

Trattamenti distruttivi ed escissionali con CO2 laser

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Indications for CO2 Laser Surgery by Lesion sites

Cervix

- Benign Cervicopathy
- Viral Cervicopathy
- CIN ± HPV_i

Vagina

- HPV_i
- VAIN
- Doubtful pigmented lesions

Vulva

- HPV_i
- VIN
- Refractory dystrophic lesions
- Early invas. carcinoma (<1mm)
- Local recurrence of ISCC
- Doubtful pigmented lesions

Oral cavity

- Leukoplakia
- Displasia & CIS

Anus

- ↖ HPV_i
- ↖ Fibropapilloma
- ↖ Pigmented lesion
- ↖ AIN
- ↖ Microinvasive SCC

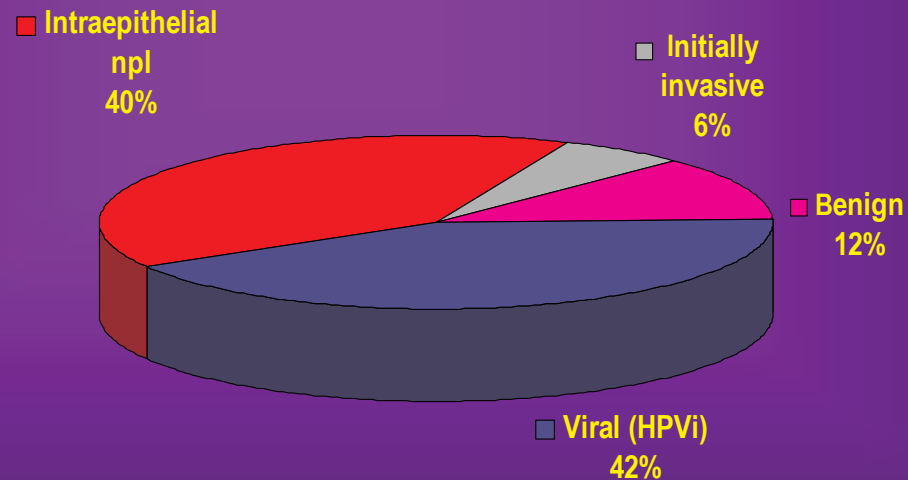
Penis

- HPV_i
- Leucoplasia/Hyperkeratosis
- PIN / CIS
- Early invasive carcinoma
- Doubtful pigmented lesions

INDICATIONS & our experience

% Distribution of 17.960 lesions of the ano-genital area by hystology (1981-2004)

**Cervix
Vulva
Vagina
Penis
Anus**



Cervical Lesions

Indications for CO2 Laser Surgery

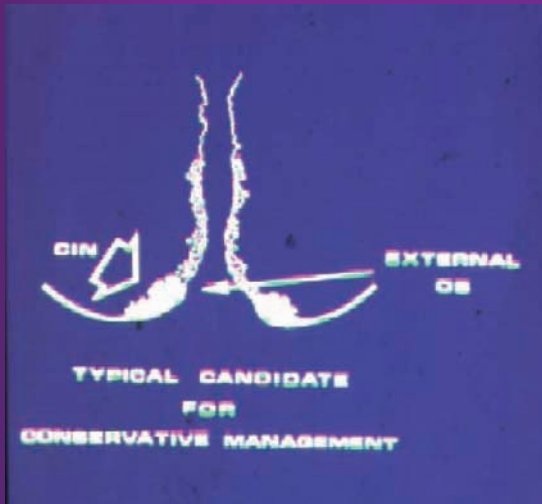
- Benign Cervicopathy
- Viral Cervicopathy
- CIN \pm HPV_i (Vaporization/Conization)
- Persistent CIN (Re-Conization)

Indications for CIN

- Only for therapy: destructive methods
 - cautery
 - laser vaporization (preferable when vaginal extent)
- For diagnosis & therapy: excisional methods
 - laser resection
 - leep

Cervical Lesions

Destructive treatment of CIN: Laser vaporization



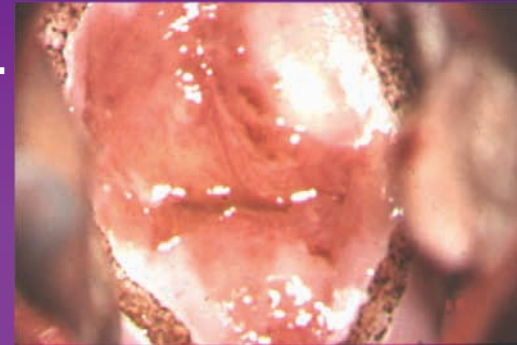
Advantages

- Out-patient treatment without anaesthesia
- Low hemorrhage
- Good aesthetic result
- Possibility to treat infected tissue
- Possibility to graduate the depth of treatment

