Treatment of Cervical Precancerous Lesions using Thermocoagulation

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With the courtesy of the FIGO

General Principles

- All high grade CIN (CIN2-3) should be treated
- Low grade CIN (CIN1): review after 1 year or treat (if you are not sure about compliance to follow- up)

Treatment for CIN

Ablative treatment

- Cryotherapy
- Electrocoagulation
- Thermocoagulation (Cold coagulation)
- Laser ablation

Excisional treatment

- Loop Electrosurgical Excision Procedure (LEEP)
- Laser excision
- Cold knife conization
- Hysterectomy

Principles of CIN Treatment

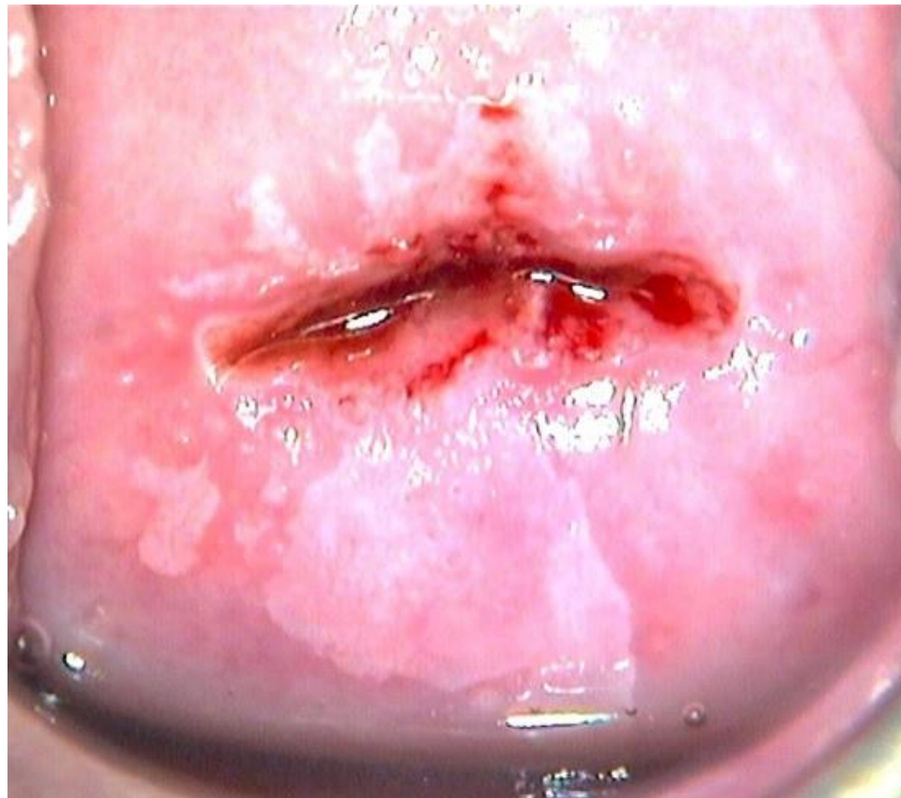
- Whole transformation zone to be treated
- Minimum depth of treatment is 7 mm
- Surveillance of treated patients to assess cure / failure

Types of Transformation Zone (TZ)

