

Excisional treatment of cervical neoplasia (LLETZ/LEEP) under local anaesthesia versus general anaesthesia

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ABSTRACT

Aims: To assess the performance of excisional treatment by LLETZ/LEEP (large loop excision of transformation zone/loop electrosurgical procedure) under local (LA) and general anaesthetics (GA).

Objective: To assess rates, criteria, completeness of excision and cure rates of excisional treatment under local anaesthetics *versus* general anaesthetics.

Study Design: A retrospective observational study over 12 months period.

Methods: All cases treated by LLETZ/LEEP at the colposcopy unit at Guy's Hospital between 1st January 2019 and 31st December 2019 were reviewed. Assessment of "test of cure" carried out at 6-8 months to evaluate success of the procedure.

Results: Total number of LLETZ/LEEP procedures were n=327 in 2019, n=219 (67%) done under local anaesthetics and n=108 (33%) under general anaesthetics. Complete excision was higher in LA group 65% *versus* 47% under GA. Higher single samples under LA n=143 (97%) vs GA n=50 (68%). Deeper excisions under GA 11.5 mm vs 10 mm under LA. Greater volumes under GA 4284mm³ vs LA 2612mm³. 85% of test of cure (TOC) were normal in both groups, did not attend (DNA) LA=12% GA=15%.

Conclusion: This study shows LLETZ/LEEP performed under LA is acceptable to two thirds of patients and is at least as effective as GA in managing cervical neoplasia. Choice of anaesthesia is influenced by national standards, personal choice, colposcopic assessment and resort to multidisciplinary discussion.

KEYWORDS

CIN, LLETZ, LEEP, CGIN, LA, GA, HR HPV.

Introduction

Excisional treatment is the most common form of treatment for precancer or screen detected early stage cervical cancer. About 80,000 LLETZ procedures were performed in 2018 in the United Kingdom. Standards are set by British Society of Colposcopy and Cervical Pathology and National Health Service Colposcopy and management Guidelines^[1,2]. There are a number of treatment modalities focusing on excision (large loop excision of transformation zone LLETZ/loop electrosurgical excision LEEP, needle diathermy of excision zone NETZ, Cold knife cone biopsy CKC and laser conisation or ablation (cold coagulation, laser ablation)^[3].

The main advantages of excisional treatments are controlled therapy of CIN, establishment of histological diagnosis, identification of micro invasion (when present) and adopting a "see and treat" approach in suitable patients in outpatient settings. It compares well to other modalities such as laser excision and learning is relatively quicker^[4,5]. Main advantage over destructive techniques is histological analysis especially information about margins. Outcome of treatment of CIN can be evaluated by "test of cure" using High Risk Human papilloma virus (HR HPV) with reflex cytology^[6].

Guy's and St Thomas NHS Foundation Trust has the largest

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colposcopy Unit in the United Kingdom. Unit offers excisional and ablative procedures. See and treat is also provided based on patient choice, safety and suitability. Follow up following LLETZ procedures is with Colposcopy if excisional margins were involved and HR HPV testing with reflex cytology if margins are clear.

Methods

All cases referred, seen and treated by LLETZ at the colposcopy unit at Guy's and St Thomas NHS Foundation Trust between 1st January 2019 and 31st December 2019 were included. Patients were identified by Colposcopy database "view-point", procedure log book and Cyres data system (which links viewpoint to regional quality assurance centre).

Electronic Patient Record (EPR) is used for results (histology, cytology). Complex case are discussed in Multidisciplinary meetings (MDM). The referral indications and histology results were reviewed for all the patients. Discordant or mismatched findings were reviewed in the colposcopy Multidisciplinary team meetings and appropriately actioned. All CGIN and cancer patients were discussed in the colposcopy and gynaecology multidisciplinary meetings.

All patients who had LLETZ at the Unit were included. Patients who had treatment in another unit or under private sector referred for follow up assessments were excluded.

