นิพนธ์ต้นฉบับ

Loop Electrosurgical Excision Procedure (LEEP) and cervical intraepithelial neoplasia: A preliminary report.

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Objective: *To present our early experiences with the loop electrosurgical excision procedure in patients with cervical intraepithelial neoplasia (CIN).*

Design: *Prospective Study.*

Methods: *Thirty one patients who had pap smear class 3-5 and colposcopically confirmed cases of CIN lesions were subjected to LEEP. The procedures were undergone mainly under local anesthesia.*

Results: *The majority of the cases (83.9%), perioperative and postoperative hemorrhage was minimal. No patient needed blood transfusion or subsequent admission to the hospital due to late hemorrhage. Two cases experienced minimal late hemorrhage and responded to AgNO3 application. The operation time was less than 5 minutes in 22 cases (71.0%). In 28 of the 31 cases (90.3%), this procedure was sufficient for complete treatment.*

Conclusion: *Loop electrosurgical excision procedure tends to be a reliable, well-tolerated, economical and efficient technique for the management of cervical intraepithelial neoplasia with a low incidence of short-term morbidity.*

Key words : *Loop electrosurgical excision procedure, Cervical intraepithelial neoplasia.*

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วิชัย เติมรุ่งเรืองเลิศ, วิรัช วิศวสุขมงคล, กอบจิตต์ ลิมปพยอม, อภิชัย วสุรัตน์, ตุลย์ สิทธิสมวงศ์, สมชัย นิรุตติศาสน์, นคร ศิริทรัพย์. การผ่าตัดปากมดลูกด้วยห่วงลวดไฟฟ้าในการรักษาภาวะปากมดลูกมีเซลล์ผิดปกติก่อนเป็นมะเร็งระยะลุกลาม : รายงานเบื้องต้น จุฬาลงกรณ์เวชสาร 2537 พฤศจิกายน 38(11): 653-658

วัตถุประสงค์ *เพื่อศึกษาผลการผ่าตัดปากมดลูกด้วยห่วงลวดไฟฟ้า (Loop electrosurgical excision procedure : LEEP) ในการรักษาผู้ป่วยภาวะ cervical intraepithelial neoplasia (CIN) ซึ่งเป็นวิธีการรักษาวิธีใหม่ในเบื้องต้น*

รูปแบบการวิจัย *การศึกษาไปข้างหน้า*

วิธีการวิจัย *ผู้ป่วยหญิง 31 คน ซึ่งตรวจ Pap smear เป็นชั้น 3-5 และได้รับการตรวจยืนยันโดยการตัดชิ้นเนื้อปากมดลูกโดยอาศัยกล้อง colposcope เป็น CIN ได้รับการผ่าตัดปากมดลูกด้วยห่วงลวดไฟฟ้า โดยการฉีดยาชาเฉพาะที่*

ผลการศึกษา *ผู้ป่วยร้อยละ 83.9 มีการเสียเลือดระหว่างและหลังผ่าตัดน้อย (น้อยกว่า 10 มล) ไม่มีผู้ป่วยรายใดเสียเลือดมากจนต้องให้เลือด พบผู้ป่วย 2 รายใน 31 ราย มีเลือดออกเล็กน้อยภายหลังผ่าตัด ซึ่งสามารถหยุดได้โดยการจี้ซิลเวอร์ไนเตรด ร้อยละ 71.0 ใช้เวลาในการผ่าตัดน้อยกว่า 5 นาที สามารถให้การรักษาภาวะดังกล่าวโดยการผ่าตัดปากมดลูกด้วยวิธีนี้อย่างเดียว ร้อยละ 90.3*

สรุป *การผ่าตัดปากมดลูกด้วยห่วงลวดไฟฟ้าเป็นวิธีที่มีประสิทธิภาพในการรักษาภาวะ cervical intraepithelian neoplasia โดยมีภาวะแทรกซ้อนจากการผ่าตัดน้อยในการติดตามเบื้องต้น*

The prevalence of cervical intraepithelial neoplasia (CIN) has been increasing over the last 2 decades.[1] Despite the advent of ablative methods of treatment, a large proportion of patients for colposcopic assessment are admitted to the hospital for cold knife conization of the cervix under general or regional anesthesia. Cold knife conization, however, is associated with considerable morbidity, such as hemorrhage, which occasionally requires resuturing of the cervix or even hysterectomy and blood transfusion.[2,3]

The development of invasive cervical cancer after ablative treatment for precancer[4,5] has prompted the increased use of excisional methods of treatment. As an alternative to ablative treatment under local anesthesia, laser excision conization of the cervix has been advocated.[6,7] Recently, several investigators have reported electrosurgical excision of CIN lesions and typical transformation zones using thin wire loop electrodes of either large or small diameter as a safe and highly effective treatment method.[8-17] Electrosurgical excision of CIN using wire loop electrodes has been referred to by various terms. Cartier[9] introduced the use of "the diathermy loop excision". Prendiville and Cullimore,[10] who used loops of a larger diameter than did Cartier, referred to their modification of the basic technique as "large loop excision of the transformation zone" (LLETZ). Wright et al[11] used the term "loop electrosurgical excision precedure (LEEP)" for these procedures, regardless of the size of the loop electrode used.

The loop electrosurgical excision procedure represents an advanced ability to conservatively manage patients with CIN, as affected tissure is removed in its entirely rather than ablated. The excised tissues are available for histopathologic analysis, allowing both diagnosis and treatment of selected patients at a single setting and ensuring that colposcopically inapparent invasive or microinvasive cancers are not inadvertently treated by a conservative ablative procedure. In this study, we report our clinical experience using LEEP in the management of CIN.