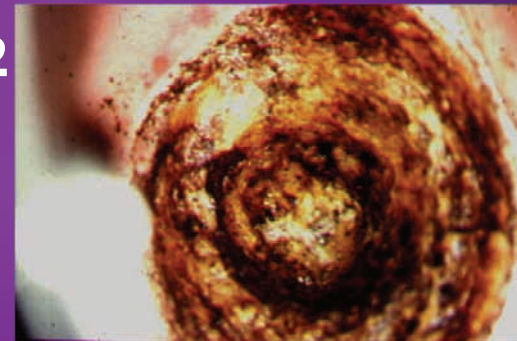
Disadvantages

- High cost of instrument
- Expertise required

1



2



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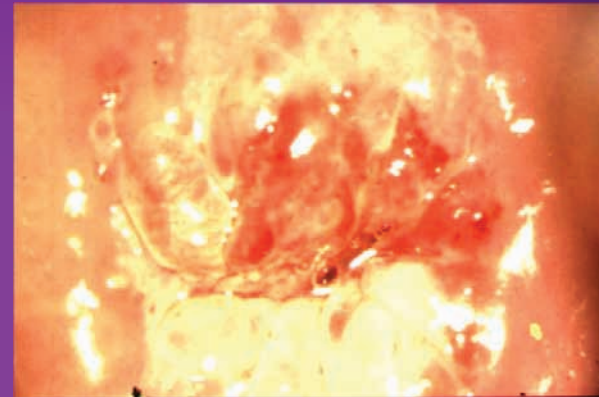


Cervical Lesions

Excisional Conization of the uterine cervix

Classic indications

- ATZ enters the cervical canal
- ATZ is entirely within the cervical canal
- Suspicion of invasive neoplasia
- Suspicion of adenocarcinoma in situ
- Colposcopy inconclusive

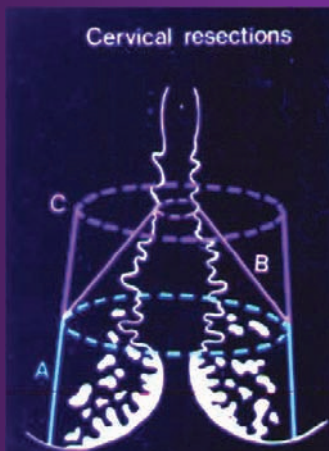
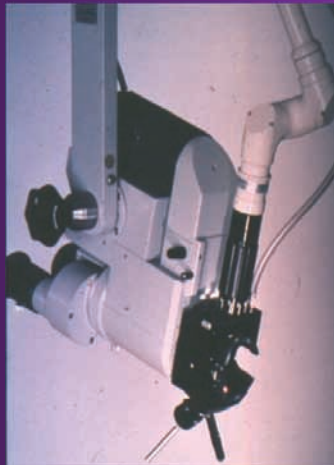


Types of Laser Conization

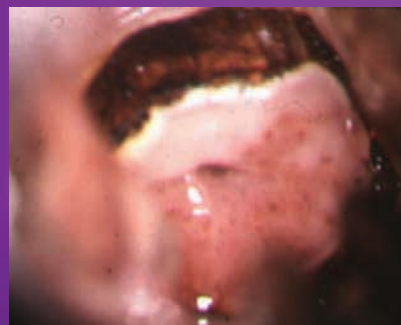
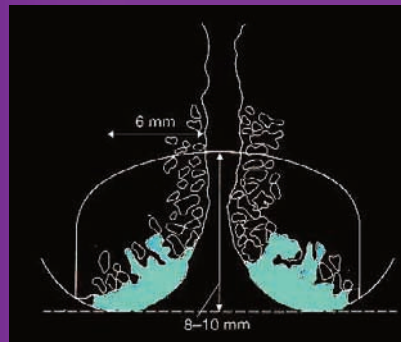
1. Freehand (Obsolete)
2. Microsurgical (Traditional), Dorsey, 1979
3. Assisted by crypt visualization (Guided), Bandieramonte, 1992

Microsurgical Laser conization (Dorsey)

4 Variants and indications

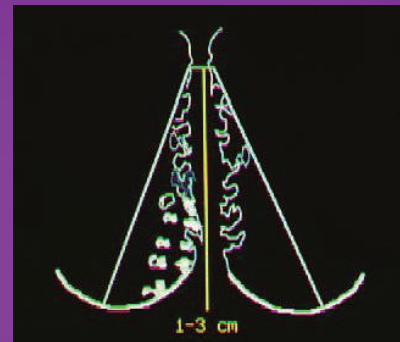


1. Discoid



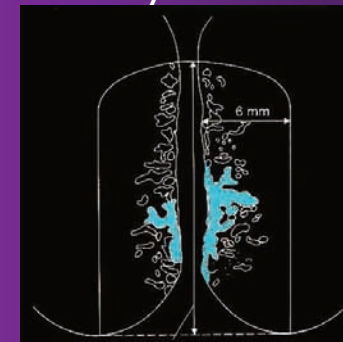
Young woman
Upper limit of the
lesion visible

2. Conoid



Upper limit of the
lesion not visible

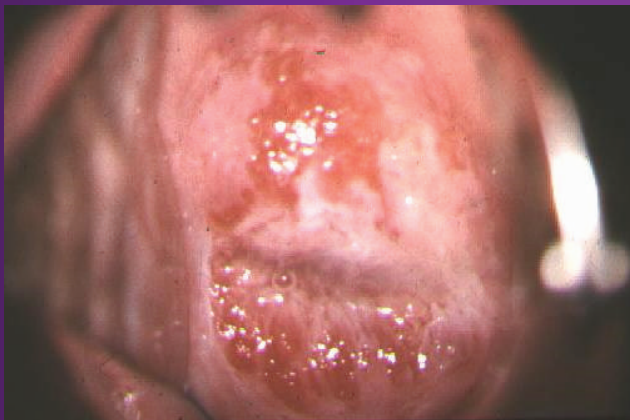
3. Cylinder



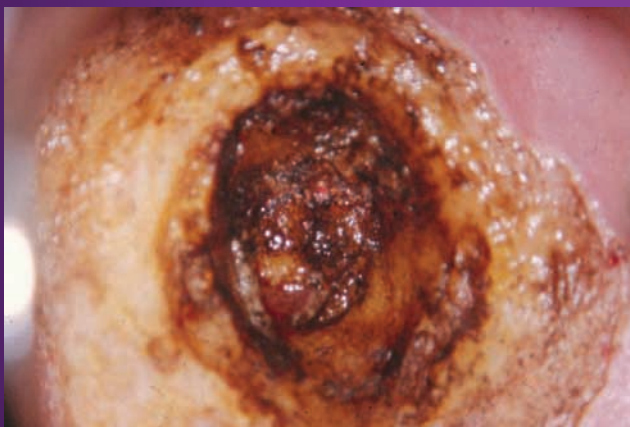
Endocervical disease
Non-young woman
Small cervix

