Thermal ablation in Dundee (and Malawi)

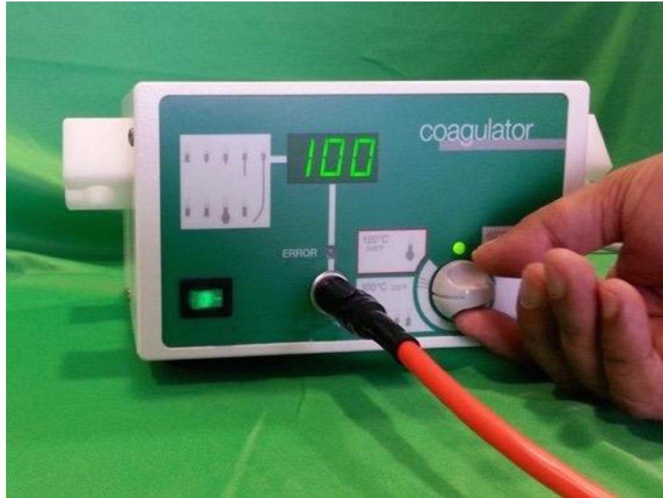
Dr Wendy McMullen . NHS Scotland

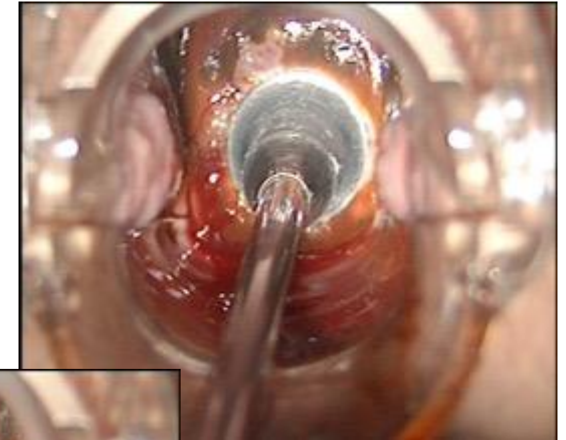
- More than 50 years experience
- Accumulation of evidence
- Benchmarking and quality assurance
- Scottish Experience in Malawi
- Challenges of replicating outcomes globally

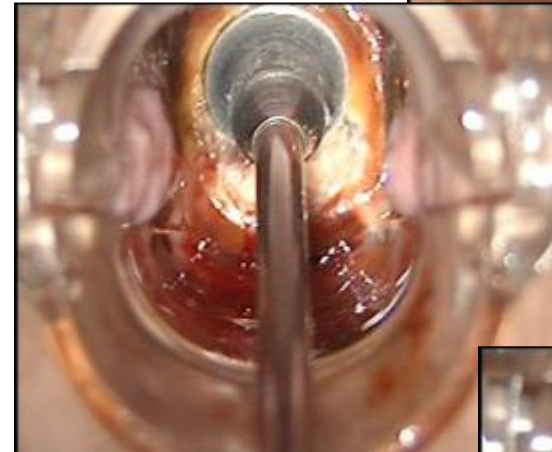
- *No conflict of interests*
- *All images taken with consent for use for educational purposes*

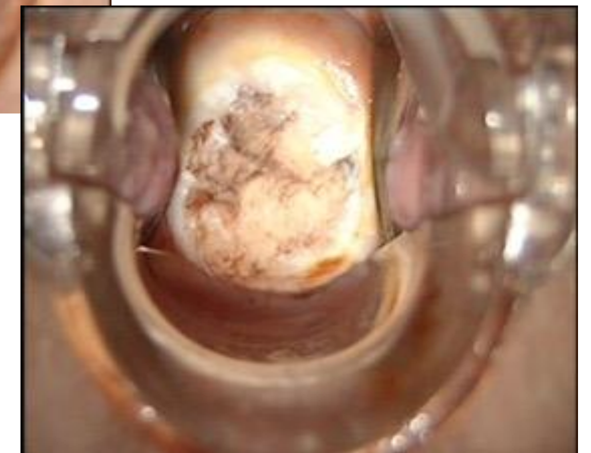
THERMAL ABLATION (= thermocoagulation = ‘cold’ coagulation)

THE DUNDEE METHOD ‘ THE 2 PROBE METHOD’









Teflon coated probes heated by mains electricity
Applied at 100^{0}c in 20 second pulses
‘short endo cervical probe’ to lower endocervix
Flat 16mm probe to whole TZ in multiple overlapping applications
Always pre-treatment punch biopsy (see and treat -> select and treat)
Local anaesthetic not routinely introduced until ~ 2005

Gordon & Duncan 1991
1628 Treatments for CIN3 (since 1975)
Cytoreversion 95%, 94%, 92%, 91%
Recurrent CIN2+ in 5.3%

Loobuyk and Duncan 1993
680 treatments for CIN2
FU 1-14 years
Recurrent CIN2+ in 2.5%

Dolman Meta-analysis 2014
4569 treatment for HGCIN
Across 13 publications
95% cure rate

Thermal Ablation of High-Grade Premalignant Disease of the Cervix—Standing the Test of Time: A Retrospective Study

Kalpana Ragupathy, Thummini Jayasinghe, Wendy McMullen
(J Low Genit Tract Dis 2022;26: 27–31)

796 women FU 20 years after TA for HGCIN

Cumulative probability of having recurrent HGCIN was 0.5% at 5 years, 1% at 10 years, 1.9% at 15 years, and 3% at 18 years.