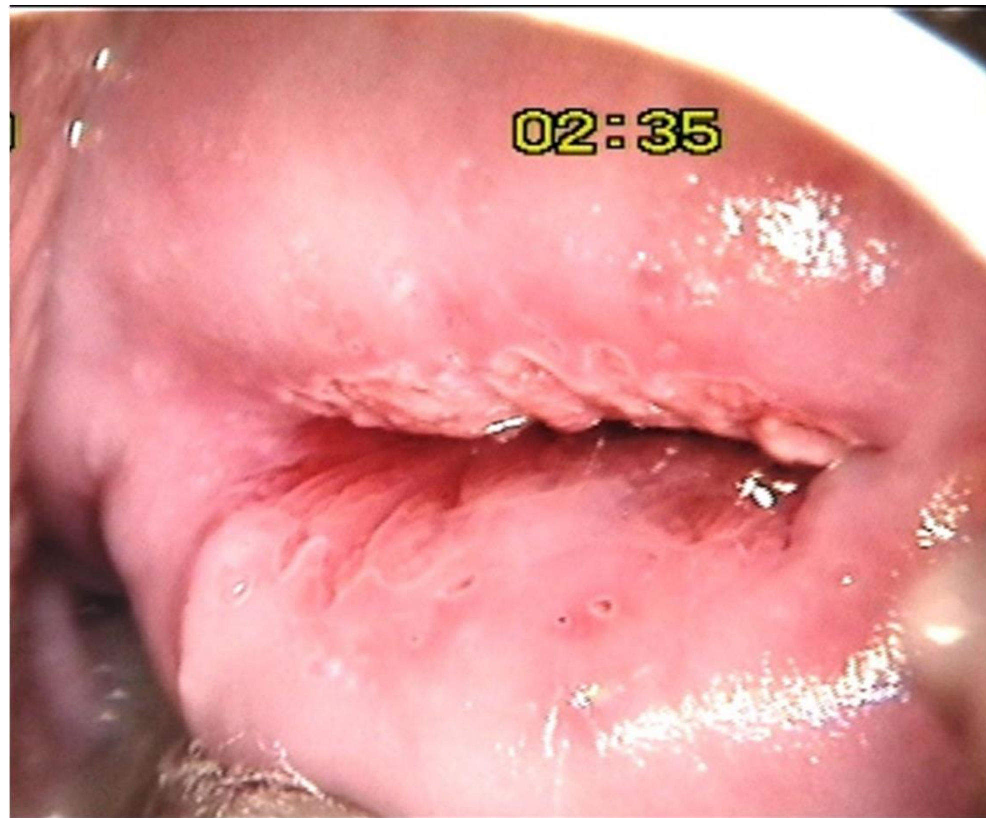
- Type 1: TZ fully visible – SCJ fully visible
- Type 2: TZ partially visible – SCJ partially visible in endocervical canal, can be exposed with special instruments
- Type 3: TZ not visible – SCJ not seen even with endocervical instruments

