Treatment of cervical precancerous lesions using thermocoagulation (cold coagulation) and cryotherapy

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World Health Organization

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

Principles of treatment of CIN

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

Treatment for CIN

Ablative treatment

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

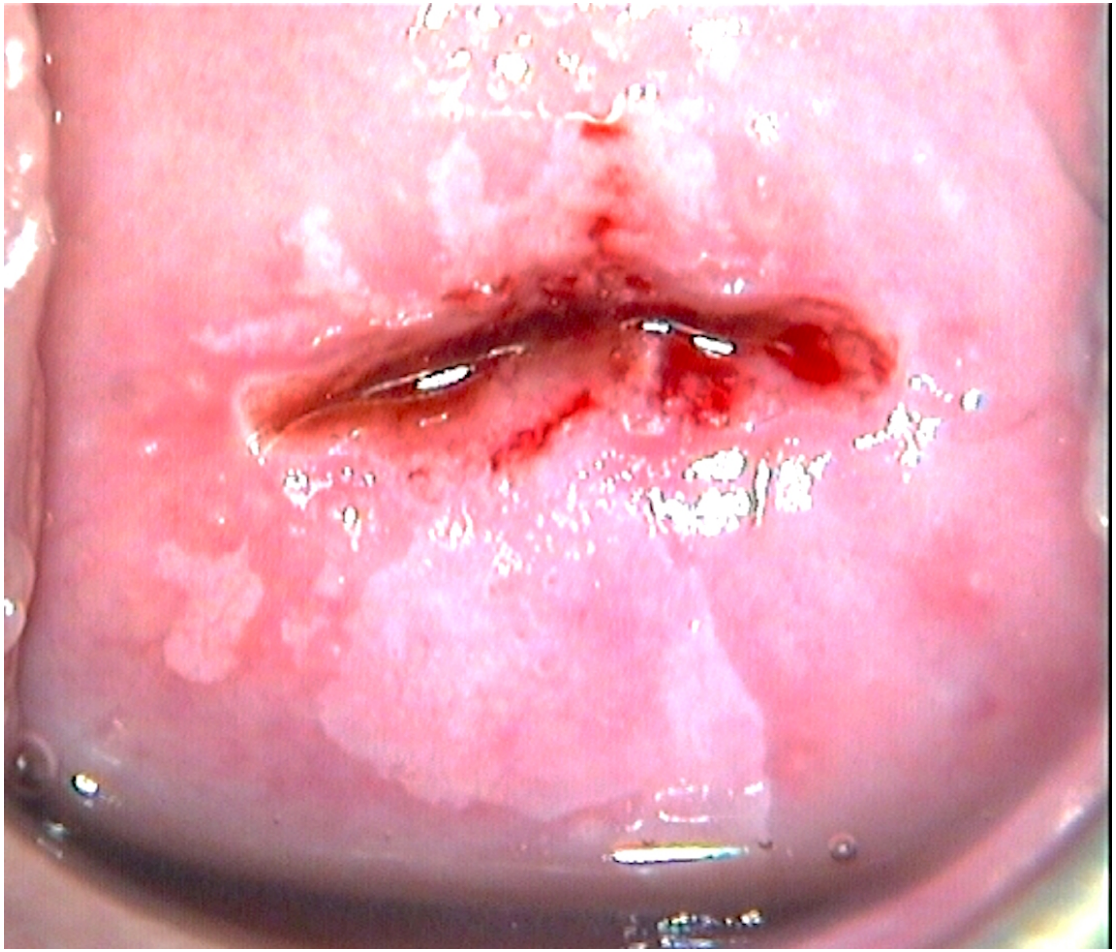
Excision treatment

- LEEP
- Laser excision
- Cold knife conization
- Hysterectomy

Type of transformation zones (TZ)