There was 1 invasive squamous cell cancer at 11 years after treatment.

Benchmarking (linked through CHI)

- Standardised record keeping/data collection in Dundee since 1970s

- Scottish Colposcopy Call Recall System (SCCRS)
  - Introduced nationwide 2007
  - Now linked to vaccination history
- National colposcopy database (NCCIAS)
  - Agreed minimum dataset
  - Captures all colposcopy referrals, examinations and outcomes
- Scottish Colposcopy QA group benchmarking of units/colposcopists
  - Cyto-reversion >90% post treatment
  - Histological failure rate <5% at 12 months
  - HPV clearance not (yet) benchmarked

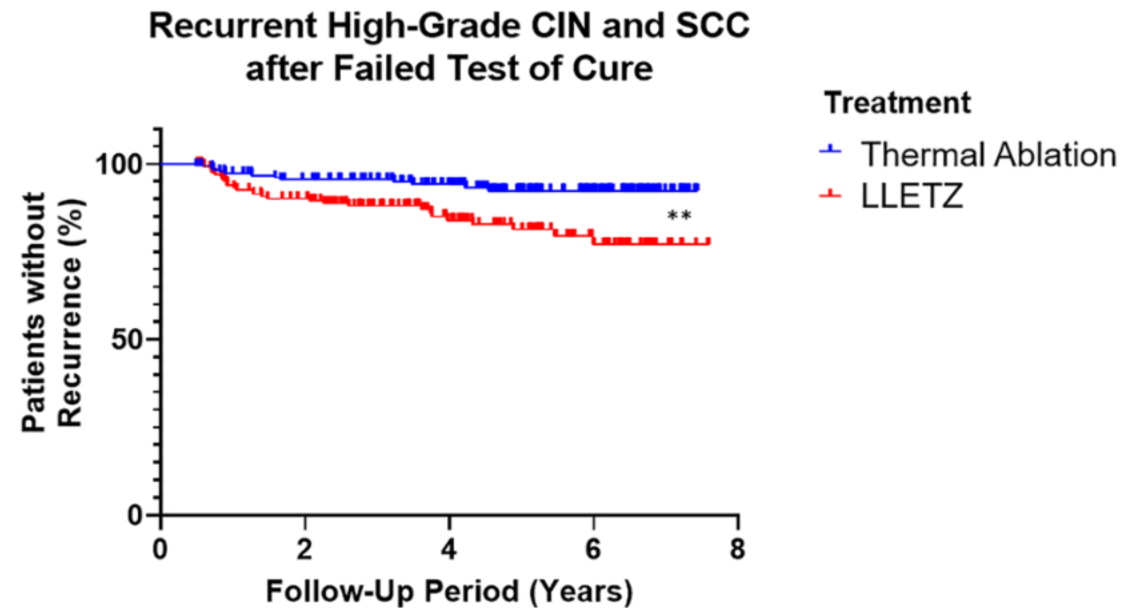
- National Invasive Cancer Audit (NICA)
  - Every cancer interrogated for screening and colposcopy history

Persistent HPV ≠ persistent CIN

Test of cure and beyond: superiority of thermal ablation over LLETZ in the treatment of high-grade CIN

Armstrong GM, Ragupathy K

Archives of gynecol and obstet 2022 , *306*(5), *1815–1820*



EXCLUSIONS

NO suspicion of cancer

NO suspicion of glandular lesion

TZ/lesion visible and accessible

NO cyto/histology discordance

NO previous ablation

NO Infection/cervicit

NOT pregnant

ALWAYS
APPROPRIATELY
TRAINED
PROVIDERS
(COLPOSCOPISTS)

NOT EXCLUSIONS
(in Dundee practice)