Microsurgical Laser conization (Dorsey)

4. Variante Combinata per CIN eso-endocervicale (resezione centrale+vaporizzazione periferica)



Indicazioni:
ampia estensione
esocervicale
o ai fornici vaginali



Laser Conization Assisted by crypt visualization (Guided),

Obstet. Gynecol, 1998

Methylene blue as surgical marker at 2%
concentration, pH 7.4
Inserted into the endocervical canal with cytobrush



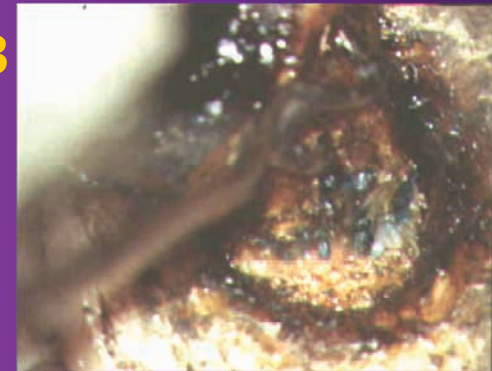
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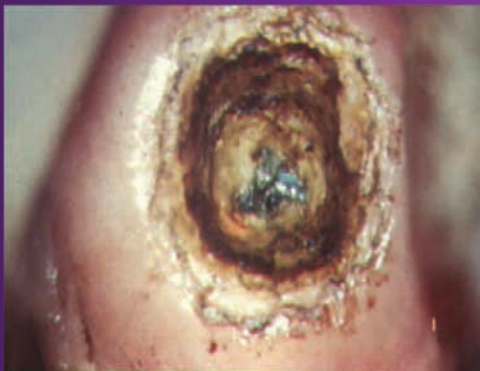
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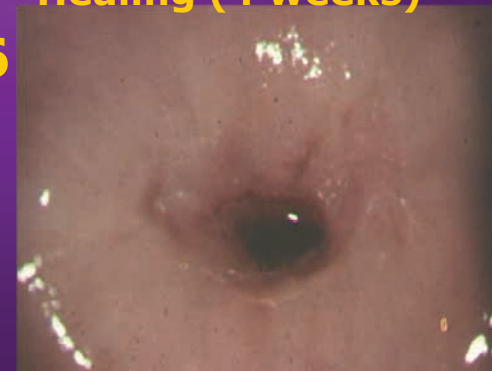
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Laser Conization Assisted by Crypt Visualization (Guided)

Clinical results

Lateral clearance rate:	100	%	
Apical clearance rate:	96	%	
Efficacy rate at 5 years :	98.6	%	(first series, n=147, Obstet. Gynecol, 1998)
" "	99,4	%	(second series, n=498, INT, Milano)

Limitations

- cervical stenosis, post-partum deep laceration;
- expert use & inter operator variability

Specific Indications

- CIN III with endocervical (\pm crypt) extension
- Glandular atypia
- Initially invasive carcinoma

Chirurgia laser vulvare

Indications by method of application

Excision:

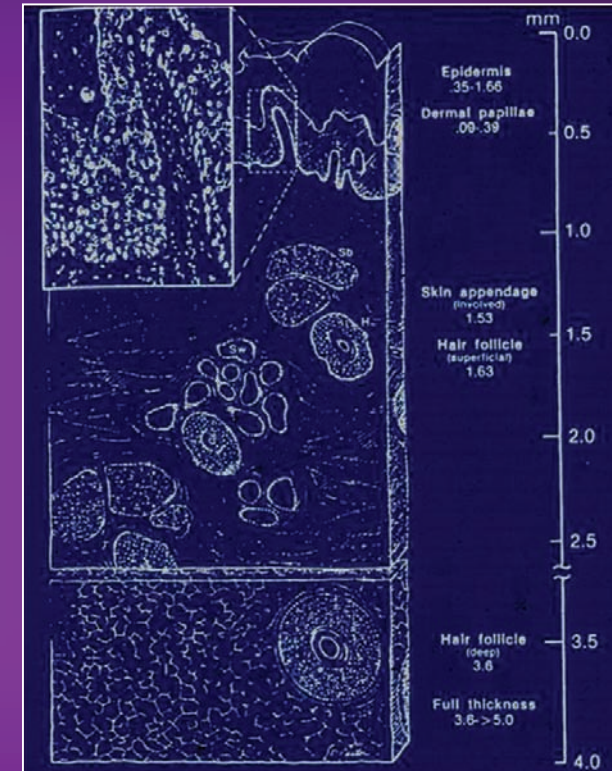
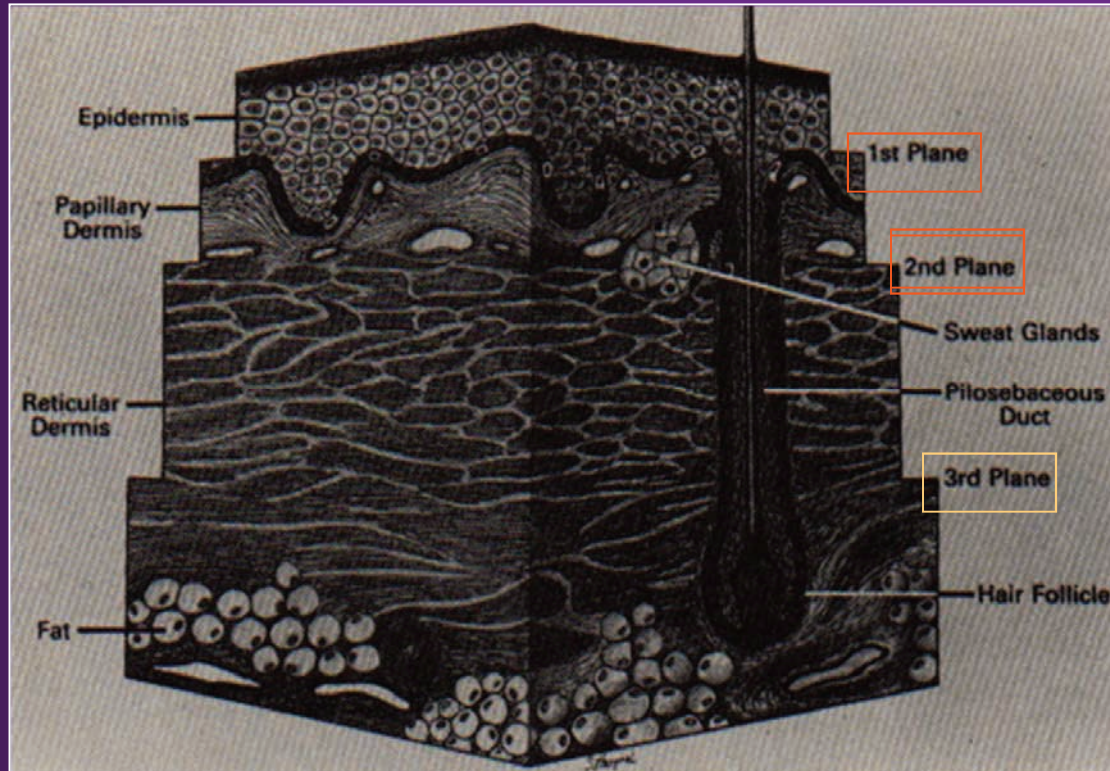
- Clinical HPV_i
- VIN *
- Refractory dystrophic lesions
- Early invasive carcinoma
- Local recurrence of ISCC
- Doubtful pigmented lesions
- Others (inclusion cyst, hyperplastic labia minora)

Vaporization:

- Subclin. HPV_i after histol. assessment; hemangioma,
- Surgical re-modeling of the wound after the excision

Chirurgia laser vulvare

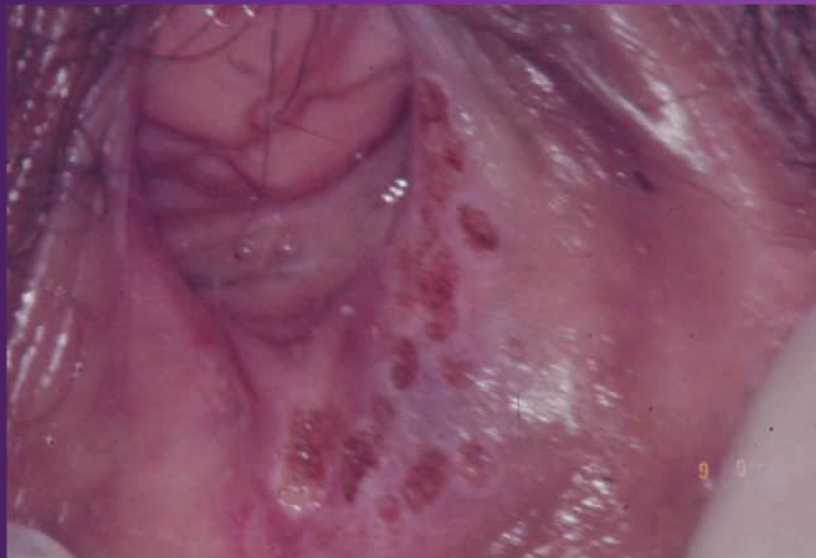
Indications by surgical plane of removal



- 1st :** macular HPV_i
- 2nd :** florid or papular HPV_i
- 3rd :** VIN
 - Doubtful pigmented lesion
 - Refractory dystrophic lesions
- 4th** Early invasive carcinoma
 - Local recurrence of ISCC

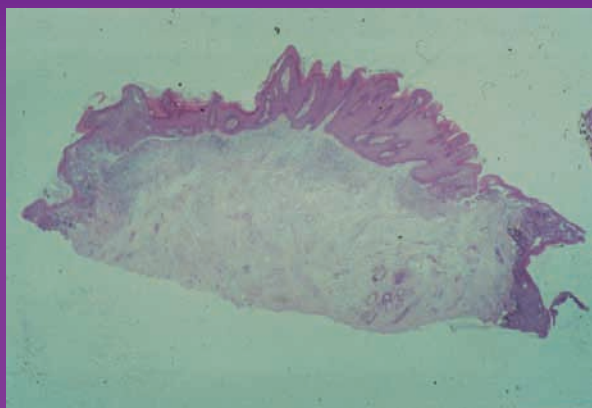
Chirurgia laser vulvare

Subclinical, macular HPVi
epithelial detachment & superficial
vaporization with minimal thermal damage



