

Management of Precancerous Lesions of the Uterine Cervix by Loop Electrosurgical Resection at the Bogodogo University Hospital: Eight Months of Activity Report

Ouattara Adama^{1,*}, Akadiri Samira², Sawadogo Yobi Alexi¹, Kiemtore Sibraogo¹, Ouedraogo Issa³, Ouedraogo Charlemagne Marie¹

¹Department of Gynecology-Obstetrics, Joseph KI ZERBO University, Ouagadougou, Burkina Faso

²Department of Gynecology-Obstetrics, Center of Gynecology-Obstetrics of the Hospital of Suka, Ouagadougou, Burkina Faso

³Ouahigouya Regional University, Ouahigouya Regional Hospital, Ouahigouya, Burkina Faso

Email address:

ouattzangaadama@yahoo.fr (Ouattara Adama)

*Corresponding author

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Abstract: *Background:* Cervical cancer is a real public health problem, especially in developing countries, with a very high mortality rate due to a very weak screening system. *Objective:* To review eight months of management of precancerous lesions of the uterine cervix using loop electrosurgical resection (LEEP) at the Bogodogo University Hospital (CHU-B) in Ouagadougou. *Methodology:* This was a descriptive cross-sectional study. It was conducted in the precancerous lesion screening unit of the CHU-B in Ouagadougou. Patients with large lesions on visual examination and/or cytology, not eligible for cryotherapy, underwent LEEP from 7 May 2021 to 30 January 2022, a period of 8 months. The variables studied included the results of the cervical examination, clinical manifestations during treatment, histological results of the specimens and elements of the post-operative surveillance of the beneficiaries. The data were entered on a microcomputer and the graphs were produced using Excel, Word and Epi-info software. *Results:* In 8 months 23 days, 237 cases of precancerous lesions had been detected. LEEP of these lesions was performed in 54.85% of cases. LEEP was indicated in the majority of cases (38.5%) for large lesions. Patients presented signs and/or symptoms during the operation in 53.1% of cases. Post-operative complications occurred in 63.8% of cases. Healing was complete in 96.9% of cases. *Conclusion:* The management of precancerous cervical lesions by LEEP is effective at CHU-B in Ouagadougou. It is an advantageous and effective therapeutic method for the treatment of low-grade and high-grade precancerous lesions. Promoting this technique and training staff in its use will make an effective contribution to the fight against cervical cancer in Burkina Faso.

Keywords: Precancerous Lesions, Cervix, Loop Resection, Ouagadougou

1. Introduction

In Burkina Faso, cervical cancer is the second most common gynaecological cancer (31.7%), after breast cancer (51%) [10]. It is therefore a real public health problem. According to the WHO, 921 women are screened for uterine cancer every year in France, and 724 of them lose their lives as a result [14]. It is a cancer caused in the majority of cases by a sexually transmitted virus: The Human Papilloma Virus

(HPV). Prevention in low resources countries is essentially based on two methods which are vaccination and screening for precancerous lesions. Visual inspection of the cervix after application of acetic acid and lugol (VIA/VIL) is an alternative way of screening for precancerous and cancerous lesions of the cervix in developing countries. Following screening, a number of techniques are available for the outpatient treatment of precancerous lesions of the cervix. These include cryotherapy, conisation, laser vaporisation and loop electrosurgical excision procedure (LEEP). This last

method has the advantage over the others of providing specimens for histological study. Dysplastic lesions can be removed to prevent them from progressing to cervical cancer. Residual or recurrent lesions after LEEP are also rare [2, 5]. With the aim of reducing the incidence of cervical cancer in Burkina Faso, the Gynecology Department of the Bogodogo University Hospital (CHU-B), with the support of the American NGO JHPIEGO, has been offering to treat precancerous lesions by resection with diathermic loop since May 2021.

We therefore felt it necessary to review the first eight (08) months of management of precancerous lesions of the uterine cervix by loop electrosurgical resection at the CHU-B in Ouagadougou.