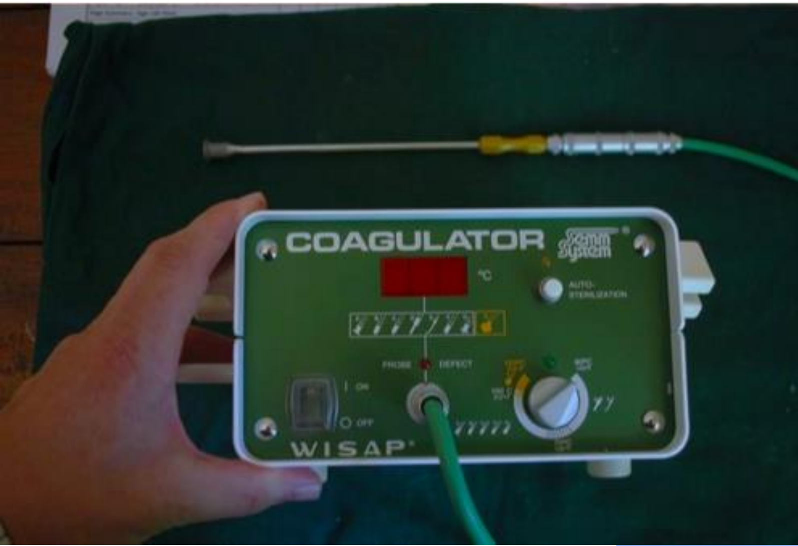
Large lesions

Type 2 TZ

Unscheduled bleeding

Crypt involvement

nb no role for ECC
In UK practice


COAGULATOR
WISAP

Edinburgh Airport
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Morocco
16 hr 40 min
Egypt
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Saudi Arabia
Mauritania
Mali
Niger
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Yemen
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Burkina Faso
Guinea
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Ethiopia
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Nkhoma Mission
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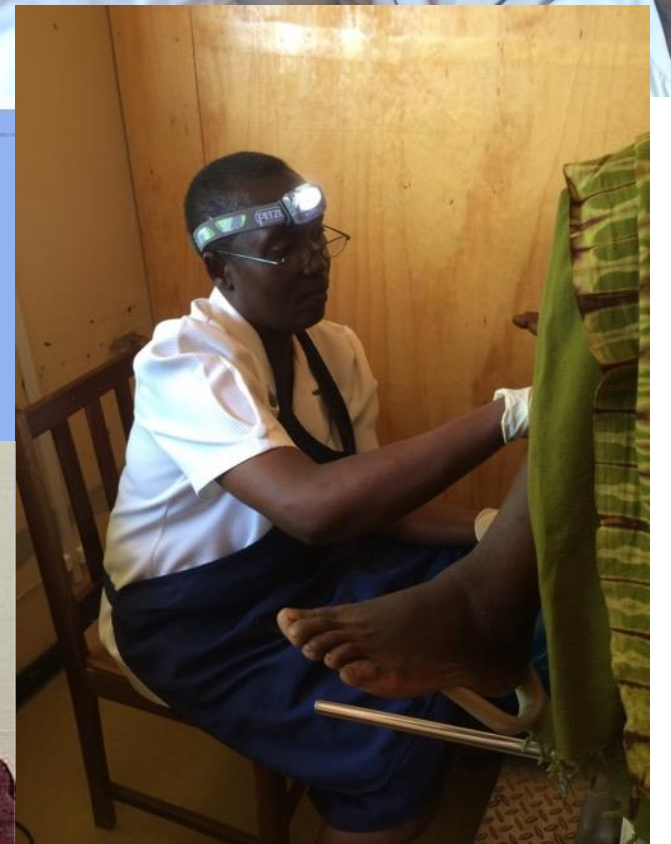
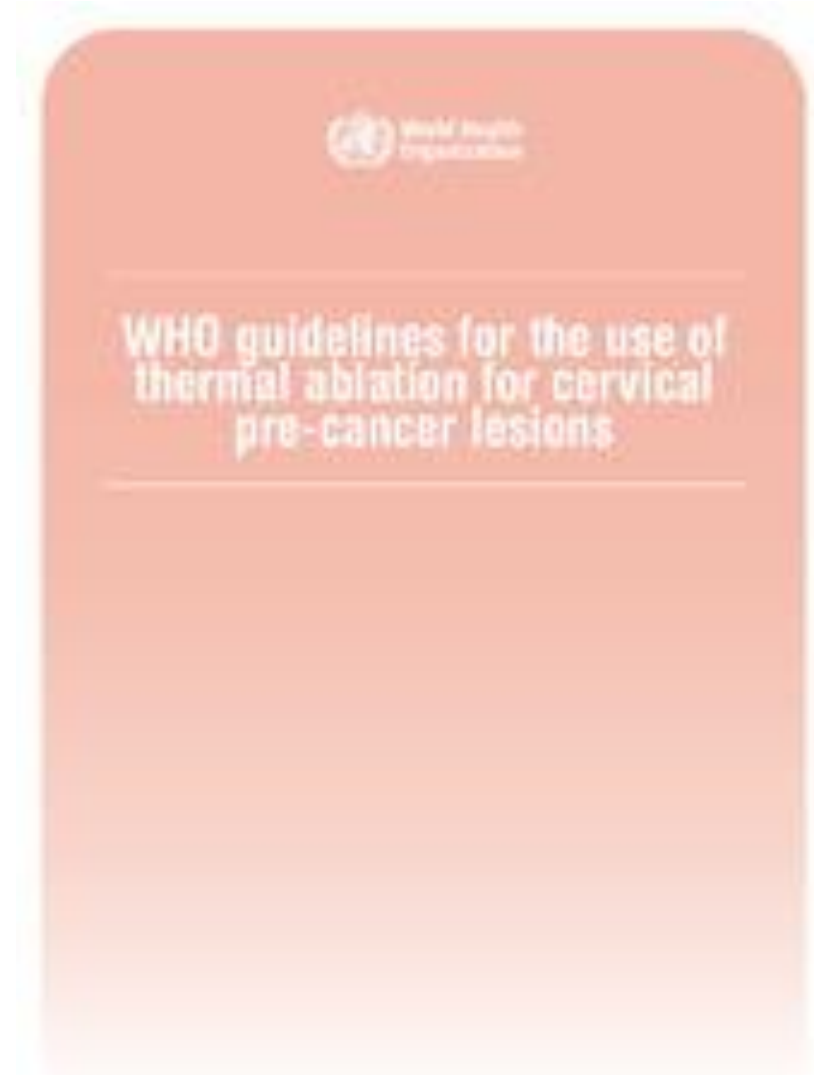