SCJ = Squamocolumnar Junction

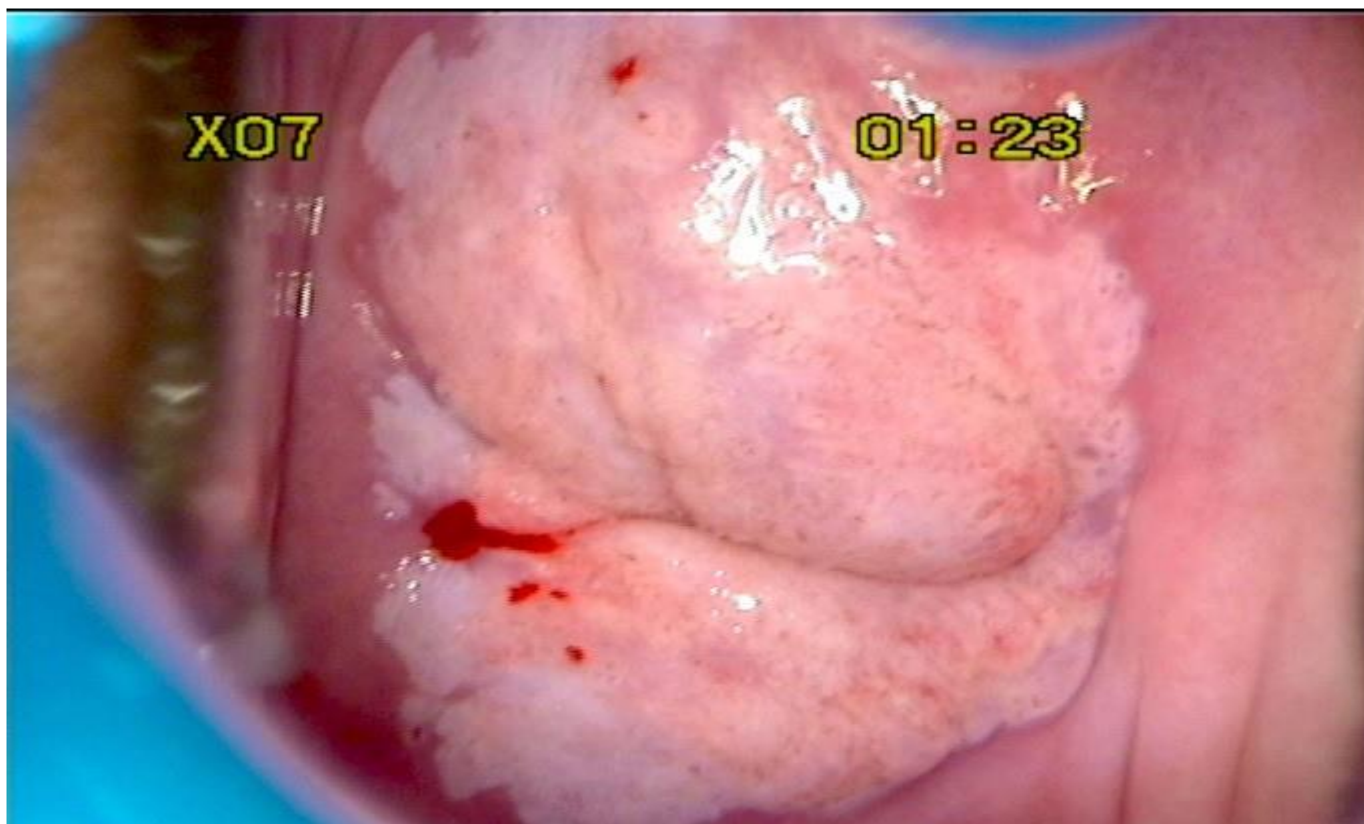
Type 1: TZ fully visible – SCJ fully visible



Type 2: TZ partially visible – SCJ partially visible



Type 3: TZ not visible - SCJ not seen



Thermal Coagulation - Criteria

- Type 1 TZ (fully visible: can trace SCJ in its entirety)
- Lesion involves <75% of transformation zone
- Lesion is entirely located on the ectocervix
- No endocervical canal or vaginal involvement by lesion
- No evidence of invasive cancer
- Patient is not pregnant
- Not menstruating

N.B. Can direct a biopsy safely before ablative treatment!

