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Leaping into LEEP

Patti Power
MD, FRCSC

Innervation of cervix

- Uterovaginal plexus from hypogastric plexus in broad ligament
- More distally the uterine cervical ganglion may be found in the paracervical tissue closest to the cervix

Innervation of cervix

- Sympathetics from T10-L1
- Parasympathetics from S2-S4
- Paracervical block with or without epinephrine provides adequate analgesia

Muscles involved

- Cervix sits above the urogenital diaphragm so no significant effect on pelvic physiology

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Loop Electrosurgical Excision Procedure (LEEP)

LEEP

A few technical points for consideration

- Electrode size
- Waveform
- Power density
- Speed of incision

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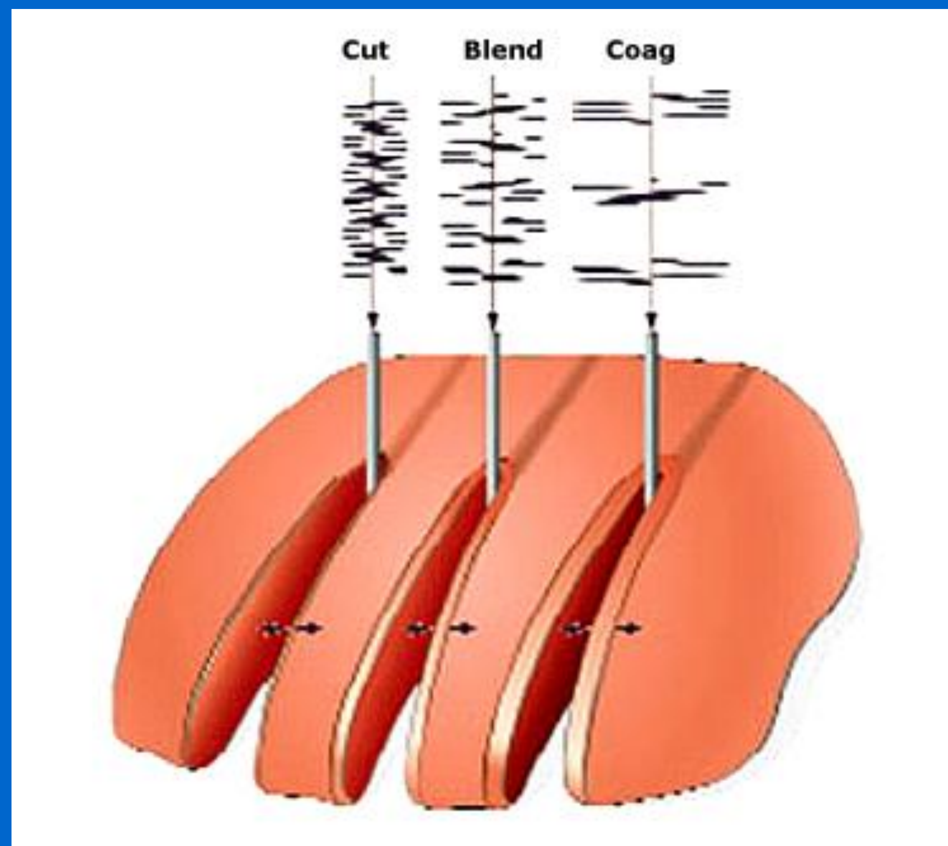
Electrode size

- Tungsten stronger
- Thicker then 0.2 mm can cause deep coagulation (up to 10mm)
- Choose most appropriate size for lesion

Waveform

- Increasing coagulation from pure cut to blended



Power density

- 60 watts generally adequate
- Cutting effect decreases as the loop passes deeper into the issues
  - Need to increase power or speed of the pass to compensate

Power Density

- Choose a machine with low output impedance so constant power delivered to tissue

