

Clinical and pathological evaluation of large loop diathermy excision of the transformation zone

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Summary: In order to make accurate diagnosis and to carry out treatment of cervical pre-neoplastic disease, large loop diathermy excision of the transformation zone was performed in 98 patients. The colposcopic assessment was indicated by abnormal smear or history of treatment for preneoplastic changes. The entire transformation zone could be excised in one piece in 90% of cases. Histological examination of the specimens confirmed dysplasia in 89% of patients and in 4 cases invasive cervical disease was revealed. The ectocervical and endocervical excision margins were free of dysplastic epithelium in 68% of cases. Compared to traditional cone biopsy, the new method is cheaper and more simple. Loop diathermy excision of the transformation zone can be performed in local anaesthesia as an out-patient procedure and there is no need for postoperative hospitalization. By reducing the number of general anaesthesia, the workload in gynaecological theatres and by eliminating the need for postoperative hospital stay the method substantially contributes to the improvement of the hospital budget.

Key words: Outpatient; Diathermy; Conisation.

INTRODUCTION

Cartier was the first to use loop diathermy as a substitute for taking biopsies from cervical intraepithelial neoplasia (CIN) (1). Initially small loops were tried to remove the entire abnormal epithelium in stripes (2). The best results can be obtained at 50-60 W power in both cutting and coagulation mode (3). As a result of

the increasing number of abnormal smears during the last two decades several conservative treatment methods have been developed. Local ablative methods such as cryocautery, cold coagulation and laser vaporization.

All of them have the disadvantage of requiring preoperative histological confirmation and close colposcopic follow-up (4). Total removal of the transformation zone helps to identify the microinvasive lesion, but the possibility of an invasive lesion being developed at a later stage cannot be excluded (5). Incomplete excision was recorded in 44% of diathermy loop cone biopsy specimens (6). Few critical remarks have appeared so far and most of them related more to the indications rather than to the method itself (7).

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PATIENTS AND METHODS

Ninety-eight consecutive patients with abnormal smears or with previous treatment of the cervix have undergone colposcopic assessment and had loop diathermy excision of the transformation zone at the Colposcopy Out-patients Department of Southend NHS Trust Hospital. After colposcopic assessment 4-6 mL volume of 3% prilocain solution with 0.031 IU/mL felipressine was used for paracervical anaesthesia. Valleylab Force 2 electrosurgical unit was used in blend of cutting and coagulation modes with a power output of 35-50 W each. Reusable Valleylab or Eschmann loops were used in 15-25 mm size depending on the extent of abnormal epithelium aiming at removing the entire transformation zone in one piece. After completion of the excision ball diathermy was used to secure haemostasis. Sultrin cream was used vaginally in half of the patients for one week and the other half was given metronidazole tablets 200 mg tds orally for one week. Clinical evaluation was based on the pathological assessment of the specimens and the follow-up smear results six months after the operation.

RESULTS

The smear results of 98 patients before colposcopic assessment are shown in Table 1, 94.9% of the smears suggested CIN and only one suspected invasive disease. Colposcopic assessment of the cervical transformation zone showed evidence of CIN in 88 cases and findings in 5 cases were suggestive of invasive disease (Table 2). Only one of these proved to be preinvasive with severe dysplasia. In two of these cases the histology showed no evidence of CIN and in the third patient only CIN-I could be identified. Data of

Table 1. - *Cytological diagnoses before treatment.*

Smear result	No of cases	(%)
Negative	2	(2)
Mild dyskaryosis	32	(32.7)
Moderate dyskaryosis	40	(40.8)
Severe dyskaryosis	21	(21.4)
Invasive neoplasia	1	(1)
Total	98	(100)

Table 2. - *Colposcopic diagnoses before treatment.*

Colposcopic diagnosis	No of cases	(%)
Normal or inflammatory	3	(3)
CIN I	33	(33.7)
CIN II	40	(40.9)
CIN III	15	(15.3)
Invasive neoplasia	5	(5.1)
Unsatisfactory	2	(2)
Total	98	(100)

Table 3. - *Histology of loop cone biopsy specimens.*

Histology	No of cases	(%)
Normal	7	(7.1)
CIN I	28	(28.7)
CIN II	39	(39.8)
CIN III	20	(20.4)
Adenocarcinoma	1	(1)
Squamous carcinoma	3	(3)
Total	98	(100)

Tables 1 and 2 are suggestive of high sensitivity and specificity of the cytological and colposcopic examinations. The entire transformation zone was removed in one piece by loop diathermy cone biopsy in more than 90% of our patients. Specimens sent for histology measured on average 19x16x11 mm with SD of 5, 5 and 4 mm, respectively.