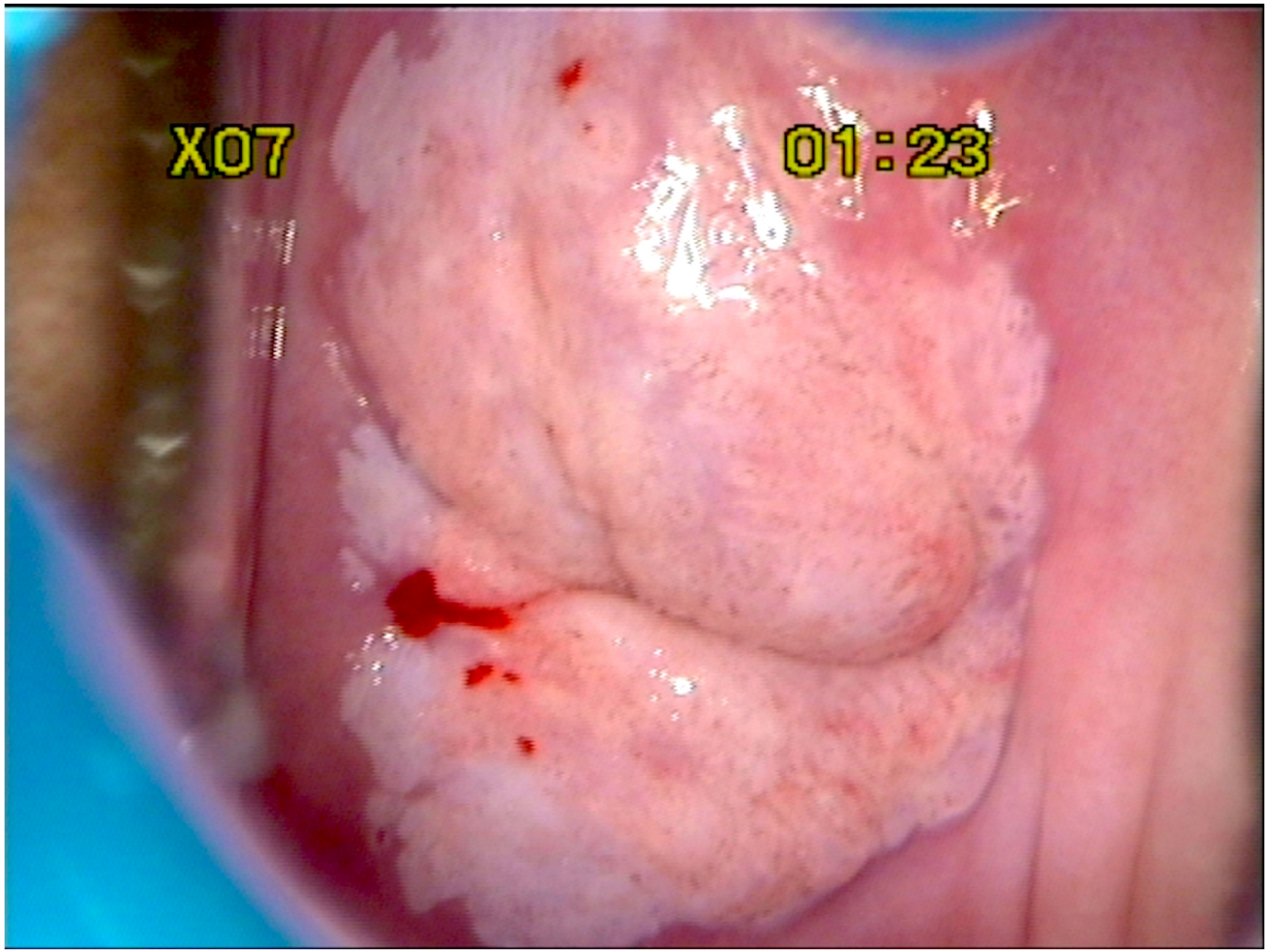
- Type 1: TZ fully visible – SCJ fully visible
- Type 2: TZ partially visible - SCJ partially visible
- Type 3: TZ not visible - SCJ not seen

Type 1: TZ fully visible – SCJ fully visible



Type 2: TZ partially visible - SCJ partially visible

Type 3: TZ not visible - SCJ not seen



Ablative treatment

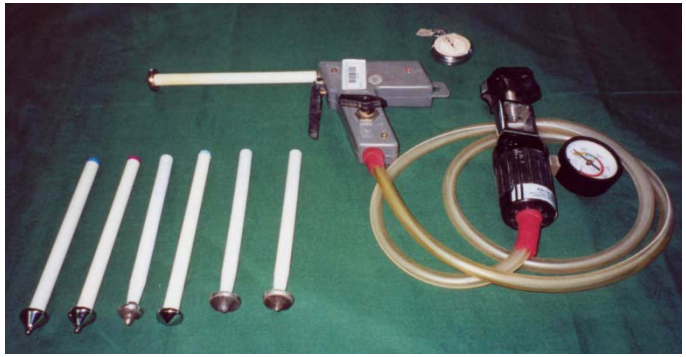
- Type 1 transformation zone (TZ) (fully visible: one can trace the SCJ in its entirety)
- Lesion involves <75% of transformation zone (TZ)
- Lesion is entirely located in the ectocervix
- No endocervical canal or vaginal involvement by the lesion
- No evidence of invasive cancer
- No history of pregnancy
- No menstrual bleeding
- One can direct a biopsy safely before ablative treatment!