Chirurgia laser vulvare

Florid HPVi



Giant condyloma

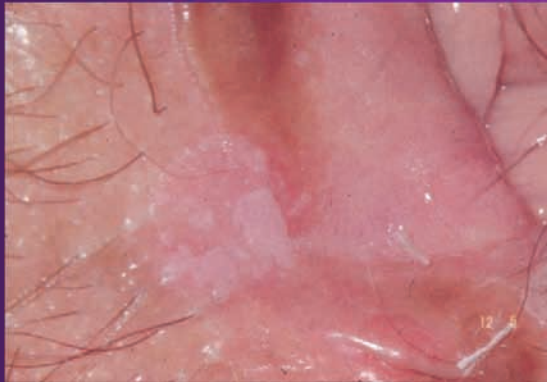


Chirurgia laser vulvare

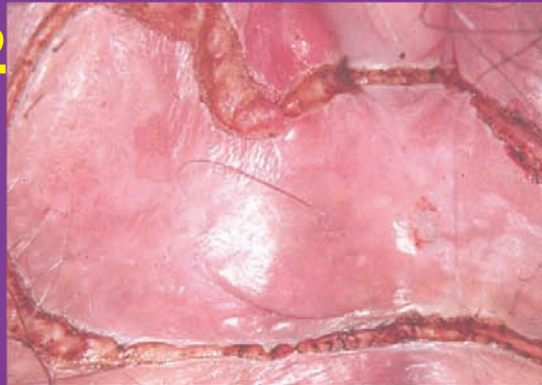
Laser excisional treatment of VIN

- ◆ Clinical presentation: *white lesion*
- ◆ Differential diagnosis: *VIN, HPV*i*, dystrophic lesion*
- ◆ Preoperative histology: *high grade VIN*
- ◆ Treatment plan: *wide laser resection*

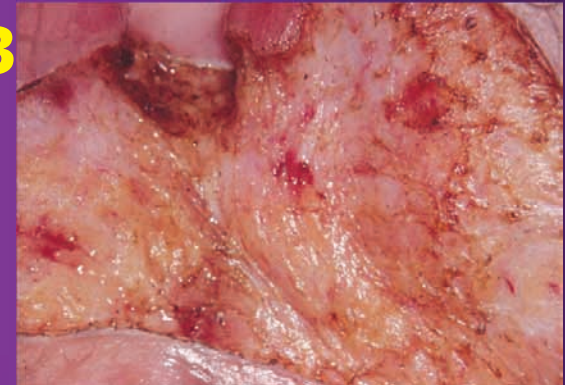
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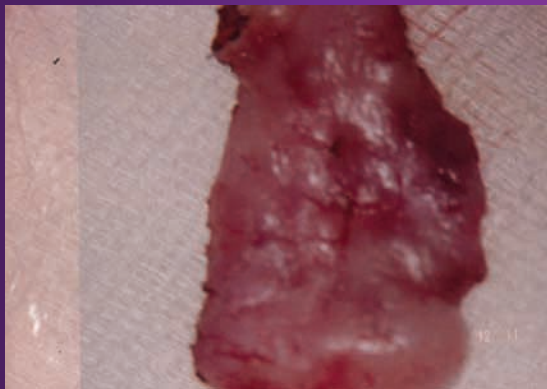
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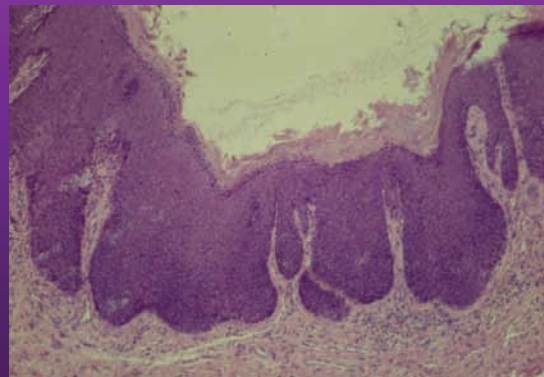
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Chirurgia laser vulvare

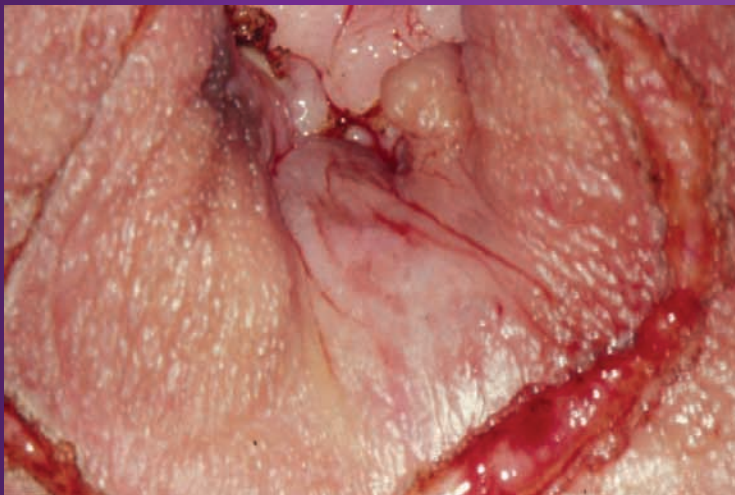
- ◆ Clinical presentation: *dark lesion*
- ◆ Differential diagnosis: *VIN, pigmented lesion*
- ◆ Preoperative histology: *high grade VIN*
- ◆ Treatment plan: *wide laser resection*