Speed of incision

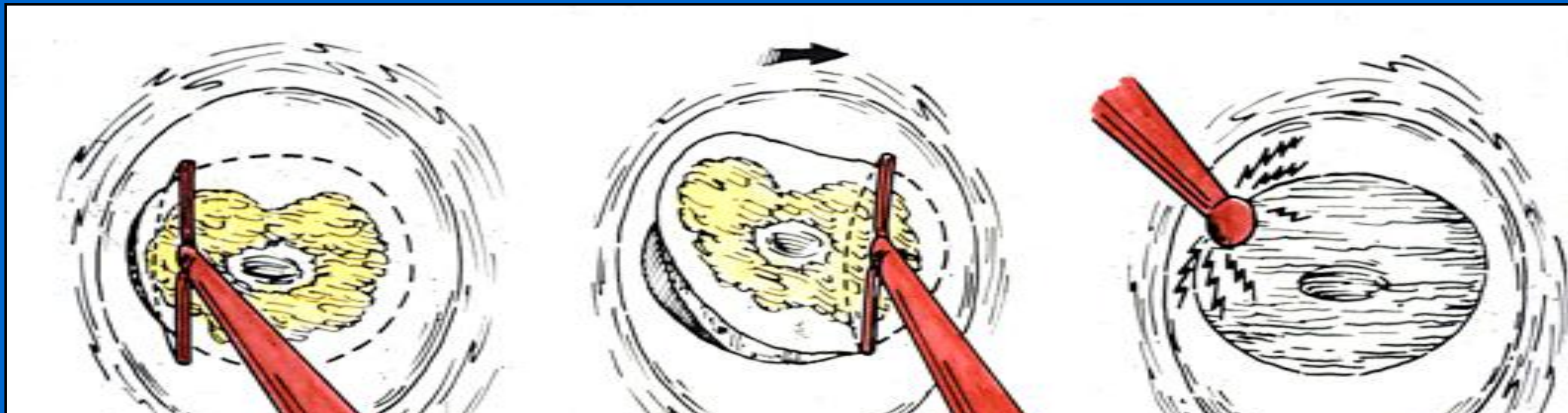
- Tungsten wire generally prevent drag
- Slower pass, more coagulation
- Again, ideally use a machine that maintains constant voltage regardless of tissue resistance