Cryotherapy

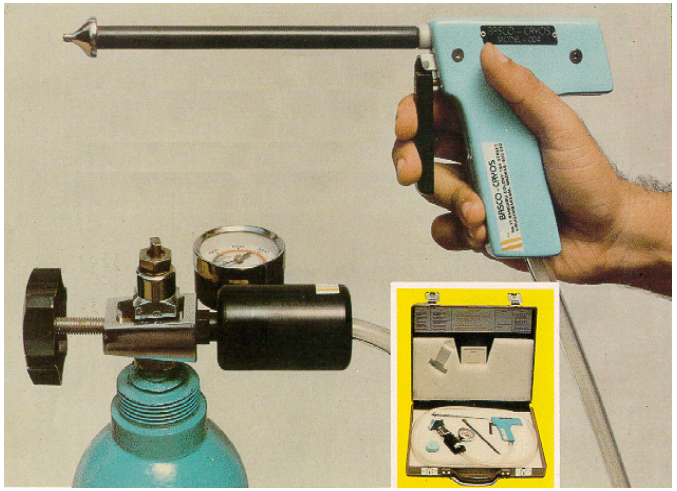
- Safe procedure with “no” complication
- Action by crystallizing the intracellular water
- Temperature at the core of the ice ball: N2O : -89°C; CO_2 : -68°C
- The temperature at the edges of ice ball -20°C

Instruments and equipment

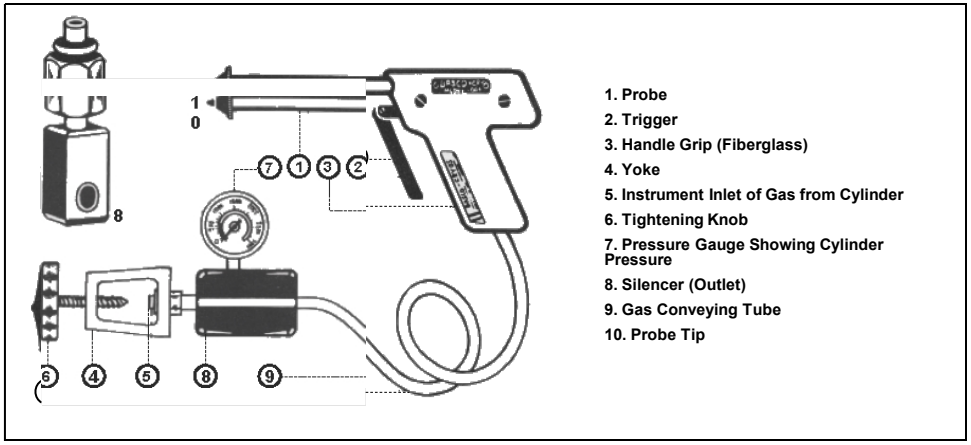
- Examination table
- Halogen focus lamp
- Bivalved speculum
- Instrument tray
- Cryotherapy unit



Cryoprobes, the cryogun, pressure gauge and the stop watch.



Cryotherapy equipment



1. Probe
2. Trigger
3. Handle Grip (Fiberglass)
4. Yoke
5. Instrument Inlet of Gas from Cylinder
6. Tightening Knob
7. Pressure Gauge Showing Cylinder Pressure
8. Silencer (Outlet)
9. Gas Conveying Tube
10. Probe Tip