2. Methodology

This was a descriptive cross-sectional study which took place from 7 May 2021 to 30 January 2022 and included all patients who were eligible for LEEP and who had benefited from this therapeutic method during our study period. LEEP was carried out in three essential stages: pre-LEEP counselling, the aim of which was to reassure the patient, gather information about her, give her information about the LEEP procedure and obtain her informed consent for LEEP; the actual LEEP procedure; and post-LEEP counselling, the aim of which was to reassure the patient once again, tell her about the normal signs and complications after such treatment, and give her hygiene measures to follow. Once all these steps had been completed, the resection specimen was

given to the patient, along with an examination report for the anatomopathological study. The patient was asked to return with the histological results. Subsequent appointments were scheduled at 1 month, 3 months, 6 months, 9 months and 1 year. However, the patient could return earlier if she showed any abnormal signs. Data were collected using a data collection form containing a questionnaire that was administered to the patients and also from the ARD report book. The data collected from the questionnaire were entered using a microcomputer. The following software packages were used: Word 2010 for word processing; Excel 2010 for drawing up the various tables and figures; Epi info 3.5.1 for data analysis. Ethical considerations included respect for anonymity and confidentiality. Patients' consent was also required.

3. Results

3.1. Frequency

During data acquisition, we recorded 130 cases of loop electrosurgical resection. During the same period, 237 cases of precancerous lesions were detected. The incidence of LEEP was 54.9%.

3.2. Colposcopic Examinations

3.2.1. Unprepared Cervical Examination

Table 1 shows the distribution of patients according to the appearance of the cervix on unprepared examination:

Table 1. Distribution of patients according to the appearance of the cervix on examination without preparation (n= 130).

Examination without preparation	Number	Frequency (%)
Pink collar	14	10.7
Purple collar	11	8.5
Red collar	88	67.7
Bleeding on contact	17	13.1
Total	130	100

On unprepared examination, spontaneous reddening of the cervix was observed in more than 2 out of 3 patients.

3.2.2. Visual Inspection of the Cervix After Application of Acetic Acid (VIA)

Table 2 shows the distribution of patients according to VIA results:

Table 2. Distribution of patients according to VIA results (n=130).

VIA	Number	Frequency (%)
No acid-loving area	8	6.1
Acidophilic zone far from JPC	8	6.1
Acidophilic zone touching the JPC	114	87.8
Total	130	100.0

On VIA, acetowhitening allowed the squamocolumnar junction to be visualised in more than 3 out of 4 cases. LEEP

was performed in some patients who did not have acetowhite areas on VIA in cases of cervical polyp, chronic bleeding on contact, abnormalities on biopsy or cervico-vaginal smear (CVS) not associated with blanching of the cervix on VIA. Of the 122 patients with a positive VIA, all had a lesion size greater than or equal to 2 cm.

3.2.3. Visual Inspection of the Cervix After Application of Lugol (VIL)

Among 130 patients, VIL was positive in 122 patients (93.8%) and normal in 08 patients (6.2%).

3.3. Histology

3.3.1. Richard Classification

The histological results according to Richard's classification are shown in Figure 1:

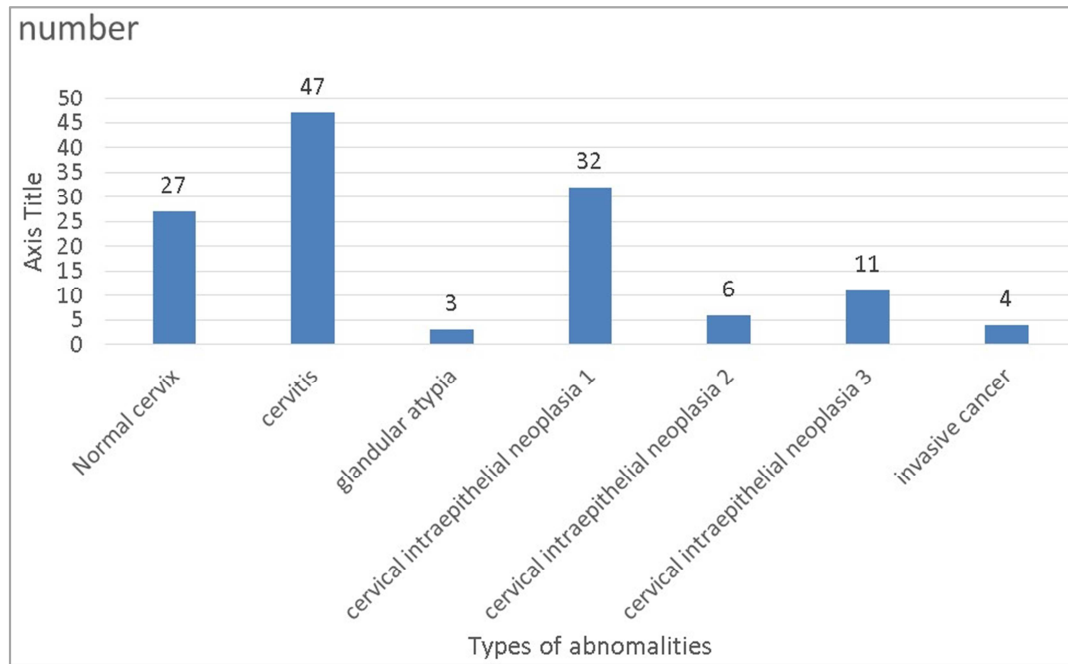


Figure 1. Histological findings according to Richard's classification (n=130).

3.3.2. Bethesda Classification

Table 3 shows the histological results according to the Bethesda classification:

Table 3. Histological results according to the Bethesda classification (n= 130).

Histology	Number	Frequency (%)
Normal cervix	71	54.6
Low-grade lesions	42	32.3
High-grade lesions	13	10
Invasive cancer	4	3.1
Total	130	100

According to the Bethesda classification, invasive cancer lesions were found in more than 3% of cases.

3.4. Treatment of Lesions with LEEP

3.4.1. Indications

Table 4 shows the distribution of patients according to the indications for LEEP.

Table 4. Distribution of patients by indication for LEEP (n=130).

Indications	Number	Frequency (%)
Large lesions	50	38.5
Abnormalities on biopsy	18	1.8
Bleeding cervix on contact	17	13.1
Grade 2 Atypical Transformations (GAT 2)	10	7.7
Large ectropion	8	6.2
Cervical polyp	7	5.4
Atypical transformation Grade 1 (AGT 1)	7	5.4
Questionable VIA/VIL findings	6	4.6
FCV abnormalities	5	3.8
Persistent lesions after other treatments*	2	1.5
Total	130	100

*Biopsy abnormalities: Cervical Intraepithelioma Neoplasia CIN 1, CIN 2, CIN 3;

*FCV abnormalities: atypical cells on Cervical Vaginal Frottis (FCV);

*Bleeding cervix on contact: during sexual intercourse or when touched vaginally;

*Persistent lesions after other treatments: persistent lesions after cryotherapy;

*Large lesions: lesions occupying at least a quarter of the cervical surface;

*Questionable results on VIA/VIL: redness of the cervix of uncertain origin (infectious, ectropion or precancerous lesion).

In more than 1 in 3 cases, LEEP had been indicated for a large colposcopic lesion and in two thirds of cases for abnormalities of the cervix after cytological examination and chronic clinical lesions.

3.4.2. Incidents

The distribution of patients according to incidents during LEEP is shown in Table 5:

Table 5. Distribution of patients according to incidents during LEEP (n=130).

Incidents	Number	Frequency (%)
None	61	46.9
Pelvic pain	32	24.6
Bleeding	20	15.4
Secondary effects of lidocaine	17	13.1
Total	130	100

Out of 130 patients, 69 (53.1%) presented signs and/or symptoms during LEEP.

3.4.3. Post-Operative Follow-up After LEEP

Out of 130 patients, 47 patients (36.2%) presented with simple postoperative effects, while complicated postoperative effects occurred in 83 patients (63.8%). Hydorrhea was present in 31 patients out of 130 (23.8%). Table 6 shows the distribution of patients according to complications following LEEP:

Table 6. Distribution of patients according to complications following LEEP (n=83).

Complications	Number	Frequency (%)
Minimal bleeding	39	47.0
Abundant bleeding	22	26.5
Infection of the resection area	22	26.5
Total	83	100

Most of the patients who returned to the department with post-operative complications reported minimal hemorrhage in almost half of these cases (47%).

3.4.4. Management of Complications of LEEP

Table 7 shows the distribution of patients according to the management of complications:

Table 7. Distribution of patients according to treatment of LEEP complications (n=83).

Treatment of complications	Number	Frequency (%)
No	39	47.0
Medical treatment	34	41.0
Haemostasis by pencil	7	8.4
Medical treatment + surgery	2	2.4
Surgical treatment	1	1.2
Total	83	100

*Medical treatment: antibiotics, hemostatic, vaginal ova.