Dysplastic epithelium was confirmed in 89% of specimens and invasive carcinoma was confirmed in further four cases. The depth of invasion was less than 5 mm in three cases. Table 3 shows frequencies of different histological diagnoses. The specimens were suitable for assessment of the excision margins in 87 (89%) cases. The ectocervical resection margin was free of dysplasia in 67 cases and no dysplastic epithelium could be identified at the endocervical margin in 65 patients. Both excision margins were

Table 4. - *Status of ecto- and endocervical resection margins.*

Histology	Margin free of disease		
	Ecto	Endo	Ecto+Endo
CIN I	25	25	24
CIN II	29	28	24
CIN III	13	12	11
Total (%)	67 (77)	65 (75)	59 (68)

free of disease in 68% of evaluable cases (Table 4). Among cases with severe dysplasia 61% had specimens removed with clear margins. The overall complete excision rate was probably higher because 91% of cases had negative smears six months after the procedure.

There have been few complications following loop diathermy cone biopsy. None of the 98 cases had haemorrhagic complication requiring transfusion or haemostatic sutures. There was one patient with troublesome oozing following a difficult attempt to secure haemostasis with ball diathermy. After a few hours observation she could be discharged and had an uneventful course of healing. Another patient required hospital admission due to post-coital bleeding one week after the operation. As the bleeding settled spontaneously no intervention was needed and the patient was discharged 24 hours later. There was no infectious complication leading to haemorrhage or pyrexia in our material. There was no chance of comparing the two different regimes of antibiotic profilaxis. Every patient complained of vaginal discharge after the procedure, but it lasted for more than three weeks in only 9% of cases.

DISCUSSION

Performing loop diathermy excision of the transformation zone does not require as expensive instrumentation as laser cone biopsy. Further advantage of

the method is that it can be completed much quicker (in 2-3 minutes instead of 20-30). The operative specimen is more suitable for histological assessment. Securing haemostasis with laser can be quite tedious, but with ball diathermy it is easy and more efficient. Compared to the traditional cold knife technique, its most important advantage is that there is no need for preoperative investigations and preparation, and it does not use theatre time. The introduction of this method reduces anaesthesiological workload and releases theatre time and nursing workforce for other procedures. By releasing hospital beds it contributes substantially to health budget savings.

In our series there were only two cases where the procedure had to be abandoned due to insufficient local anaesthesia. Loop cone biopsy under general anaesthesia at a later date required still less than one day hospital stay. In an earlier series 29% of patients had their operation performed under general anaesthetic⁽⁷⁾, which seems unnecessarily high when compared to our results.

In earlier reports, the entire transformation zone could be excised in one piece by loop diathermy in more than half of the cases⁽⁴⁾. In our study it could be achieved in as much as 90% of patients. Six months after the operation very high cytologically confirmed cure rate can be expected. In our experience, however, there is a 4% risk of invasive lesions being diagnosed with this method.

Loop diathermy excision of the transformation zone has a very low complication rate on the short term. None of our cases had haemorrhagic complications requiring cervical sutures or transfusion. In an earlier series, 2% of cases needed hospitalization, 1.5% required haemostatic vaginal packing, cervical sutures were performed in 1% of cases and some patients required transfusion⁽⁴⁾. Vaginal discharges of more than one month duration have been reported in 70-80% of patients

following laser ablation or cold coagulation treatments⁽⁵⁻⁷⁾. After loop diathermy excision of the transformation zone the discharge lasts for less than three weeks in 70% of cases. In the present series there was no infectious complication leading to bleeding or pyrexia. Therefore, we were unable to compare the efficacy of the two methods we used for antibiotic prophylaxis.

The high rate of successful treatment and the low morbidity indicates therapeutic efficacy of the method but long term studies are needed to confirm its safety with regard to the integrity of the cervix.

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