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META ANALYSIS

Colposcopic Cervical Findings After Subtotal Abdominal Hysterectomy

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Abstract

Background: **Cervical cancer is one of the main reasons of cancer death in developing countries around the world, with an incidence sixty-one percent of females, so it is important to detect precancerous lesion to decrease morbidity and mortality rates due to cervical cancer.**

Aim of the Work: **To detect cervical findings in post-operative assessment of the cervical stump via colposcopy after subtotal hysterectomy and compare finding of colposcopy by result of histopathology.**

Patients and methods: **Retrospective study involved fifty female who subjected to partial abdominal-hysterectomy and had their follow up at the gynecology outpatient clinics, AL- Azhar University, Assiut and during the period from March 2021 till November 2021.**

Results: **Normal colposcopic finding in 11 patients and 39 patients had abnormal colposcopic appearance of the cervix . Punch biopsy of cervix was taken from all 39 cases, the hisopathology revealed that there are 30 cases are chronic nonspecific cervicitis, 5 cases CIN (1 CIN ll and 4 CIN l).**

Conclusion: **Colposcopic biopsy is effective in diagnosing CIN.**

Keywords: Cervical cancer, Colposcopy, Hysterectomy, Precancerous

1. Introduction

In 2018, there were ~570 000 cases of cervical cancer and 311 000 deaths owing to the disease.[1] Cervical cancer was the fourth most common cancer in women.[2].

Most deaths owing to cervical cancer occur in developing countries such as Egypt with a population of 25.76 million women over the age of 15 years who are at risk for cervical cancer.[3] It is estimated that ~514 women were diagnosed with cervical cancer in Egypt each year and 299 die owing to it. This makes cervical cancer the second most common type of cancer in Egyptian women.[4]

Over the past two decades, supracervical hysterectomy has become a common procedure for benign uterine diseases worldwide. Young patients and pregnant women often want to keep part of the uterus owing to a benign disease. After a supracervical hysterectomy, there is a risk of developing multiple cervical access lesions, including cervical pedicle fibroids, cervical prolapse, cervical pedicle endometriosis, precancerous cervical lesions, and closed carcinoma.[5]

Screening is the most important prevention method to reduce mortality. Screening involves specific steps, including a population-based Papanicolaou (Pap) test, colposcopic biopsy for suspected lesions, and treatment of confirmed precancerous lesions.[6]

The WHO has called for a global role to end cervical cancer. A key strategy is to screen 70% of women aged 35 45 years and treat 90% of women appropriately by 2030. Overall, 85% of cervical

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cancer cases occur in low-income and middle-income countries in villages, with low income. Colposcopy-guided biopsy is essential for detecting cervical intraepithelial neoplasia (CIN) and is emerging as the major obstacle limiting screening performance.[7]

The aim of this study was to detect cervical findings in postoperative assessment of the cervical stump via colposcopy after subtotal hysterectomy and compare findings of colposcopy with the results of histopathology.

2. Patients and methods

This retrospective study involved 50 women who were subjected to partial abdominal-hysterectomy and had their follow-up at the gynecology outpatient clinics, Al-Azhar University, Assiut, and during the period from March 2021 till November 2021. All married women who underwent subtotal abdominal hysterectomy (fibroid, Dysfunctional uterine bleeding (DUB), and adenomyosis) were included.

All patients were subjected to complete history taking: personal history, including name, age, marital state, and address; menstrual history, including age of menarche, menstrual, disturbance, dysmenorrhea, and related symptoms; present history of chronic diseases and medication; obstetric history; past history of hypertension and diabetes mellitus; family history of similar condition or diabetes; history of allergy to any medication; and surgical history of operation, laparoscopic interference, and treatment of hirsutism by laser.

Detailed history of the subtotal hysterectomy, time passed since operation, cause, and any complications were assessed.

Cusco examination was conducted at the outpatient gynecology clinic of Al-Azhar University Hospital, Assiut. The participant was placed in a lithotomy position, and the cervix was examined by Cusco's speculum, with the help of a side lamp (100 W), followed by inspection of the cervix by naked eye.