*Surgical treatment: hysterectomy.

*Medical + surgical treatment: medical treatment + hemostasis in the operating theatre.

A total of 02 patients, i.e. 2.4% of patients with complications, underwent total hysterectomy for hemostasis

difficulties. In one other case (1.2%), hemostasis was successfully performed in the operating theatre.

3.4.5. Monitoring Results

The results of our monitoring were as follows:

1) At 1 month

Out of 130 patients, the cervix was healing in 96.2% of patients. In 3.8% of patients, the cervix was bleeding on contact. These patients had received local and oral treatment.

2) At 3 months

All cervixes examined were well healed.

3) At 6 months

Of the 03 patients with histological evidence of glandular atypia, one patient still had blanching at the VIA. She therefore underwent hysterectomy.

4) At 9 months

We had lost sight of 20 patients. Apart from patients with invasive cancer, the examination of the other patients was unremarkable.

5) At 1 year

We had lost sight of 28 patients. All patients examined had a healthy cervix except those with invasive cancer.

4. Discussion

4.1. Frequency

The incidence of ARD during our study period was 54.9%. This rate is higher than that of Millogo et al [10] in Burkina Faso, who reported a frequency of 4.2%. This difference could be explained by the fact that since LEEP is a new acquisition of the CHU-YO Gynecology Department, it is currently the technique of choice for the treatment of precancerous lesions. What's more, the CHU-YO is the reference centre for LEEP. LEEP also has advantages over the other techniques used in the department to treat precancerous lesions of the uterine cervix, such as cryotherapy.

4.2. Colposcopic Examination

4.2.1. Examination of the Cervix Without Preparation

The majority of patients (80.8%) had a pathological cervix. The cervix was red in 67.7% of cases and bled on contact in 13.1% of cases. This result could be explained by the fact that in our series, the patients who benefited from LEEP were those who had presented with a cervical anomaly without preparation and/or with preparation. This demonstrates the importance of examining the cervix without preparation in screening for precancerous lesions.

4.2.2. VIA/VIL

In 08 patients, the cervix was normal at VIA/VIL, i.e. 6.2%. Acetowhite areas were detected in 93.9% of cases. In 114 patients, the SJC area was affected (87.8%). The SCJ is a preferred area for significant cell multiplication and differentiation activity. Leroy et al [7] have shown that 90-95% of cervical cancers develop there. This finding

highlights the high risk of cervical lesions developing into cancer. A treatment such as LEEP to remove all these lesions is therefore the most appropriate.

4.3. Histology

Histological examination of the resection specimen revealed 20% normal cervix, 34.6% cervicitis, 2.3% glandular atypia, 24.6% CIN 1, 10% CIN 2, 5.4% CIN 3, 3.1% invasive cancer. Our result differs from that of Baldauf et al [3], who in their study of the therapeutic results of diathermic loop conisation reported: 7.3% normal cervix and 63.5% CIN 3. Schiavone [16] also found a higher CIN3 rate than ours (77.4%). Our result may be explained by the fact that all abnormalities detected either at biopsy, FCV or colposcopy had undergone LEEP. This has the advantage of early detection of precancerous lesions before they progress to high grade, which enabled us to have a low rate of CIN3. The high sensitivity of acetic acid for the detection of precancerous and cancerous lesions of the uterine cervix [12] could explain the rate of normal cervix observed on histology.

4.4. Treatment of Lesions with LEEP

4.4.1. Indications

During data acquisition, the indications for LEEP were large acetowhite lesions (38.5%), biopsy abnormalities (13.8%), bleeding cervix on contact (13.1%), TAG1 (5.4%), TAG2 (7, 7%), large ectropion (6.2%), cervical polyp (5.4%), questionable VIA/VILI results (4.6%), abnormal CVF (3.8%), persistent lesions after other treatments (1.5%). According to Monsonogo [11], the indications for excisional treatments such as LEEP are: CIN 2 or 3, in situ appearance, CIN 1 with a non-visible junction, inadequate colposcopy with a high-grade smear, micro-invasive cancer suspected or even confirmed on biopsy, as this is the only way of accurately measuring the depth of invasion below the basal layer, on which the course of action depends.

