4 had grade III, 3 had grade II and 5 had grade I findings on cytology. Of the 2 cases of CIN II, 1 had grade III and 1 had grade IV findings on cytology. 8 cases had squamous cell carcinoma on biopsy. Of these, 7 had grade V (malignant cells) and 1 had grade IV findings on cytology. (Table V). Thus, we had correlation between cytology and histology in 84 patients (93.33%). Of the remaining 6, 5 patients with normal cytology had mild dysplasia on histology and 1 patient with severe dysplasia on cytology had squamous cell carcinoma on histology. Talebian and Shayan (1979) showed 100% correlation between cytology and biopsy. Lozowski et al 1982 showed 85.2% correlation between cytology and biopsy in their study.

Conclusion

In our study, we found 93-96% correlation between the findings of colposcopy with that of cytology and histology.

Hence colposcopy and colposcopy directed biopsy of cervix should be included along with pap smear cytology in mass screening for early detection of cancer cervix since the accuracy of detection of cervical abnormalities is higher when these are used complementarily.

References

1. Lozowski M.S., Mishriki Y., Talebian F., Solitare G.: *Acta Cytol.* 26: 285; 1982
2. Seshadri L., Jairaj Prabha, Krishnaswami Hemlatha *Indian J. Cancer*, 27 (3): 180; 1990.
3. Staff A., Mattingly R.F.: *Obstet & Gynaecol.* 4 (2): 168; 1973.
4. Talebian F., Shayan Ali: *Obstet. & Gynaecol.* 49: 6, 1977.
5. Tovell H.M.M., Banogan P., Nash A.D.: *Am J. Obst. & Gyn.* 124: 924; 1976.