Materials and Methods

From December 1993 to June 1994, the patients were referred because of Papanicolaou smear class 3-5, and they underwent a standard colposcopic evaluation with site-directed biopsies. All woman included in this study had histologically diagnosed CIN lesions. The entire endocervical limits could be visualized colposcopically.

The subjects were placed in the lithotomy position and a large speculum with suction tube attached was used to expose the cervix. A paracervical block was performed using 3-5 ml. of 2% Xylocaine in each side and intracervically infiltrated 1-2 mm. beneath the cervical surface epithelium at the 12 and 6 o'clock positions. A return electrode was then placed on the patient's thigh (for grounding) and the cervix was painted with Schiller solution. The loop electrodes were made from tungsten wire and were fabricated in various sizes ranging from 1x1 to 2x2 cm. The electrosurgical generator (Birtcher, Bovie) was operated in the cutting current mode at 35-50 W output. The loop was pushed into the cervical tissue perpendicular to the surface, then slowly drawn across the lesion parallel to the surface of the cervix to the opposite side. The entire transformation zone and CIN lesions were excised to a depth of 5-8 mm. in a single pass of the electrode when possible. We attempted to excise the epithelium 4-5 mm. beyond the point at which it became Schiller negative. To prevent post treatment bleeding from

the crater base we cauterized the base and edges of the crater. The specimen was sent for histologic examination.

Patients were adviced about potential early and late complications and were advised to avoid sexual intercourse for one month. The subjects returned 1-3 months post-treatment for a Papanicolaou test and a complete colposcopic examination.

Results

Over a 7-month period in 1993-1994 we treated 31 subjects with biopsy-proven CIN using LEEP. The average age of the patients was 35.4 years, with a range of 22-61 years. The procedure was well tolerated by the patients and required only local anesthesia in 29 of the 31 cases. Two cases required general anesthesia due to discomfort and irritability during the procedure. The operation time was less than 5 minutes in 22 cases (71.0%). In the majority of cases (83.9%) perioperative and postoperative hemorrhage was minimal. No patient needed blood transfusion or subsequent admission to the hospital due to late hemorrhage. Two cases experienced minimal late hemorrhage during the first week and responded to AgNo3 application.

A satisfactory specimen was obtained for histologic examination in the majority of cases. Only in a few cases did the amount of thermal damage in the excised tissue preclude complete histologic evaluation. Four cases showed no histologic evidence of CIN and one showed HPV infection (Table 1). In the patients with CIN, the excision margins were reported as complete in all but one case. The patients with microinvasive cancer were treated subsequently with hysterectomy and no residual disease was detected in the surgical specimens. In 28 of the 31 cases (90.3%), this procedure was sufficient for complete treatment.

Table 1. Histopathology of the cervix from LEEP (Total = 31)

	No.
- Chronic cervicitis	3
- HPV	1
- CIN	
- mild dysplasia	5
- moderate dysplasia	6
- severe dysplasia, CIS	14
- Microinvasive cancer	2

The healing process after the procedure was also observed. AT 1 week post-treatment, the crater base was filled with soft, tan-yellow, necrotic material. The edges of the crater were well demarcated and had minimal reddening. Uncomplicated cases examined 1-3 months after the procedure were either totally healed or had only a small rim of granulation tissue remaining at the external os.

Discussion

In the treatment of CIN, excisional methods that provide tissue specimens for histopathologic diagnosis have distinct advantages over ablative methods that destroy the affected tissues. Unfortunately, most excisional methods have a number of disadvantages that tend to outweight their advantages. Cold knife conization is usually performed in a hospital setting under general or spinal anesthesia and has a high rate of complications, even in expert hands. Major bleeding occurs in 13% of the cases, cervical stenosis develops in

17%, and infertility and cervical incompletence are infrequent but well-recognized complications.[18] Because of these disadvantages, many clinicians are now advocating the technique of loop electrosurgical excision precedure.

We have described our early experience using LEEP in the management of CIN. LEEP is a combined diagnostic and therapeutic procedure in which the entire transformation zone is removed. The loop excision procedure was performed in less than 5 minutes in the majority of cases, can be performed on an outpatient basis using local anesthesia, and was well tolerated by the patients. The procedure was easy to perform and required only a relatively inexpensive electrosurgical generator. The complication rate of the procedure was low. Perioperative and postoperative hemorrhage was minimal in the majority of cases. The finding that 2 cases (6.4%) experienced secondary or late hemorrhage during the healing process is a rate similar to previous results reported by Keijser (5.8%).[17] Although there were no immediate operative complications is this study, a larger study series will be required to confirm that operative morbidity with LEEP is decreased in comparison with cold knife conization.

The quality of the specimens obtained in our study permitted an examination of both the cervical abnormalities and excision margins. In a study of 616 patients with abnormal cervical smears, the histologic specimens were adequate in over 90% of the cases[14] However, some studies show that LEEP provides specimens that are inferior compared with cold knife conization.[19] However, histopathologic results from the specimens are the other interesting issue that we plan to go on further study.

The overall success rate of LEEP in this study was 90.3%. This success rate is similar to other published series using LEEP to treat CIN.[16,17]

The results of this preliminary study conclude that LEEP tends to be a reliable, well tolerated, economical and efficient technique that offers a good alternative in the management of CIN with a low incidence of short-term morbidity.

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