Some authors [13] believe that it is not always necessary to treat a precancerous lesion. Depending on its severity, there are two possible options: monitor the lesion until it heals spontaneously, or remove it. However, the problem of monitoring arises in our environment because most patients do not keep their appointments for consultation. This justifies the fact that, after screening, we treated all patients who presented with lesions with the potential to progress and/or lesions whose nature we did not know at VIA/VIL. Furthermore, for other authors such as Lewis et al [8], screening will be of no use if it is not followed by the implementation of effective treatment in those who have the disease.

4.4.2. Accidents During Resection

In our series, 53.1% of patients presented signs and/or symptoms during LEEP. These were dominated by pelvic pain in the form of lower abdominal cramps (24.6%), followed by bleeding (15.4%). Secondary effects of lidocaine occurred in 13.1% of cases. These are normal symptoms that last only one or two minutes and may vary from one person

to another [6]. This underlines the importance of counselling prior to LEEP in order to avoid panic in the patient when these events occur. Some authors [6] recommend that patients take two tablets of a non-aspirin analgesic such as ibuprofen or acetaminophen to prevent abdominal cramps.

4.4.3. Complications and Their Management

We recorded 63.8% of cases of complications after LEEP. Cases of minimal hemorrhage accounted for 47%, profuse hemorrhage 26.5%, and infections of the resection zone 26.5%. Schiavone and also other authors reported some cases of post LEEP hemorrhage [15-18]. Our results differ from those of Brun et al [4] who reported 2% of cervical hemorrhage. Brun et al [4], Schiavone [16] and Alexandre [1] noted respectively 3% cases of cervical stenosis, which we did not record in our series, and obstetric complications, which were not the subject of our study. According to the WHO [14], hemorrhage may be diffuse or of arterial origin. Infections in the resection zone have several causes: resumption of sexual intercourse too early, poor intimate hygiene, vaginal cleansing with products that are aggressive to the vaginal flora. These complications need to be treated, as their presence may prevent the surgical wound from healing properly.

In our series, only patients with minimal bleeding had not been treated. All other patients had received treatment. Antibiotic therapy, hemostatic and vaginal ova were administered in 41% of patients. Haemostasis using silver nitrate pencils was performed in 8.4% of patients. Surgical treatment was used in 3.6% of cases, with 2 cases of hemostasis in the operating theatre and one case of hysterectomy in a patient presenting with profuse hemorrhage and hemorrhagic myomas seen on ultrasound. The WHO [14] recommends these same treatments for the management of complications.

4.4.4. Rhythm of Monitoring/Outcome of Monitoring

During data acquisition, patients were reviewed at 1 month, 3 months, 6 months, 9 months and 12 months.. The WHO [14] recommends the first follow-up visit 2 to 6 weeks after LEEP, followed by further visits at 6 and 12 months. Other authors [6] recommend a follow-up examination every 6 to 9 months after treatment. Baldauf et al [3] recommend a first visit between 3 and 6 months after lesion removal, a second between 9 and 15 months and a third between 24 and 36 months.

In our series, the 1-month follow-up after LEEP showed that 96.2% of the necks were healing. Our result is similar to that of Ndoua [13] in Cameroon, who reported 95.2% of lesions completely healed after 6 weeks of cryotherapy. The closer follow-up of our patients is more advantageous, in that it enabled us to detect 5 cases of poorly healing cervix after 1 month of treatment and, at 6 months, one case of persistent blanching in a patient whose histology had revealed glandular atypia. Early and appropriate management of these patients improved their prognosis. According to Brun et al [4], loop electrosurgical excision can be recommended as first-line treatment for high-grade cervical dysplasia.

However, Hirsch et al [9] suggest that there is no obvious superior surgical technique for the treatment of cervical intraepithelial neoplasia in terms of treatment failure or operative morbidity.

5. Conclusion

The management of precancerous lesions of the cervix using LEEP is effective at the CHU-YO. It is an advantageous and effective therapeutic method which not only allows histological study of the resection specimens, but also leads to a complete cure. The practice of LEEP is not widely known these days, either by healthcare staff or by the general public. Training sessions and nationwide information campaigns will help to popularise the practice, with the aim of winning the fight against cervical cancer in Burkina Faso and Africa.

Conflicts of Interest

The authors declare no conflict of interest.

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