

DOI: 10.5455/2320-1770.ijrcog20130928

Research Article

Descriptive analytical study looking for agreement between colposcopic cervical findings and cervical exfoliative cytology

Sandhya S. Gadre^{1*}, S. G. Gupta², Abhishek S. Gadre³

¹Department of Obstetrics and Gynaecology, ²Department of Pathology, ³Research associate, PCMS & RC, Bhopal, M.P., India

Received: 14 July 2013

Accepted: 4 August 2013

***Correspondence:**

Dr. Sandhya S. Gadre,

E-mail: gadre.sandhya@gmail.com

© 2013 Gadre SS et al. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: To see whether cervical findings on colposcopy & reports of exfoliative cytology agree with each other according to grade of severity.

Methods: This study included 306 cases. Data of PAP's smear reports & colposcopic examination findings collected. Reports of colposcopically directed s cervical biopsy collected wherever it was done (28). The colposcopic findings were graded according to Reid's coloscopic index, reports of PAP's smear classified according to Bethesda system. Data was analysed to find out any agreement.

Results: The findings of colposcopy & PAP'S smear reports (n=306) showed significant agreement (p=0.0037). The findings of colposcopy & colposcopically directed cervical biopsy (n=28) were in agreement with each other. The reports of PAP'S smear & colposcopically directed cervical biopsy (n=28) showed agreement with each other.

Conclusion: In India, cancer cervix is prevalent. Hence screening & early diagnosis of preinvasive lesions is very important. Colposcopic findings & pap's smear reports have an agreement with each other. Pap's is cheap, easily available, not needing specific training, but low sensitivity. Colposcopy is highly sensitive, costly, not available everywhere. Since they have significant agreement pap's can be given an equivalent place, especially for screening. Its sensitivity can be increased by repeating the smear. It can be combined with colposcopy, where it is available to increase diagnostic yield.

Keywords: Colposcopic findings, Cervical cytology, Agreement

INTRODUCTION

Cancer of the cervix is the second most common cancer in women worldwide, with about 500 000 new cases and 250 000 deaths each year. Almost 80% of cases occur in low-income countries. Cervical cancer is ranked as the most frequent cancer in women in India. The current estimates indicate approximately 132,000 new cases diagnosed and 74,000 deaths annually in India, accounting to nearly 1/3rd of the global cervical cancer deaths.^{1,2}

Approximately 90% of CIN are attributed to HPV infection. Thorough screening of the population helps early detection of preinvasive as well as invasive lesions, which proves to be the best step towards preventive oncology. Cervical exfoliative cytology & colposcopy are two such well known screening methods. Pap smear in western communities has declined the incidence of cancer cervix & made higher detection of preinvasive lesions, but not in India, where a drive must continue to keep disease under control. Pap smear was invented by a Greek man, Georgios Papanikolaou in 1928, who first presented his findings that "uterine cancer could be

diagnosed by means of vaginal smear” in the paper, "New Cancer Diagnosis." Even though it was conceived in 1928, it wasn't widely used and/or known about until 1943. His research was done with a pathologist named Dr. Herbert Traut, and it had a tremendous impact on reducing the number of deaths from uterine cancer worldwide. In 1988, the first National Cancer Institute (NCI) workshop held in Bethesda, Maryland resulted in development of the Bethesda system for cytologic screening. A standard method of reporting cytology was needed to facilitate peer review & quality assurance. The terminology was refined in Bethesda III system (2001).

Hinselmann invented the Colposcope in 1925. Colposcopy is done to examine the cervix either when the result of a Pap smear is abnormal or the cervix looks normal. Even if a Pap smear result is normal, colposcopy is done when the cervix appears visibly abnormal to the clinician performing the Pap smear. The purpose of the colposcopy is to determine what is causing the abnormal looking cervix or the abnormal Pap smear so that appropriate treatment can be given.

Pap smear can detect the abnormal cells; whereas colposcopy can locate the abnormal lesion. Both the methods are helpful in diagnosing the presence of a lesion. This study was carried to see whether the findings of the two agree with each other.

Aims

To see whether cervical findings on colposcopy & reports of exfoliative cytology agree with each other according to grade of severity.

Objectives

- To promote screening of patients for precancerous & cancerous lesions.
- Early diagnosis of cervical lesions.
- Locate the cervical lesions.
- Early intervention in diagnosed precancerous & cancerous lesions.
- To reduce the incidence of cervical cancer

METHODS

This retrospective study was conducted at department of Obstetrics & Gynaecology, People’s College of Medical Sciences & Research Center, Bhopal.

Inclusion Criteria

Patients attending OPD from April 2010 – September 2010 (n=306) with -

- H/O - vaginal discharge
- Pruritis vulvae
- Postcoital bleeding

- Intermenstrual bleeding
- Postmenopausal bleeding
- Follow up cases of treated cancer cervix
- Abnormal cervix on inspection

Exclusion Criteria

- Patients refusing for colposcopy
- Patients with bleeding per vaginum at the time of study.

