

Loop Electrosurgical Excision Procedure in Cervical Intraepithelial Neoplasia

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Aims: To evaluate the treatment outcome and acceptance of LEEP in precancerous cervical lesions.

Methods: CIN is the pre-malignant cervical lesion that can be treated early and slow to progress to invasive disease. Among various treatment modalities for CIN, LEEP has the advantage of treatment with tissue diagnosis.

Results: Highest percentage of CIN, 32.14% (9) was seen among 30-39 years age with 16 (57.14%) of parity three and more. 17 (60.71%) presented clinic with symptoms (lower abdominal, backpain, pervaginal discharge) while 11 (39.28%) were diagnosed from routine Pap test. Histopathology revealed four (14.28%) CIN 1, eight (28.57%) CIN2, 11(39.28%) CIN 3, two adenocarcinoma in situ, one of invasive squamous cell carcinoma, chronic cervicitis and atrophic change with no dysplasia. Margins were negative (satisfactory) in 20 (71.42%) and positive in eight (28.57%) with endocervical involvement in two that required second LEEP while one underwent radical hysterectomy for final diagnosis of invasive squamous cell carcinoma.

Conclusions: Hysterectomy is a radical procedure for preinvasive cervical lesions that can be treated with simple procedure like LEEP that saves time and financial resources.

Keywords: CIN; LEEP

INTRODUCTION

Cervical cancer is the commonest cancer among Nepalese women. among estimated 270,000 deaths from cervical cancer every year worldwide, 85% occur in developing countries like Nepal. More than 3,500 new cases of invasive cervical cancer are diagnosed in Nepal each year which accounts for 21% of all cancers in women.^{1,2} Cervical intraepithelial neoplasia (CIN) is the most common pre-malignant lesion that is slow to progress to invasive disease. Spectrum of atypical squamous changes occurs in transformation zone of cervix from cellular atypia to various grades of dysplasia described as CIN 1, 2 or 3, before progressing to invasive disease. There are various modalities of treatment for CIN ranging from conservative management, ablative as cryotherapy, excisional procedure like LEEP to hysterectomy.

LEEP enables simultaneous treatment of lesions and provides tissue for histologic diagnosis, thereby reducing possibilities of overlooking invasive cancer

or incomplete eradication of precancerous cells. LEEP is shown to be effective in treating 90 to 95 percent of high-grade dysplasia.³ Number of large series treating thousands of patients have documented excellent treatment outcomes ranging from 91% to 98 %.⁴

Cervical cancer prevention programs must offer appropriate and effective treatment options for precancerous cervical lesions. However, due to unavailability of the facilities for conservative surgeries, women are often treated with hysterectomy which is an invasive and costly procedure.

METHODS

A descriptive study was performed in Gynecology Department of Civil Service Hospital, Nepal from August 2014 to December 2015. A total of 28 cases that had undergone LEEP for pre-invasive cervical lesions, were analyzed. The lesions were detected in Pap smear followed by cervical biopsy with or without colposcopy guidance with histopathological confirmation and grading was done in Cervical Intraepithelial Neoplasia (Richart) system.

Clinical history recorded the age at marriage, the first contact and child birth, parity, occupation, smoking habit and use of OCP. Medical conditions as hypertension, diabetes, bleeding disorder, allergic

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reaction, pregnancy, PID and invasive cancers were excluded prior to the procedure.

Patients were well informed about the procedure, all possible and expected post procedure symptoms and an informed written consent was taken. Patients were also counseled regarding the need of regular follow up post procedure and additional treatment depending upon the final histopathological report and the margin status.

LEEP was performed as a day care procedure under intra venous anesthesia. Single or multiple passes or two layer excisions were carried out depending on the extent of lesion. Patient was sent home six hours after surgery having counseled on home care, abstinence from sexual intercourse for next four weeks, signs and symptoms on which they should report. The first follow up was done after one week to review the histopathology reports and assess for any signs of infection or bleeding. Patients were then inquired regarding any problems faced and their perception about the procedure and were asked to follow up according to NCCN guidelines 2012.⁵

RESULTS

Total 28 cases underwent LEEP. The age of the patients ranged from 30 to 64 years with a mean age of 45.96 years. The highest percentage of CIN, 32 (n=9) was observed among 30-39 years. Average age of marriage and age at first child birth were 19.71 and 22.57 years respectively (Table 1). All of the women were married, three (10.9%) had parity one, nine (32.1%) had parity two and 16 (57.1%) had parity three or more.

Table 1: Demographic profile of women

Demographic Characteristics	Number
Age in years	
30-39	9 (32%)
40-49	8 (28.5%)
50-59	7 (25%)
≥60	4 (14.5%)
Parity	
0	0
1	3 (10.9%)
2	9 (32%)
≥ 3	16(57.1%)
Mean age at marriage	19.71 years
Mean age at first child birth	22.57 years

17 (60.71%) of women with CIN presented to outpatient clinic with symptoms while 11 (39.29%)

were apparently healthy women and diagnosed on routine Pap test. Per vaginal discharge with or without low back pain was the commonest complaint, seen in 16 (57.1%) women. Other presenting complaints included intermenstrual bleeding, post coital bleeding and pain abdomen. CIN 2 and 3 had mostly presented with heavy per vaginal discharge followed by lower abdominal pain and/or post coital bleeding (Table-2). The symptoms were reduced in 85-87% cases post LEEP.