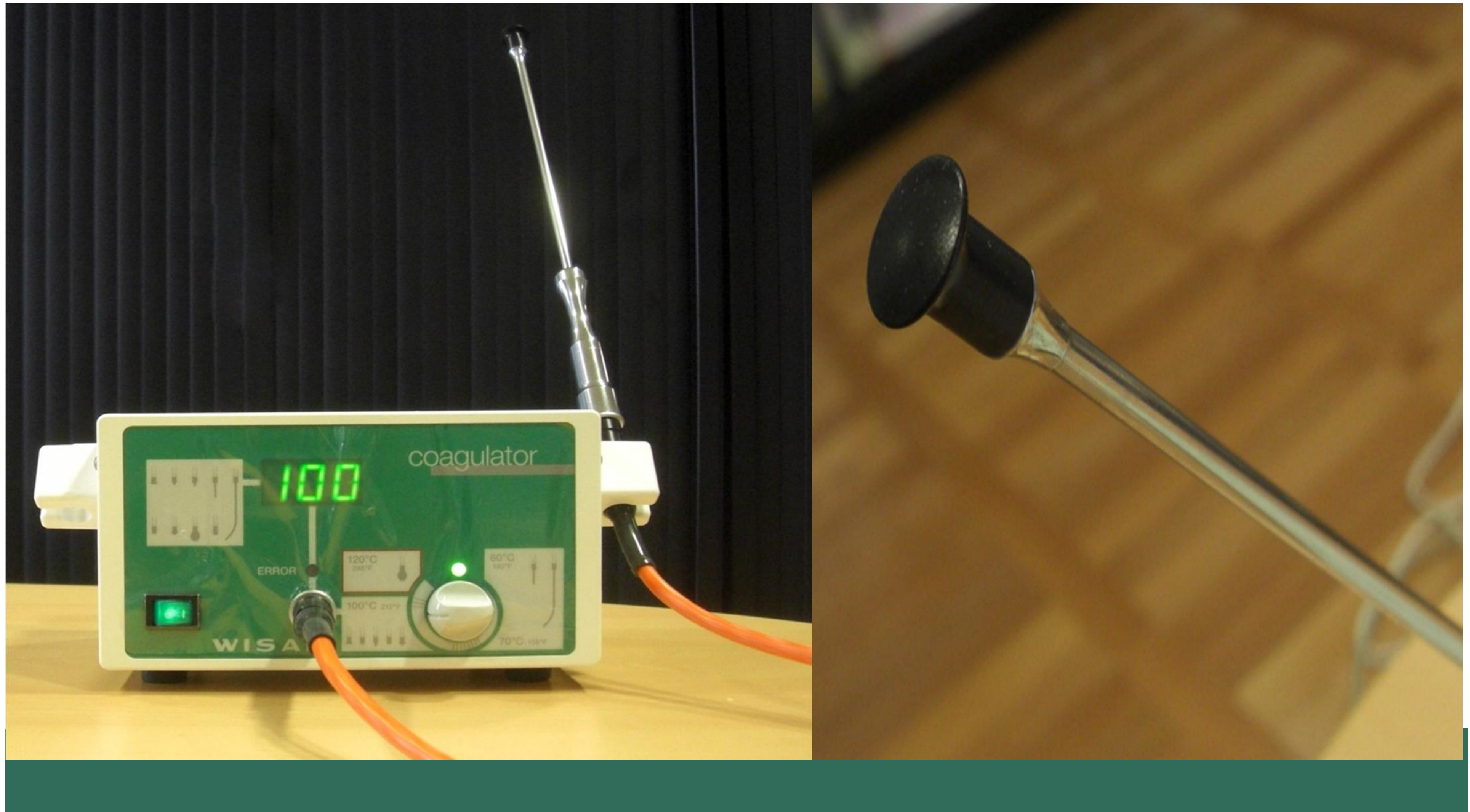
Thermocoagulation

- Treatment of cervical intraepithelial neoplasia and benign cervical lesions using a metallic probe heated to 100-120°C
- Leads to thermal destruction of cervical tissue
- Depth of destruction exceeds 4 mm after 30 seconds treatment

Thermocoagulation : Equipment

- cold coagulator
- Metallic cervical probe
- Wire for electrical connection (if available)
- Colposcope (if available)
- Cervical speculum
- Light source
- Couch

Thermal coagulator: one of the first models (Wizap)



Thermal coagulator: a more recent model (Liger)