Colposcopy examination: all patients were then subjected to colposcopic examination of the cervix using the TAKACI CS-5 colposcopy system manufactured by the PANASONIC system, Model no. WV-P240/*G*, with a magnification power of 25–40 time. Then, 0.9% saline was used to remove any excess secretions and to assess cervical vasculature. Acetic acid 5% was applied to the cervix using cotton swabs to enhance definition of the squamocolumnar junction and to determine areas of acetowhite changes.

Swede score system was applied to all candidates, and the results were analyzed and interpreted, which ranged from 0 to 10. Score of 0–4 is normal or CIN I, not requiring biopsy; 5–7 is CIN II/CIN III, requiring punch biopsy from suspected area; 8–10 is CIN III/cancer of the cervix, does not require biopsy because it is likely more efficient to operate with excision directly.

After ethical considerations, the study protocol was approved by the Institutional Review Board of Al-Azhar University of Assiut. Informed consent was obtained from all study participants. Confidentiality and privacy were respected at all levels of the company.

Data management and statistical analysis were done for the data collected during history taking, basic clinical examination, laboratory testing, and outcome measurements, which were coded, entered, and analyzed using Microsoft Excel software. The data were then imported into the Statistical Package for the Social Sciences (SPSS, version 20.0, USA) for analysis. Qualitative data were presented as number and percentage, and quantitative data were presented as mean ± SD. The following tests were used to test for significant differences: Pearson correlation or Spearman correlation. The p value was set to less than 0.05 for significant results and less than 0.001 for highly significant results.

3. Results

Our study included 50 women in the age group from 40 to 60 years, with a mean ± SD age of 50.6 ± 3.8 years among cases and 47.8 ± 47.8 years. Most of them were multipara [35 (70%) women]. All women (100%) were from rural areas. Only 10% were educated. The mean ± SD duration of marriage was 25.6 ± 8 and 25.5 ± 11.3 years among cases and controls, respectively. By colposcopic examination, there were 11 (22%) women with normal finding and 39 (78%) women who had abnormal colposcopic appearance of the cervix. Punch biopsy was taken from all 39 cases. The histopathology revealed that 30 cases are chronic nonspecific cervicitis and five cases were CIN (one CIN II and four CIN I). A total of four cases who did not return to the hospital after taking the biopsy (Tables 1–11, Fig. 1).

4. Discussion

Hysterectomy is a major gynecological operation worldwide. It can be done for both malignant and nonmalignant gynecological conditions.[8]

In Egypt, where there is no official cervical screening program, preoperative cytology and

Table 1. Basic characteristics of the participants.

Variables	Cases ($n = 39$)	Normal ($n = 11$)	p value*
Age			
Mean ± SD	50.6 ± 3.8	47.8 ± 6.0	0.193
Median (range)	49.5 (45, 58)	46 (38, 61)	
Residency			
Rural [n (%)]	39 (100)	11 (100)	–
Education			
Educated [n (%)]	5 (12.8)	2 (18.2)	>0.999
Not [n (%)]	34 (87.2)	9 (81.8)	
Occupation			
Occupied [n (%)]	3 (7.7)	0	0.301
Not [n (%)]	36 (92.3)	11 (100)	

Student t test; Fisher exact test.
*p value is significant at less than 0.05.

Table 2. Age among the studied groups.

Variables	Cases ($n = 50$)	Normal ($n = 11$)	Ch. nonspecific cervicitis ($n = 30$)	CIN ($n = 5$)	p value
Age					
40–49	34 (68)	6 (54.5)	22 (73.3)	3 (60)	
50–59	14 (28)	5 (45.5)	6 (20)	2 (40)	0.715
60–69	2 (4)	0	2 (6.7)	0	

Table 3. Parity and duration of marriage among the two studied groups.