Table 2: Comparison of Symptoms pre and post procedure

Symptoms	Before LEEP	After LEEP		
		Reduced	Dis appeared	Persistent
None	11 (39.29%)			
Symptoms	17 (60.71%)			
PV discharge	16	6	3	1
Lower abdominal pain	5	0	2	3
Post coital bleeding	2	0	2	0
Intermenstrual bleeding	3	0	3	0
Back pain	15	8	2	5

There were two cases (7.14%) of CIN 1, 11(39.29%) of CIN 2 and 15 (53.57%) cases of CIN 3 diagnosed pre-operatively by Pap test and verified by cervical biopsy. However, post LEEP final histopathology revealed four (14.28%) of CIN 1, eight (28.57%) CIN 2, 11(39.28%) CIN 3, one case each of chronic cervicitis, a case of atrophic changes with no features of dysplasia, two cases of adenocarcinoma in situ and a case of invasive squamous cell carcinoma (Table 3).

Table 3: Histopathological diagnosis

Diagnosis	Pre LEEP		Post LEEP
	Pap Smear	Cervical biopsy	
CIN 1	2 (7.4%)		4 (14.28%)
CIN 2	11(39.29%)	16	8 (28.57%)
CIN 3	15(53.57%)	12	11(39.29%)
Adenocarcinoma in Situ (AIS)			2 (7.4%)
Cancer (Invasive or microinvasive)			1
Negative (chronic cervicitis)			2 (7.4%)

Margin status was negative (satisfactory) in 22 cases (78.5%) and six cases (21.5%) with endocervical

involvement in two (Table 4). Second LEEP was done after eight weeks of primary LEEP, in patients with endocervical involvement and histopathology then revealed margins free of dysplasia. One of the CIN 3 cases had final histopathological diagnosis of invasive squamous cell carcinoma and underwent radical hysterectomy.

Table 4: Histopathological status of margins

Margin status	right and left lateral, upper or lower	Endocervical involvement (Deeper margin)	
Positive	6 (21.5%)	Present	2 (7%)
Negative	22 (78.5%)	Absent	26 (93%)

DISCUSSION

Invasive cervical cancer is preceded by a long phase of preinvasive stage, Cervical Intraepithelial Neoplasia (CIN) which is slow to progress and can be detected and easily treated. Three grades of CIN described are CIN 1 (mild dysplasia), CIN 2 (moderate dysplasia), and CIN 3 (severe dysplasia/carcinoma in situ) depending upon epithelial involvement. Most of the CIN 1 (57%) and about 43% of CIN 2 lesions regress spontaneously within one to two years. Only 11% of CIN1 and 22% of CIN2 progress to cervical carcinoma in situ while 1% of CIN 1, 5% in CIN 2 and at least 12% in CIN 3 progress to invasive cancer.⁶ Thus, CIN should be detected by cervical screening and treated appropriately which we have in our cases. CIN is more common among younger women as observed in our study (30-39 years) and in a study by Dietsch et al.⁷ where the peak age of CIN was 20–24 years while in another study by Pandey et al.,⁸ the mean age of CIN was 36.38 ± 6.5 years. In these young women LEEP has played an important role in treating the precancerous lesion with preservation of the important female organ.

Among various modalities available for pre cancerous lesions, LEEP has the advantage of low cost, high success rate, ease of use that can be done as office

procedure and above of all it provides tissue for definitive diagnosis. This makes wide use of LEEP for both diagnostic and therapeutic purposes in patients with CIN 2, CIN 3 and CIS as done in our cases.

LEEP effectively treats CIN. Wright et al has reported cure rate of LEEP to be 94% with large electrode and 80% with small electrode⁹ while Rema et al stated the effectiveness of 93% in CIN 1, 85.5% in CIN 2 and 72% in CIN 3.¹⁰ Margin status is used as a predictor for residual or recurrent disease, although several studies have reported that margin status does not adequately predict probability of residual disease.¹² In our study 22 (78.5%) had margin negative; six cases (21.5%) had focal peripheral margin positive which contradicts the study by Kim et al where resected margins were positive in 81.39%.¹¹ Among the margin positive cases, two underwent second LEEP after eight weeks of primary procedure while one (3.5%) underwent radical hysterectomy for invasive carcinoma which is comparable to study performed by Eduardo et al (3.6%).¹² However, our result is comparable to the study by Petry in which resected margins were positive in 18%.¹³ Two patients with cervical margins positive without endocervical involvement deferred from standard follow up or second LEEP due to anxiety and requested for simple hysterectomy. Remaining patients expressed their feeling of satisfaction regarding the procedure in their subsequent follow ups as in the study by Mayeaux EJ Jr of high acceptance of the procedure by the patients.¹⁴

CONCLUSION

Cervical Intraepithelial Neoplasia, preinvasive state of cervical cancer predominantly occurs in younger age. LEEP is an effectively, rational and simple procedure for the treatment of CIN and thus prevention of cervical cancer. LEEP would save time and, possibly financial resources of both patient and health care service as it could avoid unnecessary hysterectomy.

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