Cryotherapy equipment components

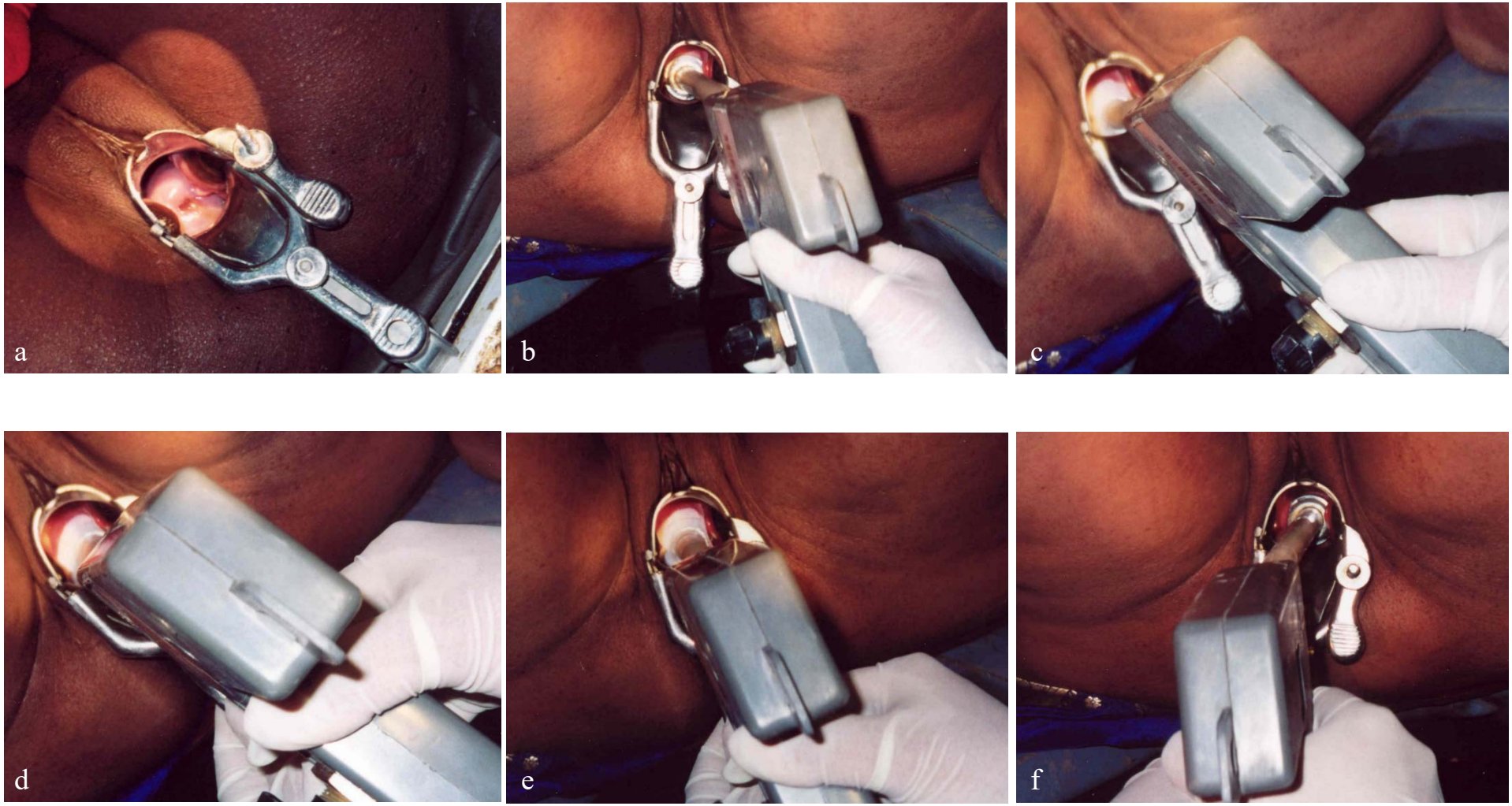
Cryotherapy unit connected to a large gas cylinder (covered with a clean cloth) which is safely placed on a moveable carrier.