VIN
Dark Variety

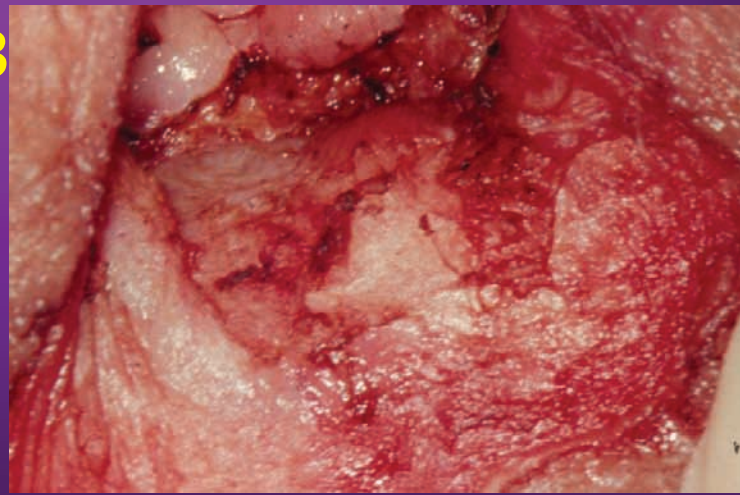
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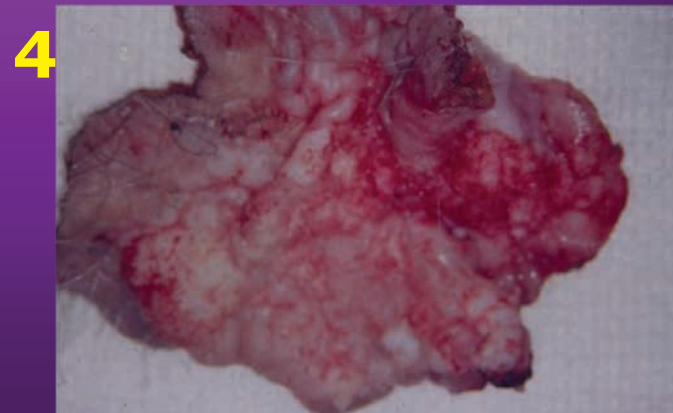


Chirurgia laser vulvare

White Area

- VIN
- HPV
- Dystrophic lesions

Initially Invasive
Squamous Cell Carcinoma
(iISCC)



Chirurgia laser vulvare

Dystrophic
Lesions



Chirurgia laser vulvare

- ◆ Clinical presentation: *dark lesion*
- ◆ Differential diagnosis: *VIN, pigmented lesion*
- ◆ Preoperative histology: *high grade VIN*
- ◆ Treatment plan: *wide laser resection*

Pigmented lesions



Chirurgia laser vulvare

CO2 Laser. Postoperative Care

Local douches with normal saline and antiseptics, two-three time daily

Anaesthetic gel after local douche

Oral analgesics, if necessary

Oral anti-inflammatory drugs.

Loose clothing

First examination 6-8 wks after

Follow-up every 4 mos. for the first year, every 6 mos. thereafter.

CO2 Laser. Postoperative complications

Complications are direct function of the extension of lasered area.

Vulvar synechia occurs when bilateral non-hairy lesions are not removed in two stages.

Scar occurs when the entire cutaneous layer is destroyed.

If resection is performed in many times.

If adequate instructions are given to the patient.

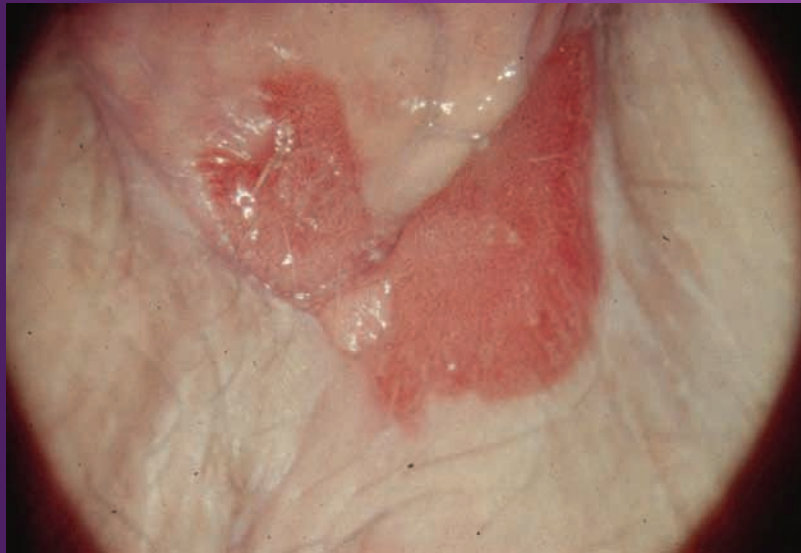
The rate of postoperative complications is about zero.

The major problem in management of VIN does not appear to be recurrence following excision but the fact that these patients are prone to multiple intraepithelial and invasive carcinoma of the lower genital tract with the highest risk when HPV 16 DNA is detected.