Data collected was – demographic details, per speculum examination findings, Pap’s smear report & findings of colposcopic examination of cervix. Reports of colposcopically directed biopsy was also collected (biopsy was already taken wherever necessary).

Pap’s smear reports were classified according to Bethesda system –

1. Within normal limits
2. Infections
3. Reactive & reparative changes
4. Squamous cell abnormalities (ASC - US & ASC - H)
5. LSIL
6. HSIL
7. Squamous cell carcinoma

The colposcopic findings were documented on basis of following criteria:

1. Colour of the lesion
2. Sharpness of margins
3. Characteristics of stromal blood vessels
4. Uptake or rejection of iodine

Each criterion was given a score of 0, 1, or 2 according to severity. The total of all the four scores was recorded as Reid’s colposcopic index

- i. Index 0 – 2 --- Insignificant or low grade lesion
- ii. Index 3 – 4 --- Intermediate grade lesion
- iii. Index 5 – 8 --- High grade lesion

Data thus obtained was analyzed to find out any agreement between the two methods.

Criteria for agreement was decided as-

Reid’s Index		Pap’s class
0 - 2	If corresponds to -	1, 2, 3
3 - 4	If corresponds to -	4, 5
5 - 8	If corresponds to -	6, 7

RESULTS

Total number of cases was 306.

A) The findings of colposcopy & pap's smear (n=306) showed:

	Pap's class 1, 2, 3	Pap's class 4, 5	Pap's class 6, 7
Reid's index 0 - 2	244	35	03
Reid's index 3 - 4	15	09	zero
Reid's index 5 - 8	zero	zero	zero

Kappa value = 0.892, p value = 0.0037

When compared with gold standard --

B) The findings of colposcopy & colposcopically directed biopsy (n=28) showed:

1. Agreement in 22 (78%) patients.

2. No agreement in 6 (22%) patients.

- Colposcopy over diagnosed the pathology in 4 cases
- Colposcopy underdiagnosed the pathology in 2 cases

C) The reports of Pap's smear & colposcopically directed biopsy (n= 28) showed:

1. Agreement in 21 (75%) patients.

2. No agreement was noted in 7 (25%) patients.

- Pap's over diagnosed the pathology in 4 cases
- Pap's underdiagnosed the pathology in 3 cases

DISCUSSION

Frank malignancies can be detected by clinical examination only. But it is important to diagnose the lesion in its Preinvasive state or to diagnose the presence or absence of disease in doubtful cases.

Colposcopy & cytology both are screening methods for detection of preinvasive cervical lesions. Cytology is very cheap, easily implicable even at smaller centres & does not need a trained person, but has a low sensitivity. Whereas colposcopy is a highly sensitive method, hence increasing the diagnostic yield, defines the area to be biopsied & delineates the area for conservative therapies like cryo & LEEP. But the equipment is very costly, not available at every centre, & needs a trained colposcopist for interpretation of results. Secondly, its specificity is low (50%), particularly in differentiating low grade lesions from metaplasia & also fails to detect endocervical lesions, so cannot be used as a routine screening tool.

Hence the role of colposcopy & cytology are complimentary to each other. Cytology evaluates the morphological changes of the exfoliated cells & colposcopy evaluates mainly the changes in terminal

vascular network of the cx which reflect the biochemical & metabolic changes of the tissues. Ultimately cytology detects the crime whereas colposcopy catches the thief.

Due to these facts this study was carried out to find out whether there is an agreement between the two methods.

In this study colposcopic findings & pap's reports showed significant agreement (p=0.0037). The results are consistent with results of many other studies.^{3,4,5}

Baladauf JJ from³ France found that no lesions were observed in patients whose colposcopy and control smear were normal.

John A. Giles et al⁴ said that none of the larger lesions of CIN (diagnosed by colposcopy) was associated with negative cytology.

D. Tamiolakis et al⁵ report that the higher the lesion detected by cytology, the more severe was the corresponding colposcopic impression view.

C. Kieswetter et al⁶ evaluated the ability of cell-sweep to detect an abnormality confirmed by colposcopic evaluation, observing satisfactory cytology in cases where colposcopy was normal.

These all results are suggestive of a good agreement between the two methods, which are consistent with the results of this study.

Reid's colposcopic index was used by other researchers as well^{7,8}

Daron G. Feris et al⁷ found Reid's colposcopic index to be a systematic, objective method of colposcopically grading the severity of premalignant cervical lesions.

Mausavi et al⁸ also utilized Reid's colposcopic index to derive correlation between colposcopy & directed biopsy by CHI square test & found a good correlation.

The correlation between colposcopic findings & directed biopsies was studied by many other researchers, showing a good correlation.

Talebian F et al¹⁰ showed that colposcopy & directed biopsy had a high correlation

Savage EW¹¹ studied the accuracy of directed biopsies compared with that of standard method of diagnosis. Findings were accurate in 96 % cases.