Project 1 : MW01 2013-2016

- Hub and spoke model
- Trained 37 providers to ‘screen and treat’ with Thermal ablation
- Training manual developed alongside MOH
- Invested in community education (sensitisation)
- Screened >24,000 pre-menopausal women
- Trained providers to take punch biopsies (where diagnostic uncertainty)
- Of 6 % VIA positive , ~ 90% received same day treatment
- 53% came for follow up of whom >95% VIA negative at one year
- Xpert® HPV first used in Malawi. 750 valid results showed 19.9% HPV Positive, with high prevalence of HPV31 and related types. TRT of <2hrs achieved allowing same day screen and treat but Cost of HPV tests prohibitive for scale up.

Cubie HA et al. J Clin Virol. 2017 Feb;87:1-4. doi: 10.1016/j.jcv.2016.11.014. PMID:2798476

Campbell IJC *International journal of cancer*, *139*(4), 908–915



Challenges in Global contex

- Randall meta-analysis Prev Med. 2019;118:8
  - 6371 treatments across 23 publicati
- De Fouw meta analysis Int J Gynaec
  - Cure rates worldwide 91.6% cure

Definition of treatment succes

Published HPV clearance rates 75-8

but HPV clearance rates in WLHIV ~

Published histological failure rates 5 -3

but histological failure rates 28-35% in

n.b. no evidence LLETZ is performing better for in   nen

WHY ?