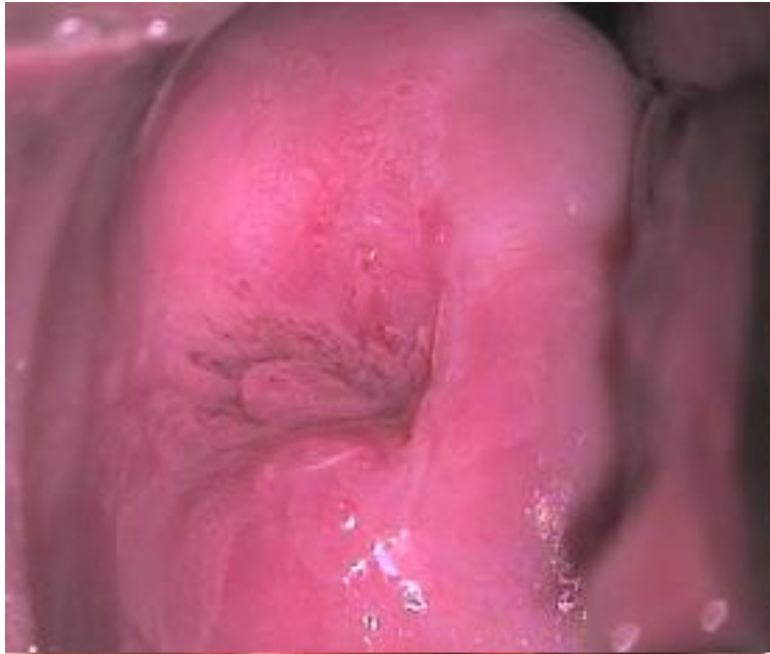
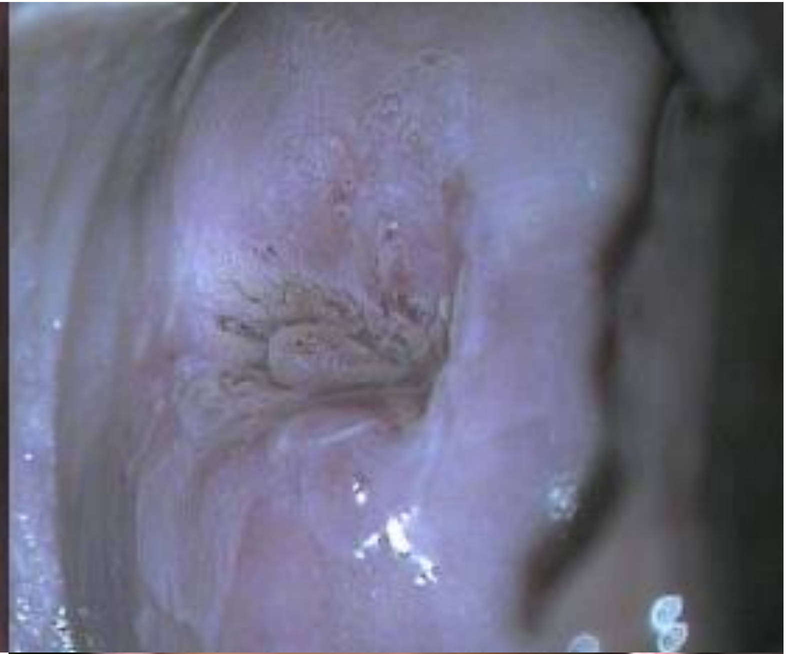
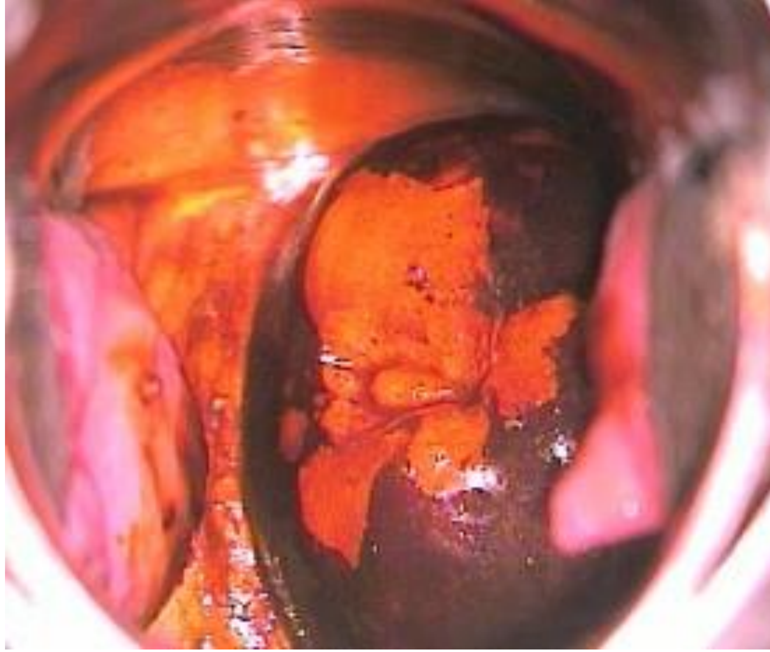
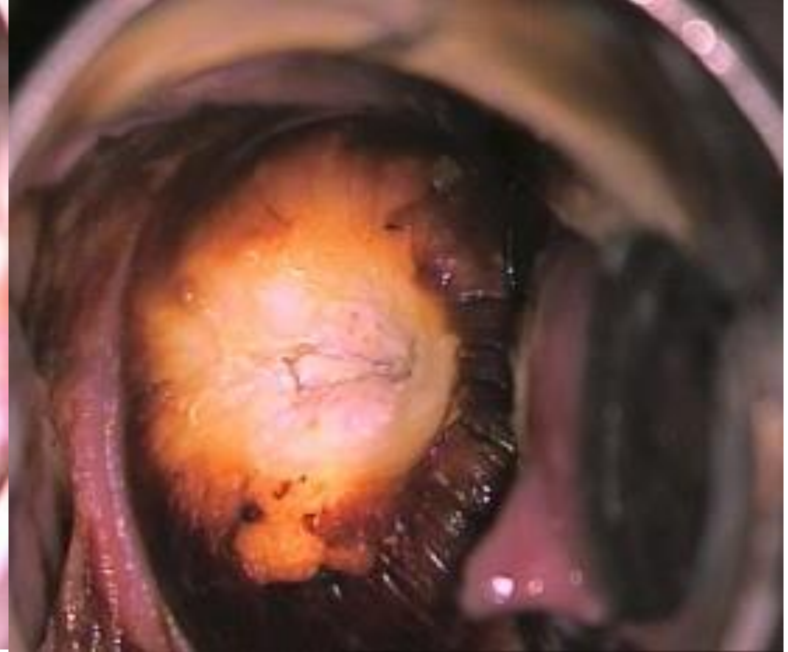
- **Battery powered unit**
- **Electronic temperature stabilizer**
- **LED lights to illuminate the cervix**
- **Probes resistant to autoclave, CIDEX, and Chlorine**