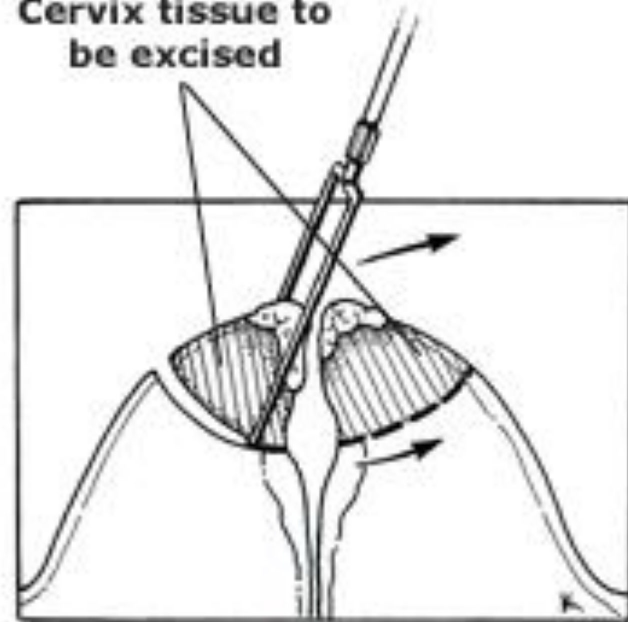
Technique

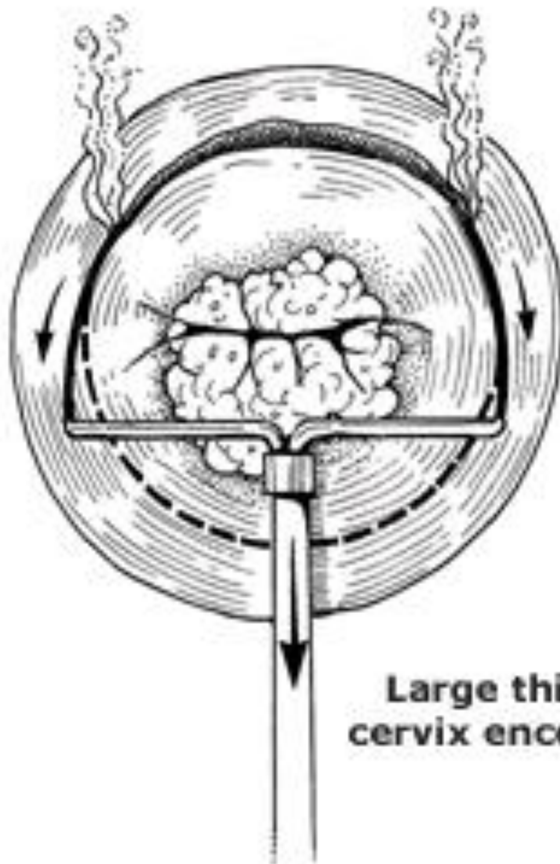
- Electrolytes dissipate current
  - vagina should be rinsed with nonelectrolyte fluid (dilute acetic acid is fine)
- Generator should be started before loop touches the tissues
  - increased thermal damage at start/restart

Technique

- In sum
  - Complete visualization of lesion
  - Appropriately sized rigid loop, steady pace, purest possible waveform
  - Ideally one piece of tissue







Large thin loop used to cut into
cervix encompassing lesioned area

Post LEEP

- Bleeding can almost always be managed post procedure
- No need to sacrifice adequate margin evaluation for hemostasis
- ECC in every patient

When is a LEEP indicated

- American Society for Colposcopy and Cervical Pathology (ASCCP) 2006 consensus guidelines recommends a LEEP
  - Proven CIN2, 3 (with or without satisfactory colposcopy)
  - Recurrent CIN 2, 3

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LEEPs in young women?

- CIN2, 3 (NOS)
  - Observe with colposcopy and cytology up to 24 months provided satisfactory colposcopy
  - If CIN 2 *specified*
    - Observation is preferred
  - If CIN 3 *specified* or CIN 2,3 *persists for more than two years*
    - Excisional treatment

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LEEPs in pregnant women?

– Only if invasion is suspected based on cytology, colposcopic appearance or biopsy

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See and Treat HSIL *cytology?*

- ASCCP not recommending this approach in adolescents and young women due to risks of LEEP
- 2% women with HSIL have invasive cancer so acceptable in appropriate setting

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Risks LEEP

- Intraoperative Bleeding
- Uterine perforation
- Postoperative Bleeding
  - 0-8% LEEP
  - 5-15% CKC
- Infection
  - 0-2% LEEP
  - 0.2-6% CKC
- Cervical stenosis
  - Risk correlates to size of specimen and menopausal status

Risks of LEEP on Future Pregnancy

- Data mostly retrospective but consistent
  - LEEP associated with preterm labor (OR 1.8-3.5)

Samson SL, Bentley, JR et al.Obstet Gynecol 2005;105(2):325-332
Crane JM. Obstet Gynecol. 2003;102 (5 pt1):1058-62
Sadler L et al.JAMA. 2004; 291(17):2100-06

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Risks of LEEP on Future Pregnancy

- PPROM, low birth weights have also been demonstrated
- No evidence to support increased perinatal morbidity or mortality

Samson SL, Bentley, JR et al.Obstet Gynecol,2005;105(2):325-332
Crane JM. Obstet Gynecol. 2003;102 (5 pt1):1058-1062
Sadler L et al.JAMA. 2004; 291(17):2100-2106

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Does size of LEEP matter?