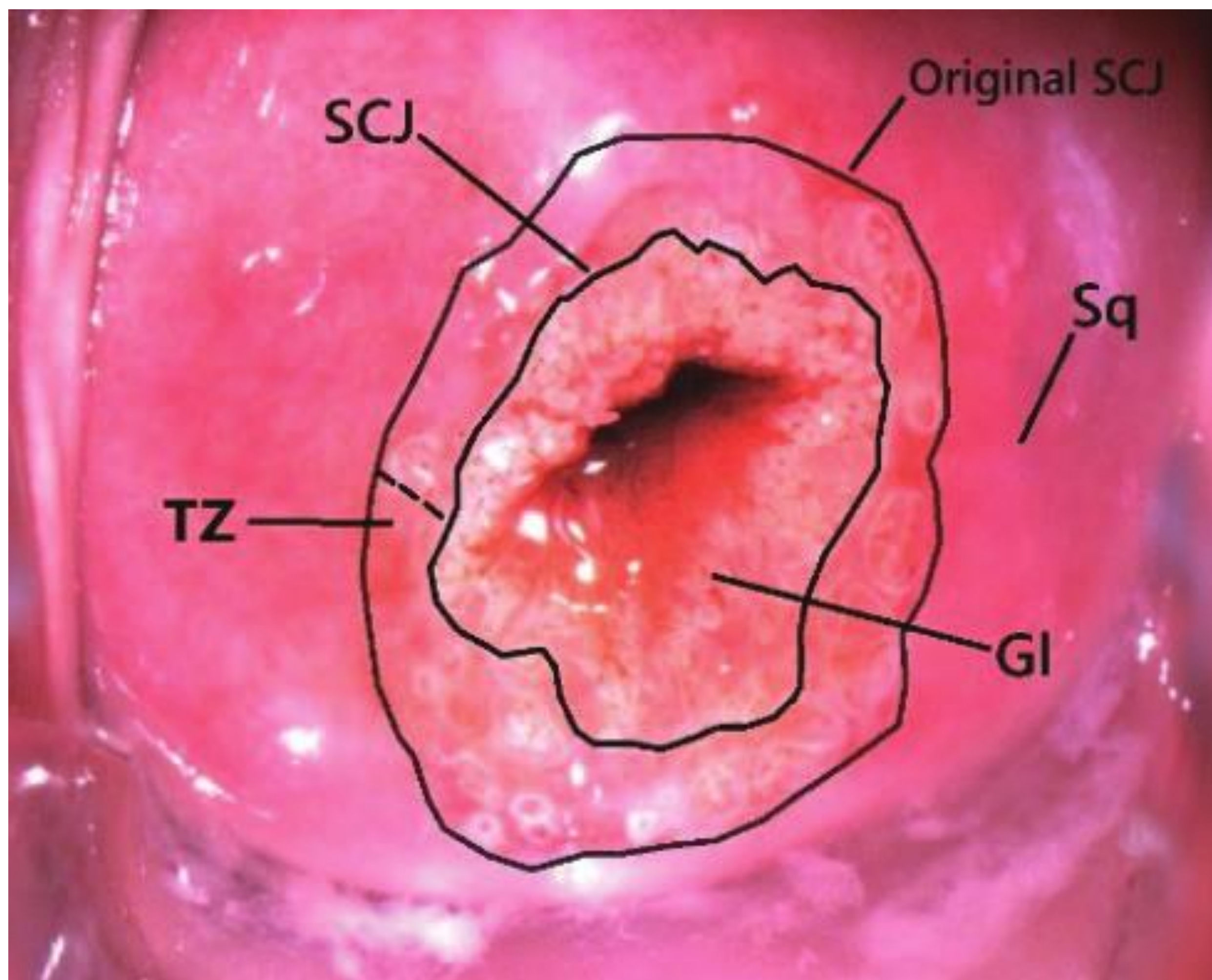
? Challenges with training

? Histopathology challenges

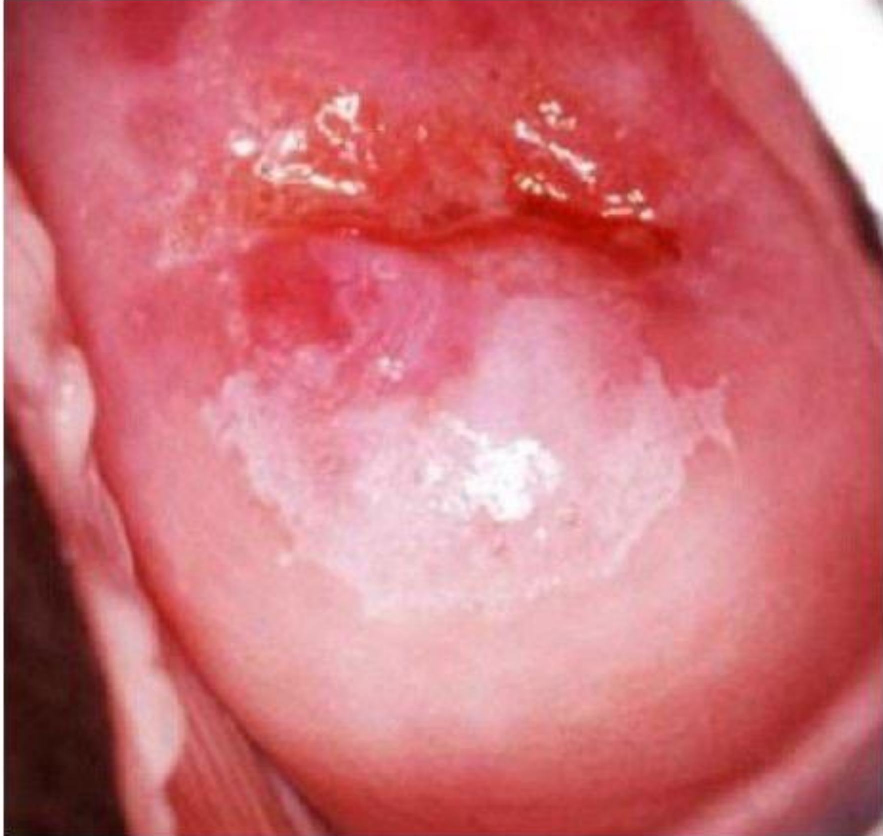
? Lack of recourse to LLETZ

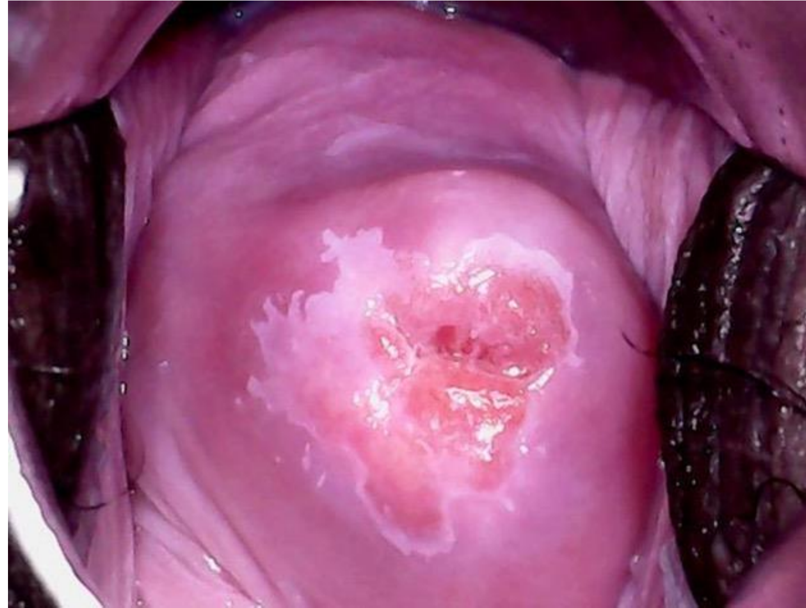
? Lack of referral pathways

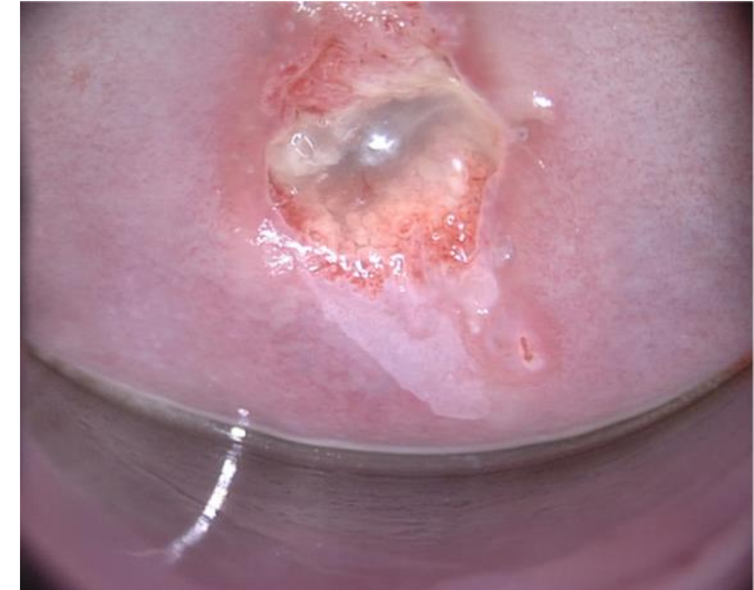
? Equipment limitations


Original SCJ
SCJ
Sq
TZ
Gl