Boelter WC 3rd¹² performed a study of 102 patients in whom colposcopic examinations were done, a series of 67 selected biopsies were performed. All patients had suspicious or positive Papanicolaou smears. There was a 96 to 98 per cent correlation between the colposcopic findings, biopsies, and cone specimens.

There are studies on record depicting the correlation between pap's report & cx biopsy^{13,14}

According to Nancy A. Young¹³ in 2006 the pap smear correlated best with the biopsy.

Saha R et al (2005)¹⁴ showed that Pap smear correlated significantly with histology.

Benedet JL et al⁹ in 2004 found that cytology underestimated the results of biopsies in 2.3% & appeared to overestimate disease in 16.1% of cases. In this study, cytology underestimated the results of biopsies in 3 cases & overestimated in 4 cases. The no. of biopsies in this study is small, because biopsies were taken only wherever indicated. To reach to a conclusive outcome, the sample size needs to be larger.

CONCLUSION

As discussed earlier, both the methods have their own specific benefits & limitations. Colposcopy proves better in some contexts than cytology & vice versa. As per this study, because the agreement is high, cytology can be given an equivalent place with colposcopy, especially for screening purposes. Its sensitivity can be increased by repeating the smear for three consecutive years. Colposcopy can be reserved for doubtful cases, higher grade lesions or where conservative therapy like LLETZ or LEEP is required.

Colposcopy can be combined with cytology for every case where facilities are available, which would enhance the diagnostic accuracy.

REFERENCES

1. WHO/ICO Information Centre on HPV and Cervical Cancer (HPV Information Centre). Summary report on HPV and cervical cancer statistics in India. Available from: <http://www.who.int/hpvcentre>.
2. Ferlay J, Shin HR, Bray F, Forman D, Mathers C, Parkin DM. GLOBOCAN 2008 v1.2: Cancer incidence and mortality worldwide: IARC CancerBase No. 10. Lyon (France): IARC Press; 2010.
3. Baldauf JJ, Cuenin C, Ritter J. Long term progress of low-grade intraepithelial lesions after a smear and

- colposcopy, directed biopsies and/or normal endocervical curettage. *Contracept Fertil Sex.* 1999 Nov;27(11):774-9.
4. Giles JA, Hudson E, Crow J, Williams D, Walker P. Colposcopic assessment of the accuracy of cervical cytology screening. *Br Med J (Clin Res Ed).* 1988 Apr 16;296(6629):1099-102.
5. Tamiolakis D, Kalloniatiou M, Lambropoulou M, Kambanieris M, Tsopelas A, Daskalakis G, et al. Contribution of combined colposcopy and cytology in cervical pathology. *Arch Gynecol Obstet.* 2005 Nov;273(1):39-42.
6. Kieswetter C, Hernandez E, Anderson L, Heller PB. Evaluation of a cervical cytology device (cell-sweep) based on comparison to colposcopic findings. *J Natl Med Assoc.* 2001 November; 93(11): 436-9.
7. Ferris DG, Greenberg MD. Reid's Colposcopic Index. *J Fam Pract.* 1994 Jul;39(1):65-70.
8. Mousavi AS, Fakour F, Gilani MM, Behtash N, Ghaemmaghami F, Karimi Zarchi M. A prospective study to evaluate the correlation between Reid colposcopic index impression and biopsy histology. *J Low Genit Tract Dis.* 2007 Jul;11(3):147-50.
9. Benedet JL, Maticic JP, Bertrand MA. An analysis of 84244 patients from the British Columbia cytology-colposcopy program. *Gynecol Oncol.* 2004 Jan;92(1):127-34.
10. Talebian F, Shayan A, Krumholz BA, Palladino VS, Mann LI. Colposcopic evaluation of patients with abnormal cervical cytology. *Obstet Gynecol.* 1977 Jun;49(6):670-4.
11. Savage EW. Correlation of colposcopically directed biopsy and conization with histologic diagnosis of cervical lesions. *J Reprod Med.* 1975 Dec;15(6):211-3.
12. Boelter WC 3rd, Newman RL. The correlation between colposcopic grading, directed punch biopsy, and conization. *Am J Obstet Gynecol.* 1975 Aug 15;122(8):945-6.
13. Young NA, Naryshkin S, Bowman RL. Value of repeat cervical smears at the time of colposcopic biopsy. *Diagn Cytopathol* 1993;9:646-9.
14. Saha R, Thapa M. Correlation of cervical cytology with cervical histology. *Kathmandu Univ Med J (KUMJ).* 2005 Jul-Sep;3(3):222-4.

DOI: 10.5455/2320-1770.ijrcog20130928

Cite this article as: Gadre SS, Gupta SG, Gadre AS. Descriptive analytical study looking for agreement between colposcopic cervical findings and cervical exfoliative cytology. *Int J Reprod Contracept Obstet Gynecol* 2013;2:402-5.