Variables	Cases ($n = 39$)	Normal ($n = 11$)	p value
Parity			
3	10 (25.6)	5 (45.5)	
4	6 (15.4)	6 (54.5)	0.051
5	5 (12.8)	0	
6	8 (20.5)	0	
7	6 (15.4)	0	
8	4 (10.3)	0	
Duration of marriage			
Mean ± SD	25.6 ± 8.0	25.5 ± 11.3	0.989

Table 4. Causes of hysterectomy among the two studied groups.

Variables	Cases ($n = 39$)	Normal ($n = 11$)	p value
Causes of hysterectomy			
Adenomyosis	3 (7.7)	0	
AUB	25 (71.8)	6 (54.5)	0.310
Huge fibroid	3 (7.7)	2 (18.2)	
Multiple fibromatosis	3 (7.7)	0	
Postpartum hemorrhage	5 (12.8)	3 (27.3)	
Time passes since operation			
Mean ± SD	4.8 ± 3.0	6.7 ± 1.4	0.066

colposcopy allow modification of the surgical plan, thus avoiding further surgeries and complications owing to metastasis or stump recurrence.[9]

This study aimed to detect cervical findings in postoperative assessment of the cervical stump via colposcopy after subtotal hysterectomy and

Table 5. Cusco examination of cervix among cases and normal.

Variables	Cases ($n = 39$)	Normal ($n = 11$)	p value
Ectropion [n (%)]			
Yes	37 (94.9)	5 (45.5)	0.001*
No	2 (5.1)	6 (54.5)	
Nabothian follicles [n (%)]			
Yes	7 (17.9)	5 (45.5)	0.078
No	32 (82.1)	6 (54.5)	
Leukoplakia [n (%)]			
Yes	4 (9.3)	1 (8.1)	0.641
No	35 (89.7)	10 (90.9)	
Polyp [n (%)]			
Yes	3 (7.7)	0	0.510
No	36 (92.3)	11 (100)	
Bleeding [n (%)]			
Yes	20 (51.3)	0	<0.001*
No	19 (48.7)	11 (100)	
Discharge [n (%)]			
Yes	7 (17.9)	0	0.062
No	32 (82.1)	11 (100)	

χ^2 test; Fisher exact test.
*p value is significant at less than 0.05.

Table 6. Colposcopy findings among cases and normal.

Variables	Cases ($n = 39$)	Normal ($n = 11$)	p value
Aceto uptake			
Zero or transparent	6 (15.5)	9 (81.8)	0.001*
Shady, milky	24 (61.5)	2 (18.2)	
Distinct, opaque white	9 (23)	0	
Margin			
Diffuse	27 (84.4)	7 (63.6)	0.219
Irregular	3 (9.4)	0	
Sharp	9(28.2)	4 (36.4)	
Vessels			
Fine	7 (21.8)	9 (81.8)	0.022*
Absent	25 (78.2)	2 (18.2)	
Coarse	7 (21.8)	0	
Lesion size			
<5 mm	0	5 (45.5)	<0.001*
5–15 mm/2 quadrants	11 (12.54)	6 (54.5)	
>15 mm/3 4 quadrants	28 (87.5)	0	
Iodine staining			
Brown	0	2 (18.2)	<0.001*
Faintly or patchy yellow	19 (59.4)	9 (81.8)	
Distinct yellow	20 (40.6)	0	

*Highly significance differences.

Table 7. Swede score among cases and normal.

Variable	Cases	Normal	p value
Swede score (mean ± SD)	5.5 ± 0.6	2.1 ± 1.1	<0.001*

*Highly significance differences.

Table 8. Pathology findings among the participants.

Pathology	n (%)
Ch. nonspecific cervicitis	30 (85.7)
Cervical intraepithelial neoplasia I	4 (11.5)
Cervical intraepithelial neoplasia II	1 (2.8)

Table 9. Comparison of Colposcopic appearance with histopathological findings results.