LESIONS SUITABLE FOR ABLATION

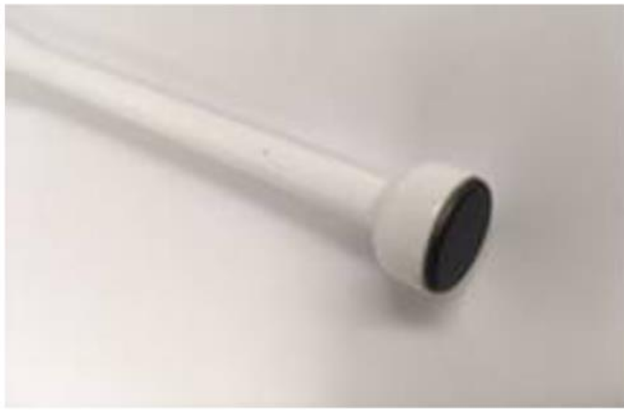






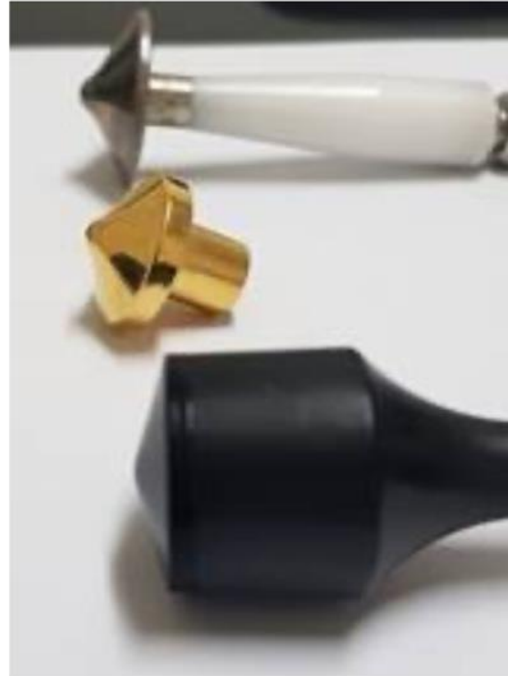
Lesions suitable for ablation
Fully visible
Not extending into canal
Not extending onto vagina
< 75% of cervix (or < 3 of 4 quadrants)

Similar images available to view in IARC digital atlas https://screening.iarc.fr/atlasvia.php