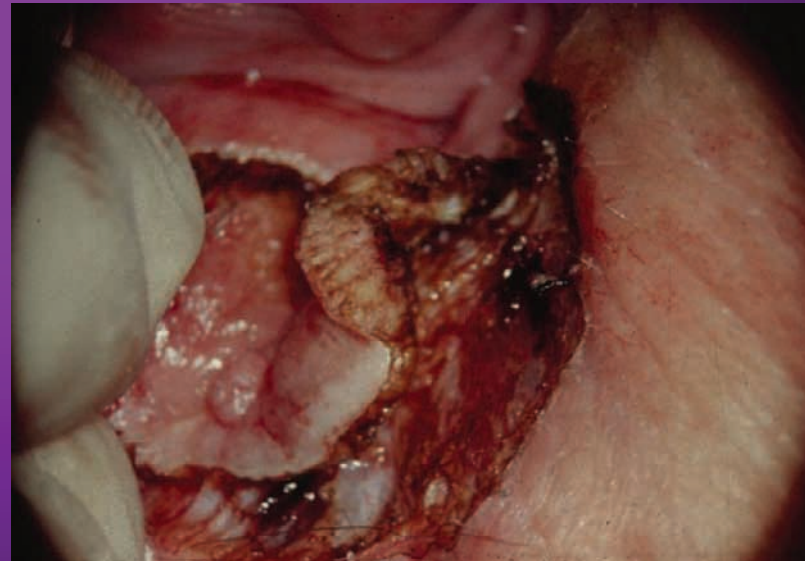
**CO2 Laser Resection
has Effectiveness
in the Treatment of
High Grade VIN**

Chirurgia laser vulvare

Local relapse of squamous cell carcinoma



During laser resection



Lesions of the urethral meatus

Clinical (Florid) HPVi

pre



post



Ectropion (caruncula)

pre



post



Lesions of the Vagina

Vaginal CIS (VAIN): alternative treatment

Scalpel (partial or total vaginectomy)

- A. Danger to bowel & bladder
- B. Bleeding from denuded area
- C. Discomfort & disfigurement from scar tissue

1. Radiotherapy (cancericidal dose)

Results in a rigid, inelastic, fibrotic, narrowed, Shortened vagina

2. Chemotherapy, 5-FU. Unsatisfactory

- ### 3. Laser
- Precise removal
 - Minimal bleeding
 - Maintains vaginal functions
 - Heals by reepithelialization

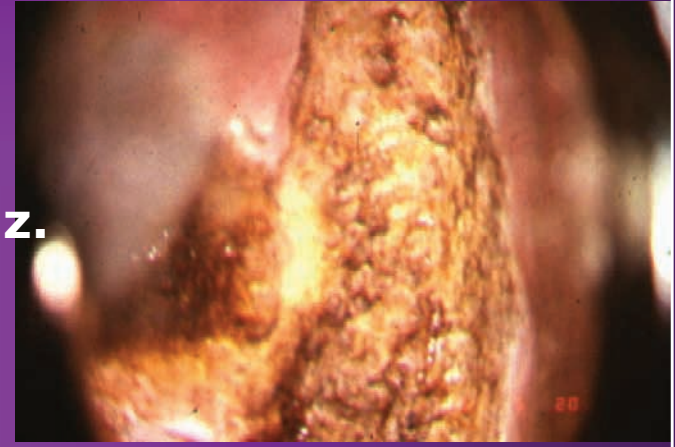
Vaginal lesions

Destructive treatment by laser vaporization

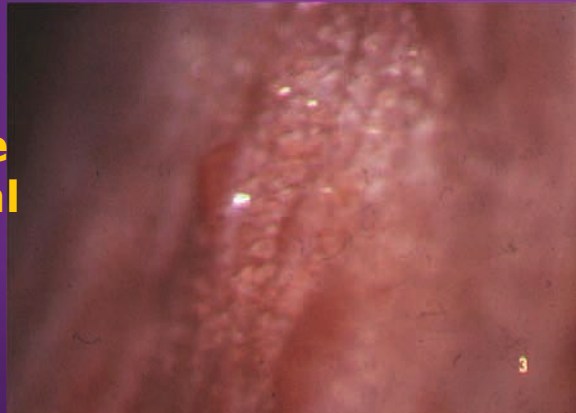
**VAIN of
Posterior
vaginal
fornix,
left view**