Colposcopic finding	Ch. nonspecific cervicitis ($n = 30$)	CIN II ($n = 1$)	CIN I ($n = 4$)	p value
Aceto uptake				
Zero or transparent	3 (8.2)	0	0	0.001*
Shady, milky	23 (81)	1 (100)	4 (100)	
Distinct, opaque white	4 (10.8)	0	0	
Margin				
Diffuse	23 (76.7)	0	3 (75)	0.001*
Irregular	0	0	0	
Sharp	7 (23.3)	1 (100)	1 (25)	
Vessels				
Fine	8 (26.7)	0	1 (25)	0.032*
Absent	16 (53.3)	1 (100)	2 (50)	
Coarse	6 (20)	0	1 (25)	
Lesion size				
<5 mm	0	0	0	<0.001*
5–15 mm/2 quadrants	10 (29.7)	0	1 (25)	
>15 mm/3 4 quadrants	20 (70.3)	1 (100)	3 (75)	
Iodine staining				
Brown	0	0	0	<0.001*
Faintly or patchy yellow	13 (43.3)	0	2 (50)	
Distinct yellow	17 (56.7)	1 (100)	2 (50)	

*Highly significance differences.

Table 10. Comparison of Cusco's examination of cervix with histopathological findings.

Variables	Ch. nonspecific cervicitis ($n = 30$)	CIN II ($n = 1$)	CIN I ($n = 4$)	p value
Ectropion [n (%)]				
Yes	28 (93.3)	1 (100)	4 (100)	0.001*
No	2 (6.7)	0	0	
Nabothian follicles [n (%)]				
Yes	5 (16.7)	0	0	0.132
No	25 (83.3)	1 (100)	4 (100)	
Leukoplakia [n (%)]				
Yes	3 (18.1)	0	0	0.156
No	27 (91.9)	1 (100)	4 (100)	
Polyp [n (%)]				
Yes	3 (8.1)	0	0	0.571
No	27 (91.9)	1 (100)	4 (100)	
Bleeding [n (%)]				
Yes	16 (48.6)	1 (100)	2 (50)	<0.003*
No	14 (51.4)	0	2 (50)	
Discharge [n (%)]				
Yes	6 (18.9)	0	1 (25)	0.239
No	24 (81.1)	1 (100)	3 (75)	

*Highly significance differences.

compare the findings of colposcopy with the results of histopathology.

This retrospective study was conducted on 50 women who underwent subtotal abdominal hysterectomy and had their follow-up at the gynecology outpatient clinics, Al-Azhar University, Assiut, during the period from March 2021 till November 2021.

Our finding revealed that the mean age was 50.6 ± 3.8 years among cases and 47.8 ± 6 years among controls. All participants (100%) were from rural areas among cases and controls. Only 10% were educated among cases and normal. Overall, 87.2 and 81.8% were not educated among cases and controls, respectively. Overall, 7 and 0% had an occupation among cases and controls, respectively, whereas 92.3 and 100% did not have an occupation among cases and controls, respectively. There was no statistically significant difference between both groups regarding occupation, age, and education.

This study is in contrast to a study by Abd-El-Fatah et al,[10] as they reported that the mean age of the studied group was 47.79 ± 4.25 years. CIN was found in 13 (32.5%) of the 40 patients. The highest frequency of CIN was found in the age group of 45–50 years.

However, Mohamed El-Sayed et al[11] showed that age 30–39 years predominated in the population with CIN. The prevalence of CIN was high in the 30–49-year age group. Overall, 2% of women had

Table 11. Validity of colposcopy in comparison with pathology.

Test	True positive	False positive	True negative	False negative	Sensitivity	Specificity	PPV	NPV	Accuracy
Colposcopy	22	8	13	3	88	60	83.7	68.2	80%

NPV, negative predictive value; PPV, positive predictive value.