Results

Three thousand two hundred and twenty three women were referred to the colposcopy unit in 2019. 5745 attendances were recorded out of total 8752 appointments booked in 2019. Three hundred and twenty seven 5.6% had excisional treatment by LLETZ. Majority had LLETZ treatment under local anaesthetics $n=219$ (67%) of which See and treat was performed on $n=8$ (7.4%). Thirty three percent ($n=108$) had LLETZ under GA (Table 1).

This highlights the sensitivity of cervical screening by cytology to be 66% for picking up high grade abnormality. In fifty percent of the patients High grade cytology (moderate $n=70$, severe = 84, severe? invasive $n=6$, glandular $n=4$) confirmed HGCIN hence required treatment. However referral data highlighted 34%. Low grade abnormalities (borderline $n=33$ and mild dyskaryosis $n=77$) also had LLETZ mainly due to cervical biopsies reporting HGCIN. Other group ($n=4$) included patients with untreated high grade lesions from other units. The results were reviewed discussed in the MDT and treated.

Histology (Table 2) confirmed good correlation with 77% high grade disease (CINII $n=94$, CINIII $n=149$, HGCIN $n=4$, cancer $n=5$). Nineteen percent (CINI $n=42$, HPV/cervicitis $n=21$) had low grade histology. The treatment was performed either due to persistent low grade beyond two years or initial diagnostic biopsy suggested HGCIN. These cases were reviewed in the MDM.

Similarly in 14 cases histology was normal these were mostly repeat treatments because the original sample showed involved margins (Table 3).

Total number of excisional treatments were 327. 67% ($n=219$) were performed under local anaesthesia and 33% ($n=108$) were performed under general anaesthetics. Age range was comparable in both groups. Volume of excisional tissue was greater under general anaesthetics similarly the depth of excision was greater in histological specimens under general anaesthetics (11.5 mm) *versus* local (10 mm).

Complete excision was higher in specimens obtained under local anaesthesia ($n=143$) *versus* general anaesthetics ($n=50$). Samples removed as one were higher 97% ($n=212$) in treatments performed under local anaesthetics *versus* 73% ($n=35$) under general anaesthesia.

Success in terms of test of cure was similar in both groups at 85%. Loss to follow up was 12% in local anaesthesia cohort *versus* 15% in general anaesthesia cohort.

Table 1 Referral indications for women who had LLETZ procedures.

REFERRAL INDICATION	NUMBERS
Borderline dyskaryosis (ASCUS)	33
Mild dyskaryosis	77
Moderate dyskaryosis	70
Severe dyskaryosis	84
Severe? Invasive	6
Glandular abnormality	4
Urgent Clinical indication	16
Non urgent Clinical indication	33
other	4
Total	327

Table 2 Histology analysis of LLETZ procedures.

HISTOLOGY	NUMBERS
Cancer FIGO1A	5
HGCIN	4
CINIII	149
CINII	94
CINI	42
HPV/cervicitis	21
Normal	14
Total	327

Table 3 LLETZ/LEEP comparative data for local anaesthetics *versus* general anaesthetics.

COMPARATIVE DATA LA VS GA		
	LOCAL ANAESTHETICS (LA)	GENERAL ANAESTHETICS (GA)
Number	219 (67%)	108 (33%)
Age	32	34
Volume (average)	2612mm ³	4284 mm ³
Depth (average)	10mm	11.5 mm
Complete excisions	143 (65%)	50 (47%)
Incomplete excisions		
- ectocervix	50 (22%)	34 (31%)
endocervix	11 (5%)	9 (8%)
lateral	3 (1.3%)	4 (4%)
Single sample	212 (97%)	73 (68%)
Multiple sample	7 (3%)	35 (32%)
TOC (TEST OF CURE)		
No result available/DNA	27 (12%)	16 (15%)
HR HPV -ve	163 (85%)	79 (85%)
HR HPV +ve cytology -ve	17 (8%)	6 (6.5%)
HR HPV +ve low grade cytology	10 (5%)	7 (7.5%)
HG Dyskaryosis	1 (0.5%)	0

Discussion

Excisional treatment is the most common form of treatment for precancer or screen detected early stage cervical cancer in the United Kingdom. Our data of LLETZ/LEEP excision shows good performance for both local and general anaesthesia.