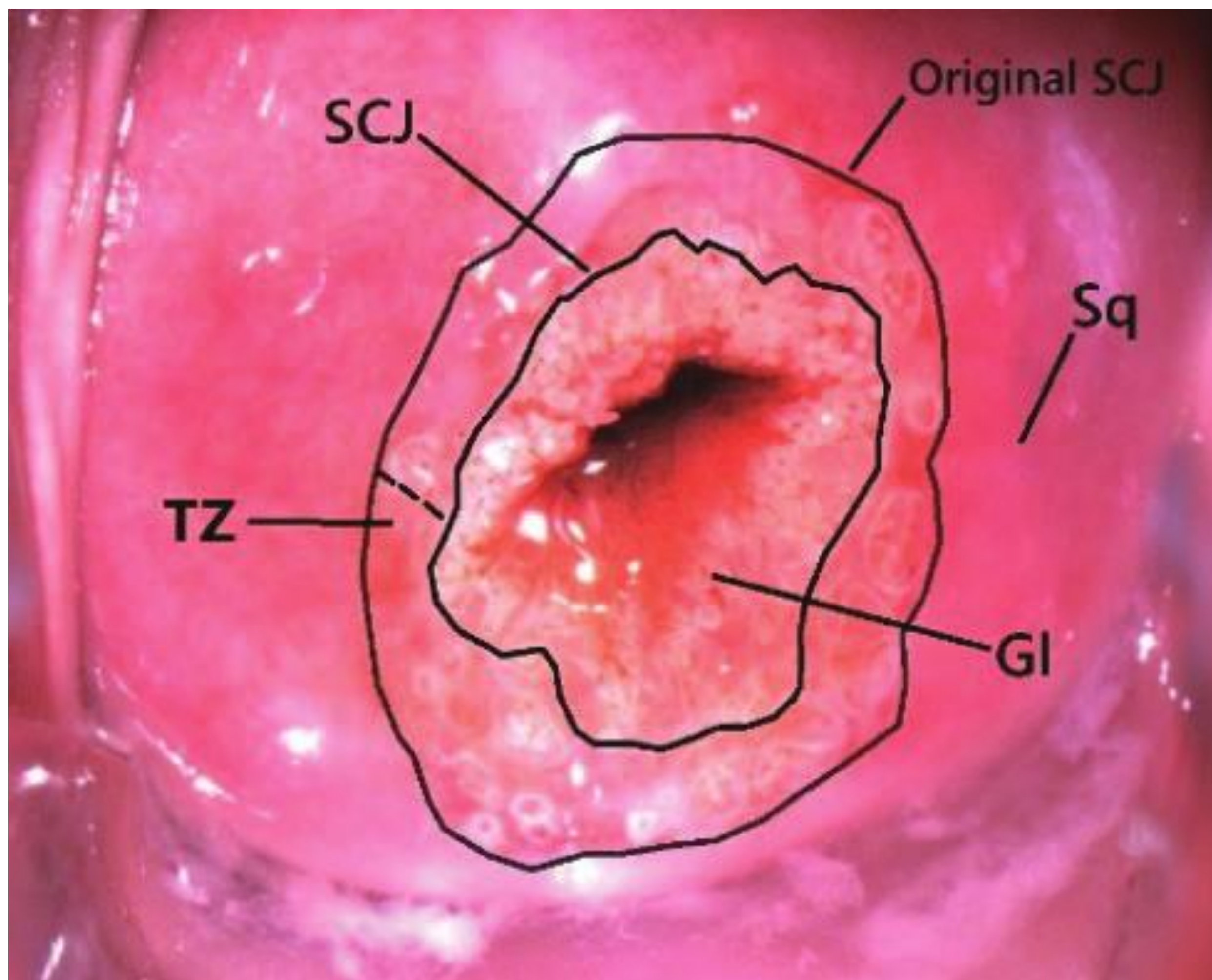


liger

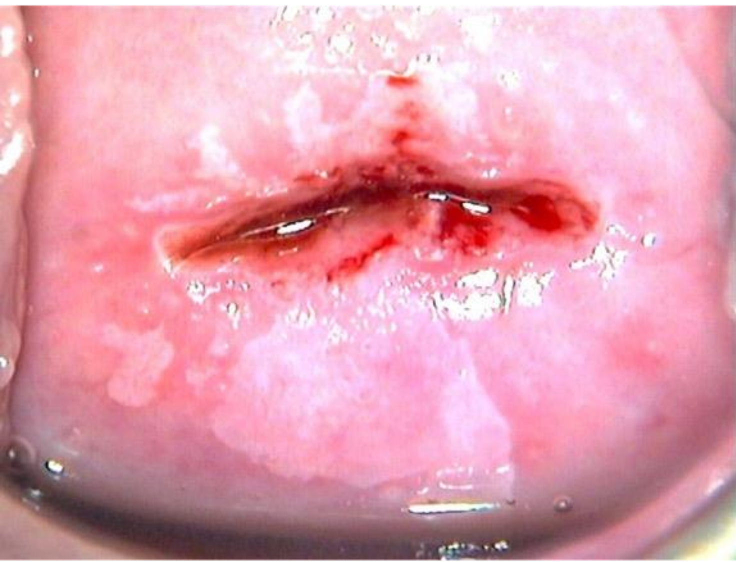
Are battery operated probes equivalent ??