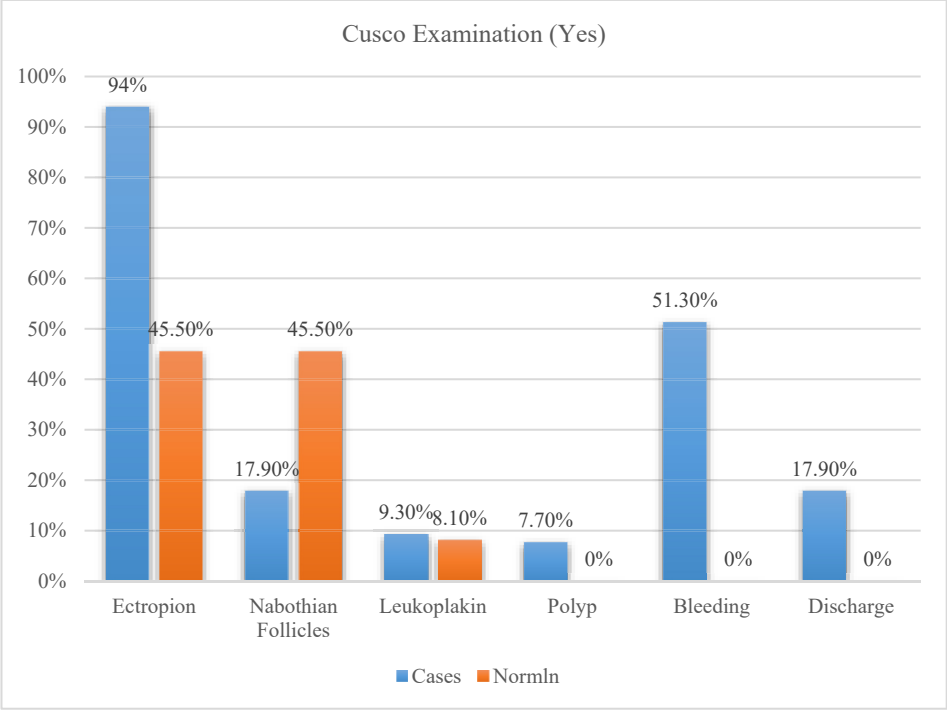

Fig. 1. Cusco's examination among cases and normal.

sexual relations with more than one partner, of which 3.9% had CIN. Moreover, 3% of the men and women in the study group had a history of prostitution.

Vaidya[12] showed in their study that CIN occurs more frequently in the age group more than 35 years.

The present study showed that 10 and five patients were para 3 and 6 and six patients were para 4 among cases and controls, respectively. There were five patients with para 5, eight patients with para 6, six patients with para 7, and four patients with para 8 among cases. The mean duration was 25.6 ± 8 and 25.5 ± 11.3 years among cases and controls, with nonstatistically significant differences.

In contrary to our results, the study by Van Eyk and Van Schalkwyk[13] pointed out that CIN developed in several directions: 37.3% were member 2, 39.2% were member 3 and 17.6% were member 4 or more. In their study, the prevalence of CIN was seen in 0.45.1% in nurses aged 11–20 years and 39.2% in nurses more than 20 years.

Whiteside et al[14] stated that the severity of CIN increases with the age of married life, perhaps owing to more and more everyday sexual relationships. This can be attributed to hormonal and menstrual changes during pregnancy, immunosuppression during pregnancy, and trauma to the cervix during vaginal delivery.

The current study showed that upon investigating the causes of hysterectomy, 7.7% were due to adenomyosis among cases. Overall, 71.8 and 54.5% were due to abnormal uterine bleeding among cases and controls, respectively. There were 18.2% of cases owing to huge fibroid among controls. There were 7.7% owing to multiple fibromatosis among cases. There were 12.8 and 27.3% owing to postpartum hemorrhage among cases and controls, respectively. There was no statistically significant difference between the two studied groups regarding causes of hysterectomy. The mean duration since operation was 4.8 ± 3.0 and 6.7 ± 1.4 years among cases and controls, respectively, with nonstatistically significant differences.

However, the study findings were supported by a study of Ali et al,[15] where the benign indications for hysterectomy in the studied 90 women were as follows: in 30%, hysterectomy was indicated due to uterine postmenopausal bleeding; in 27.8%, hysterectomy was indicated owing to uterine fibromyoma; in 26.7%, hysterectomy was indicated due to perimenopausal uterine bleeding; in 8.9%, hysterectomy was indicated due to dysfunctional uterine bleeding; in 4.5%, hysterectomy was indicated due to adenomyosis; and in 2.2%, hysterectomy was indicated owing to chronic pelvic pain.