It is important to note the cohort of women who underwent treatment under local (32 years) and general anaesthetics (34 years) were of child bearing age. There is clear evidence of adverse obstetric outcomes (prematurity and mid trimester miscarriage) linked to depth or volume of excisional specimens [7,8]. High grade abnormalities [CINIII, HGCGIN, early stage invasive cancers (FIGO1a1)] can be adequately treated with LLETZ as fertility sparing procedures. In case of CINII evidence suggests that in women under 30 years of age, those with small lesion involving no more than 2 quadrants of cervix, can safely be managed with close monitoring up to 2 years [9].

Of those treated under LA only 8 patients were treated on first visit. To qualify for such treatment 1) women should have received and read information about treatment 2) it suited them in terms of contraception, work, post LLETZ care as well as colposcopy assessments of lesion grade, size and patient comfort. It is important to perform procedures only when assessment suggest high grade CIN abnormality as low grade usually regress per TOMBOLA study [10,11]. This could be further improved with adjunct technologies like Dysys [Dynamic spectral imaging system] or Zedscan electrical impedance spectroscopy] as well as reducing patient anxiety by contacting the patient beforehand or ensuring a contact to answer their concerns [12].

Indications for treatment under general anaesthesia were women who were anxious or uncomfortable with the procedure in the outpatients setting. Where access was difficult, those with a large lesion involving four quadrants/approaching vagina, multifocal or where another procedure like resection of fibroid was planned. As well as in cases where access was a concern or had previous treatment with almost flushed cervix with vagina. A retrospective review of type of anaesthesia divided indications into three categories:

Category I: where there was associated pathology required treatment under GA.

Category II: where the colposcopist anticipated difficulty with the procedure and decided on GA.

Category III: where GA was requested by the patient [13].

This is similar to indications in this cohort. Analysis of data confirms larger volumes (GA 4284 mm³ vs LA 2612 mm³) and depth (GA 11.5 mm vs LA 10 mm) were achieved in patients who had procedures under GA. This in itself confirms patients with larger areas of abnormalities were booked appropriately. The proportion of multiple samples were higher in GA procedures (n=35, 32%) vs LA (n=7, 3%) which highlights larger, distorted or skip lesions. Multiple samples increases difficulties in histopathological assessments and define completeness of excision. Higher number of complete excisions were achieved among women treated under LA (n=143, 65%) vs GA (n=50, 47%). Multiple samples contributes to histological evaluation of higher incomplete excisions under GA.

Evaluation of success of treatment by test of cure with cytology and HR HPV testing 6-8 months post procedure demonstrated no difference between women who had LLETZ under LA 85% versus GA 85%. Hence 85% percent in both groups were discharged to normal cytology recall. Eighteen had abnormal cytology including one with severe dyskaryosis requiring repeat colposcopy. Twenty three patients tested positive for HR HPV. A comparative study of efficacy and outcomes from Australia concluded no significant difference for LLETZ procedures under GA or LA [14].

There were significantly higher number of incomplete excisions under general anaesthetics which may be due to multiple samples but the test of cure was same in both groups. This may be due to destruction of residual lesion by diathermy or removing larger and deeper area. Women with incomplete excision of HGCGIN or those over 50 years old had repeat excisions to ensure there was no residual disease.

A limitation of this study is that it is a retrospective observational study, follow up data may have been affected by COVID restrictions to services.

Conclusions

LLETZ excisional treatment under local and general anaesthetics is an effective fertility sparing option. LLETZ with appropriate analgesia is likely to remain the main treatment modality in the foreseeable future.

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