Thermocoagulation: Consumables

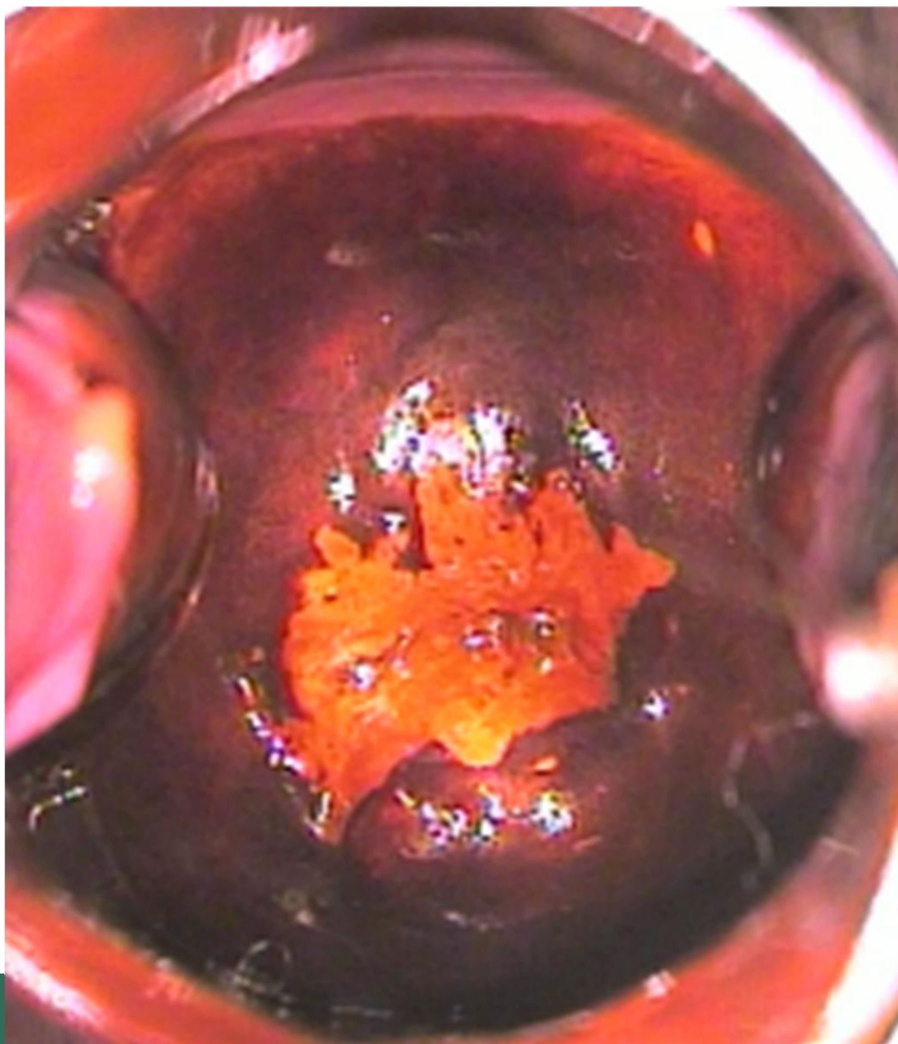
- Cotton swab
- 5% acetic acid and Lugol's iodine
- Electricity (for ancient models)