The practice of colposcopy includes full colposcopic examination, from visual examination of the cervix to biopsy if necessary. If one or more lesions are present, colposcopy-guided biopsies are

performed in two to four areas to provide a histopathologic diagnosis of the most serious disease present, confirm the absence of CIN/SIL/cancer, or suggest possible treatment. Delayed biopsies may be acceptable in low-risk women with normal colposcopic appearance.[16]

The study by Thakar[17] demonstrated a statistically significant difference between the two study groups in terms of acetone uptake, blood vessels, lesion size, and iodine staining. Regarding the border and the Swedish name, there was no statistically significant difference between the two study groups, as the cases occurred much more frequently than usual.

The current study showed that 30 patients (85.7% of the cases) had chronic nonspecific cervicitis. Overall, four (11.5% of the cases) patients had CIN I and one (2.8% of the cases) had CIN II.

Of the 300 cases examined, 29.3% (89/300) were diagnosed as abnormal by colposcopy. Among the abnormal cases, Aceto White (AW) areas were diagnosed in 17.7%. Perforated blood vessels were diagnosed in 8% of the cases and mosaic vessels in 4% of the women. All of them underwent biopsy-guided colposcopy for histopathology.

Our findings were supported by the results of Tsu et al[18] on 300 cases that underwent biopsy-guided colposcopy. In most cases (46.1%), chronic cervicitis was diagnosed, 27% had chronic cervicitis with ectopia, 2.3% had ectopic cervix, 2.3% had epithelial hyperplasia, 5.4% had benign polyp, 10% had mild dysplasia, and 7% had moderate dysplasia.

Our results showed that regarding comparison of colposcopic appearance with histopathological findings results, upon comparison between chronic nonspecific cervicitis, CIN II, and CIN I, there was a statistically significant difference among the three pathological findings regarding aceto-uptake, margin, vessels, lesion size and iodine staining. Regarding comparison of Cusco examination of cervix with histopathological findings, there was a statistically significant difference among chronic nonspecific cervicitis, CIN II, and CIN I regarding ectropion and bleeding, but nonstatistically significant difference among the three pathological findings regarding Nabothian follicles, leukoplakia, polyp, and discharge.

However, in the study of Stolnicu and Goldfrank,[19] comparison of Pap smear with histopathology showed that of 13 patients with abnormal Pap smear, 10 (77%) had abnormal histopathology, and of the 87 patients with normal smears, 67 (77%) had normal histopathology (Table 8). There were three (23%) false-positive cases. There were 20 false-negative cases, that is, cytology missed 20 cases with abnormal histopathology. The calculated sensitivity and specificity for Pap smear were 33.3 and 95.7%, respectively, compared with histopathology, denoting a very low sensitivity compared with its specificity. This means that in our present finding, the incidence of unexpected cervical pathology was 66.7% depending on the Pap alone, and only 3.3% when depending on colposcopy.

Furthermore, Rajaian et al[20] stated that colposcopy showed sensitivity of 82% and specificity of 81%. This shows its sensitivity and specificity were low compared with flax. This is due to the high incidence of unexpected white vinegar (WBA) epithelium, which can result from inflammation, premature metaplasia, erosion, and latent HPV infection. Colposcopy and biopsy were positive in 82.4% of cases, whereas Pap smear and biopsy were positive in only 25.4% of cases. This demonstrates the usefulness of colposcopy in diagnosing lesions not detected by the Pap smear.

4.1. Conclusion

Early detection of CIN in adult women is a desirable objective. Invasive cervical cancer is preventable owing to long preinvasive stage, during which it can be detectable and treatable. Colposcopy usually plays a role in evaluating female with abnormal Pap smears; an unhealthy cervix appears to be more accurate in detecting CIN. Our findings revealed that colposcopic biopsy is effective in diagnosing CIN.

Conflict of interest

Authors declare that there is no conflict of interest, no financial issues to be declred.

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