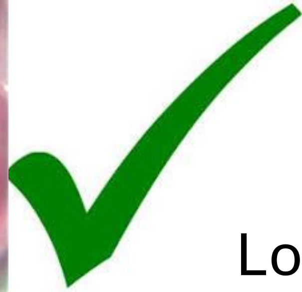


C3 and cryo tips

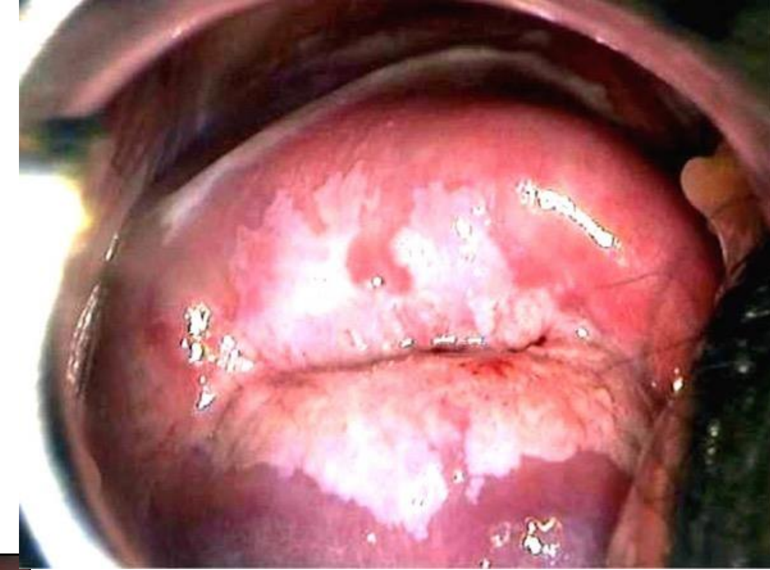


Original SCJ
SCJ
Sq
TZ
Gl

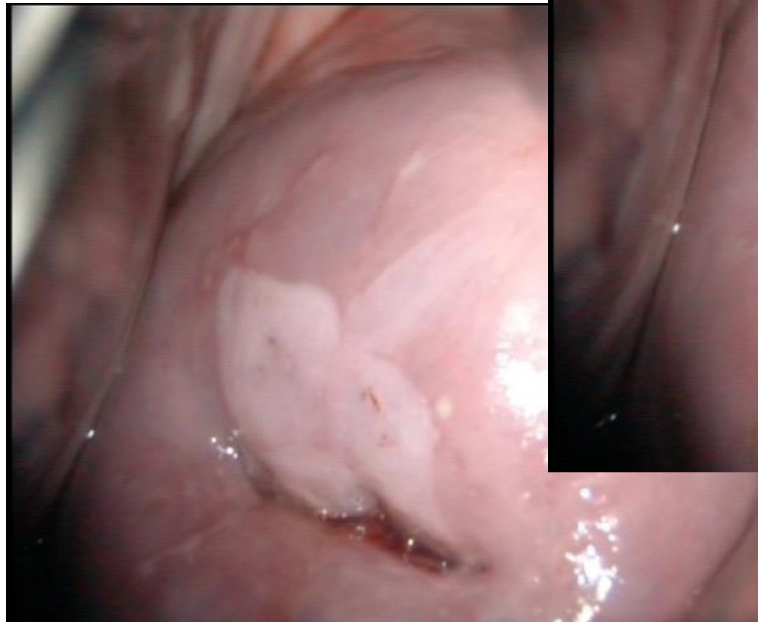


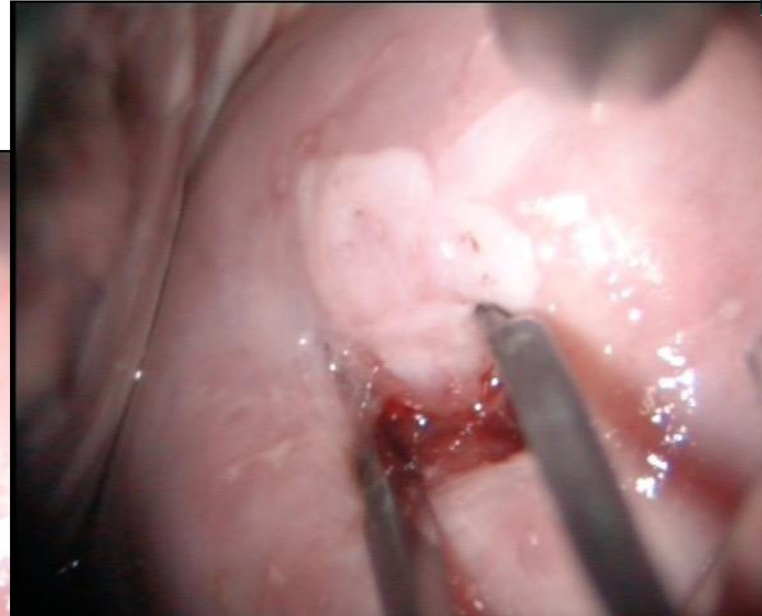


Location of Lesion



FULLY VISIBLE
(type 1 TZ)
<75%





LARGE LESION
UPPER LIMIT NOT SEEN

Lesion disappearing up the canal
– If the probe tip can reach upper limit, i.e. may depend on available equipment

Potential benefits of ‘2 probe’ technique

- Better efficacy
- Expand eligibility
  - To include type 2 TZ – if upper limit reachable with the appropriate probe
  - To include large lesions – if cancer has been excluded
- Can this be translated into improved outcomes for all women including WLHIV?
- Can we do implementation studies with benchmarking rather than awaiting more RCTs because the need is urgent

Protoype short endo probes manufactured
not yet available outwith RCTs
? Need more trials or implementation

? Use meantime/concurrently

Battery Operated
LIGER or WISAP C3

Mains operated (WISAP)
Scottish effectiveness data

2 probe technique

Cost
Sterilisation
Durability

Short
Endo
Cervical
probe

Flat
Probe
16 or
19mm

Teaching
Training
SOPs

?

?

?

Benchmarking
Acceptability &Complications
Referral rates
Effectiveness /outcomes
Tx failure and management

WLHIV

Eligibility Criteria
(esp size of lesion, TZ type)
Exclusion Criteria
Referral pathways

?

TA working group will be hosting an SISS @ IPVC Athens October 2026- - all welcome