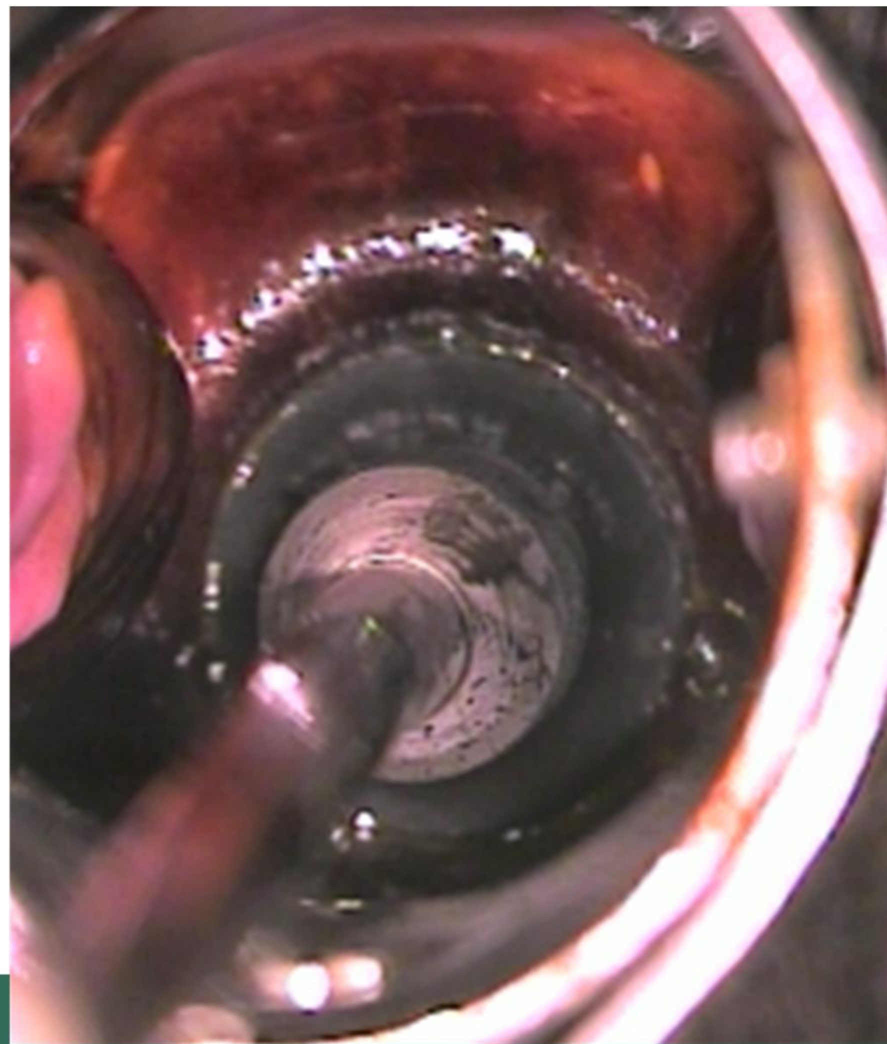
Thermocoagulation: Procedure

- Lithotomy position, cervix adequately exposed
- Delineation of lesion using 5% acetic acid and Lugol's iodine
- Colposcopic control where colposcope is available
- Set the thermocoagulator at 100°C
- Apply the thermocoagulator probe on the cervix and heat for 45 seconds at 100°C
- 1-5 overlapping applications of 45 seconds each can be used to cover the entire lesion
- >90% of lesions require 1-2 applications only

Thermocoagulation





Side effects and complications are extremely rare!

- Mild pain
- Vasovagal reactions (fainting, giddiness, mild cramps)
- Vaginal burns (careless application!)
- Bleeding (extremely rare)
- Pelvic inflammatory disease
- Cervical stenosis
- Vasovagal faints in 2/725
- Cervical bleeding in 6/725

Zawislak et al., Ulster Med J 2003; 72: 10-15

Effectiveness in curing CIN

- 95% cure rate at 1-year and 92% at 5-years among 1638 patients with CIN 3
- 96.5% cure rate among 680 women with CIN 2
- 97.1% cure rate among 485 women with CIN 1

Gordon & Duncan, BJOG 1991; 98: 14-20
Loobuyck & Duncan, BJOG 1993; 100: 465-468

Cure Rate Following Thermocoagulation

- 557 patients with CIN
  - 156 with CIN 1
  - 260 with CIN 2
  - 141 with CIN 3
- 1 year cure rate 95.7%
- Has a 1 year cure rate similar to that of LEEP

Parry-Smith et al., J Low Genit Tract Dis. 2015;19(1):17-21.

Efficacy of *thermocoagulation* in curing cervical precancer lesions

	Total Number	Number assessed	Cured
CIN 1	1,272	539	471 (87.4%)
CIN 2	221	137	113 (82.5%)
CIN 3	121	95	79 (83.2%)

Source: Results from India, Bangladesh and Brazil

For comparison: Efficacy of *cryotherapy* in curing CIN

	Total Number	Number assessed	Cured
CIN 1	2,025	1,550	1,350 (87.1%)
CIN 2	221	159	123 (77.4%)
CIN 3	90	64	49 (76.6%)

Source: Results from India

Post treatment instructions

- Advice on symptoms to expect: mild cramps, blood stained watery discharge
- Use of sanitary pads to prevent secretions staining their clothes
- Avoid:
  - sexual intercourse for 4 weeks from treatment
  - use of vaginal tampon or douche
- Report for follow-up examination after 12 months

Post treatment instructions

- *Report back if any of the following complaints in the 4 weeks following Rx:*
- fever for >2 days
- foul smelling purulent discharge for >3 days
- severe lower abdominal pain/cramps
- Bleeding for >2 days

Follow-up procedures at 6-12 months post treatment

- HPV testing (if available)
- Pap smear (if available)
- VIA and VILI
- Colposcopy (if available)
- Biopsies from abnormal areas
- Repeat Rx with ablative or excisional treatment methods for residual/recurrent lesions based on clinical extent of lesions

Thank you for your attention!