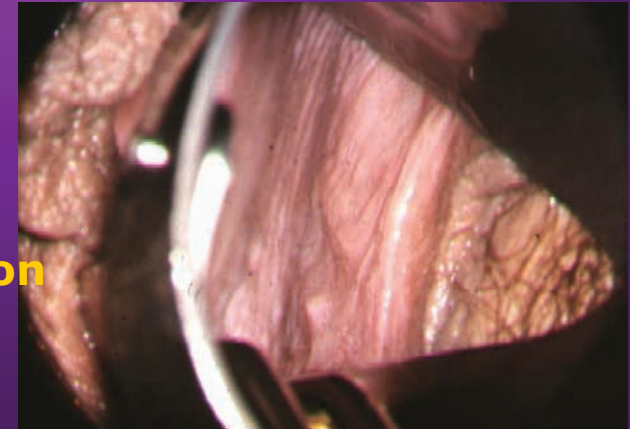
**After
laser
Vaporiz.**



**HPVi of the
Left vaginal
wall**



**Healing
after laser
vaporization**



Vaginal lesions

Excisional treatment of VAIN by laser microsurgery

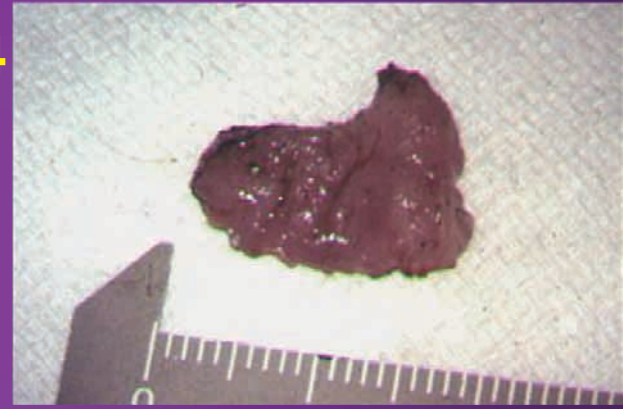
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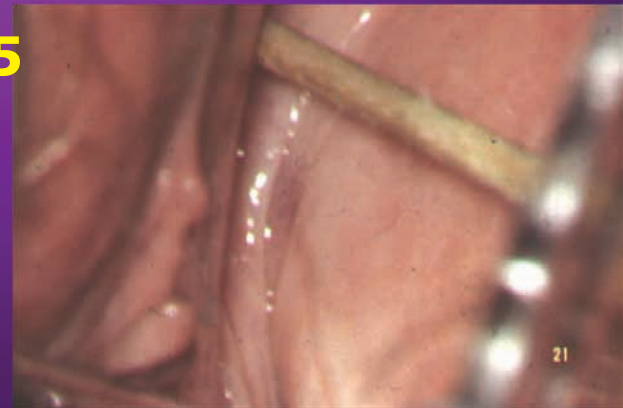
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Chirurgia laser perianale

Main indications
for laser surgery

- ↖ HPVi
- ↖ Fibropapilloma
- ↖ Pigmented lesion
- ↖ AIN
- ↖ Paget's disease
- ↖ Microinvasive SCC



Chirurgia laser perianale

**Perianal
florid HPVi**



**Papillomi
spinocellulari**



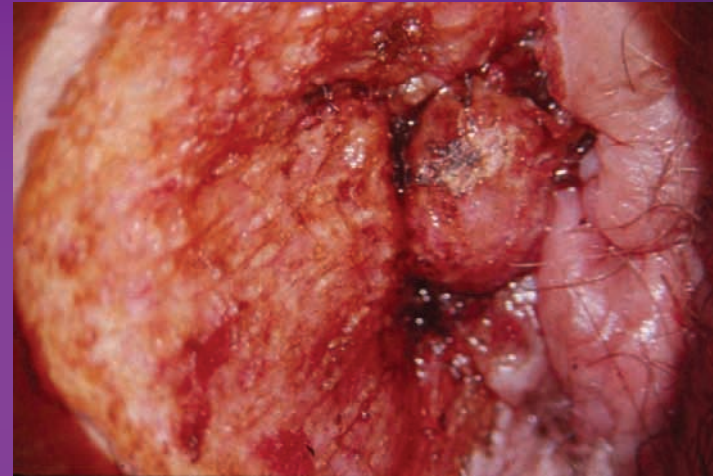
Chirurgia laser perianale

Perianal *in situ* carcinoma (PAIN)

1



3



Healing

2



4



Chirurgia laser perianale

Perianal pigmented lesion



After laser excision



Chirurgia laser perianale

Postoperative care

- Local douches with normal saline & antiseptics 2-3 times daily
- ↪ Anesthetic gel after local douches
- ↪ Stool softeners
- ↪ Oral analgesics & anti-inflammatory drugs if necessary
- ↪ Loose clothing

Eur J Cancer, Vol. 29A, No. 11, pp. 1528-1531, 1993.
Printed in Great Britain

0964-1947/93 \$6.00 + 0.00
© 1993 Pergamon Press Ltd

Laser Surgery for Small Perianal Neoplasms

Gaetano Bandieramonte, Aldo Bono, Stefano Zurrada, Cesare Bartoli and
Giuseppe de Palo

Excisional laser surgery was used to treat 62 patients suffering from perianal, perineal, and anal canal neoplasms. 48 patients had benign epithelial or pigmented tumours, 12 had carcinoma *in situ* and 2 had invasive squamous cell carcinoma. Laser surgery was performed under local anaesthesia, in association with the operating microscope on an outpatient basis. 59 out of 62 patients (95%) had clear margins of resection after primary laser surgery, and 3 patients required a second excision for uncleared margins. 3 patients of the group of carcinoma *in situ* recurred, and 2 had new disease in an untreated area. These patients underwent re-section with the same technique. No significant local complications were observed for single or multiple operations at the perianal and anal canal level. All patients are disease-free in a follow-up ranging from 4 to 113 months, with a median of 25 months. Laser excisional surgery appears to be a suitable method for treating superficial tumours.

Eur J Cancer, Vol. 29A, No. 11, pp. 1528-1531, 1993.

Lesions of the Oral cavity & Dentistry

- Ho:YAG, 2100 nm
- Er:Yag, 2940 nm
- CO₂, 10600 nm

Leukoplakia of the oral mucosa and the labial commissura



Leucoplakia (Hyperkeratosis) of the gingiva



Applicazioni del laser in microchirurgia oncologica per lesioni in sede ano-genitale

Conclusions

Disadvantages

- Expensive machine
- Maintenance
- Safety precaution
- Trained surgeon
- Time consuming in preparation of the machine
- Operating time is longer for inexperienced surgeon
- No touch method (absence of physical contact)
- Less manoeuvrability than scalpel

Advantages

- excision under microscopic control
- possibility of surgical plane selection
- anatomic conservation (minimally invasive)
- local control of the disease
- cosmetic result

Grazie