Cryotherapy procedure

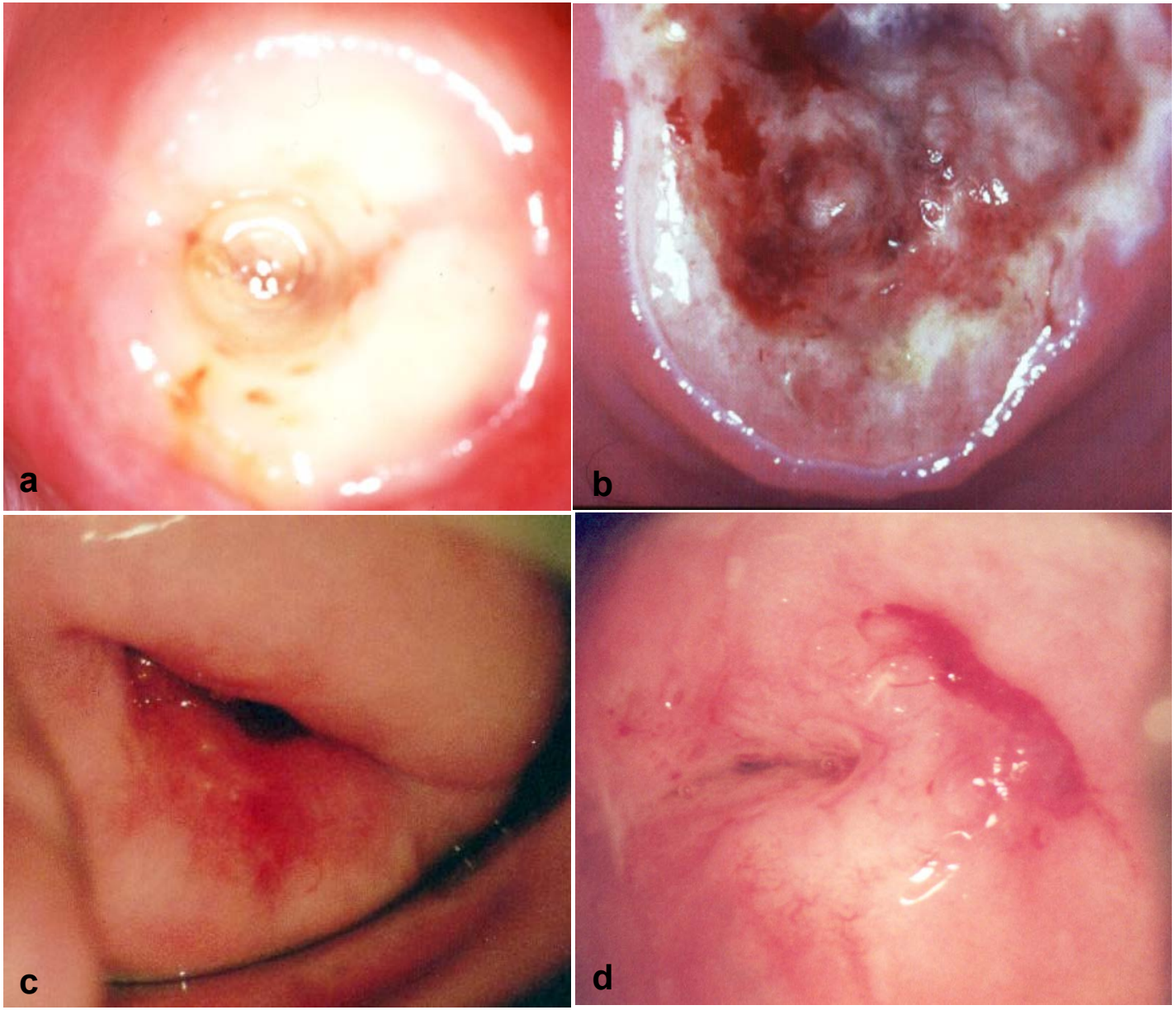
- Woman in modified lithotomy position
- Insert speculum, expose cervix
- Remove discharge, apply acetic acid
- Apply Lugol's iodine, wipe the tip of cryoprobe with saline and apply the cryoprobe in the cervix
- Set timer
- Freeze for 3 minutes
- Wait 5 minutes after first freeze
- Repeat freezing for 3 minutes

Cryotherapy procedure (contd…)

- Wait for cryoprobe to defrost and remove the probe
- Inspect cervix for bleeding
- Remove speculum
- Reassure the woman
- Advise follow-up care



Cryofreezing in progress. Note the cryoprobe covers the lesion well (a, b). Note the iceball formation in c, d and e. Note the appearance after thawing in f.



(a) Note the iceball on the cervix immediately after cryotherapy (b) Appearance 2 weeks after cryotherapy. (c) 3 months after cryotherapy. (d) 1 year after cryotherapy.

Effectiveness of cryotherapy in curing CIN in Indian studies

Cryotherapy	Total	Cured rate at 1 year
CIN 1	1550	1350 (87%)
CIN 2	159	123 (77%)
CIN 3	64	49 (77%)

Sankaranarayanan et al., Br J Cancer, 2007;96:738-43;
Nene et al., Int J Gynaecol Obstet. 2008;103(3):232-6.
Wesley et al., Int J Gynaecol Obstet. 2013;123(1):16-20;

Thermocoagulation (Cold coagulation)

- 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 second Rx cold coagulation

Thermocoagulation (Cold coagulation): Equipment

- Semm cold coagulator
- Metallic cervical probe
- Wire for electrical connection
- Colposcope
- Cervical speculum
- Light source
- Couch

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