- Probably, but literature is blatantly deficient on volumes/size of LEEP specimens
- Several studies find no difference

Samson SL, Bentley, JR et al.Obstet Gynecol 2005; 105(2):325-332

Special Considerations

- How to Perform a Cold Knife Cone
- Indications for CKC
- Role of LEEP/CKC in AIS/microinvasive cancer
- Clinical Significance of a Positive Margin
- Psychosocial Issues Surrounding a LEEP

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CKCs don’t equal LEEPs

- They 50% longer and 100% ‘heavier’

Fanning J and Padratzik, J. J Reprod Med 2002; 47(1):33-35

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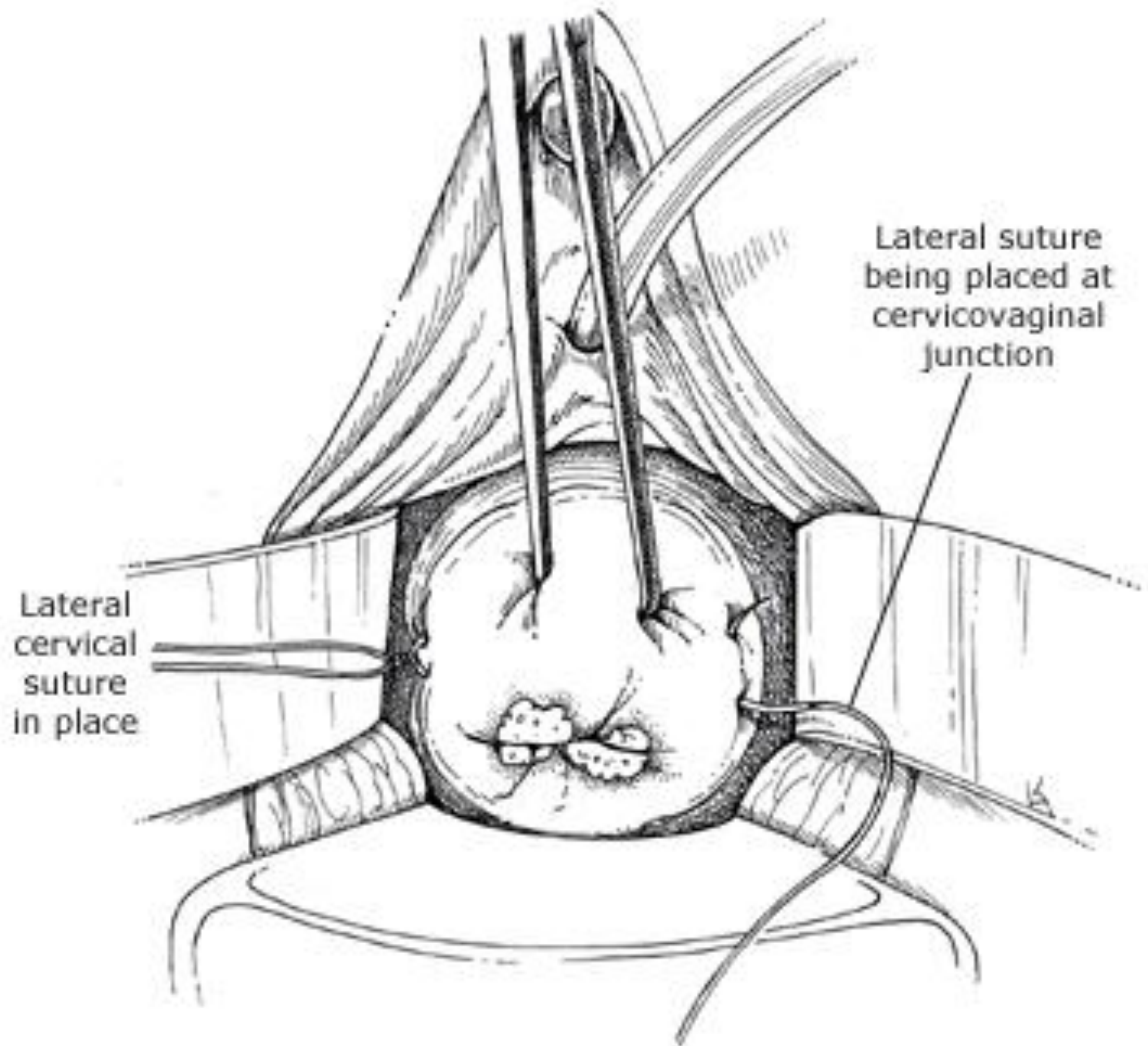
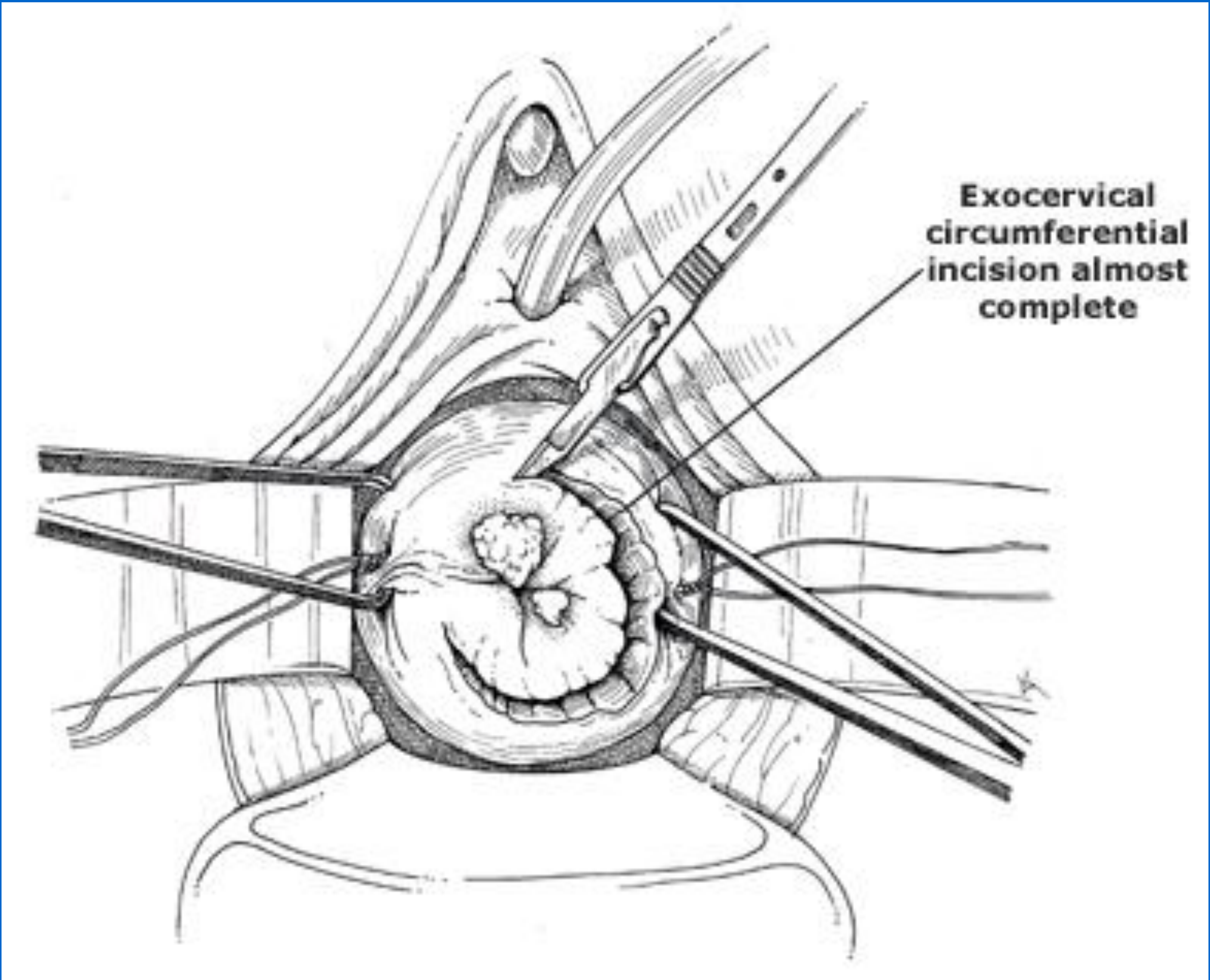
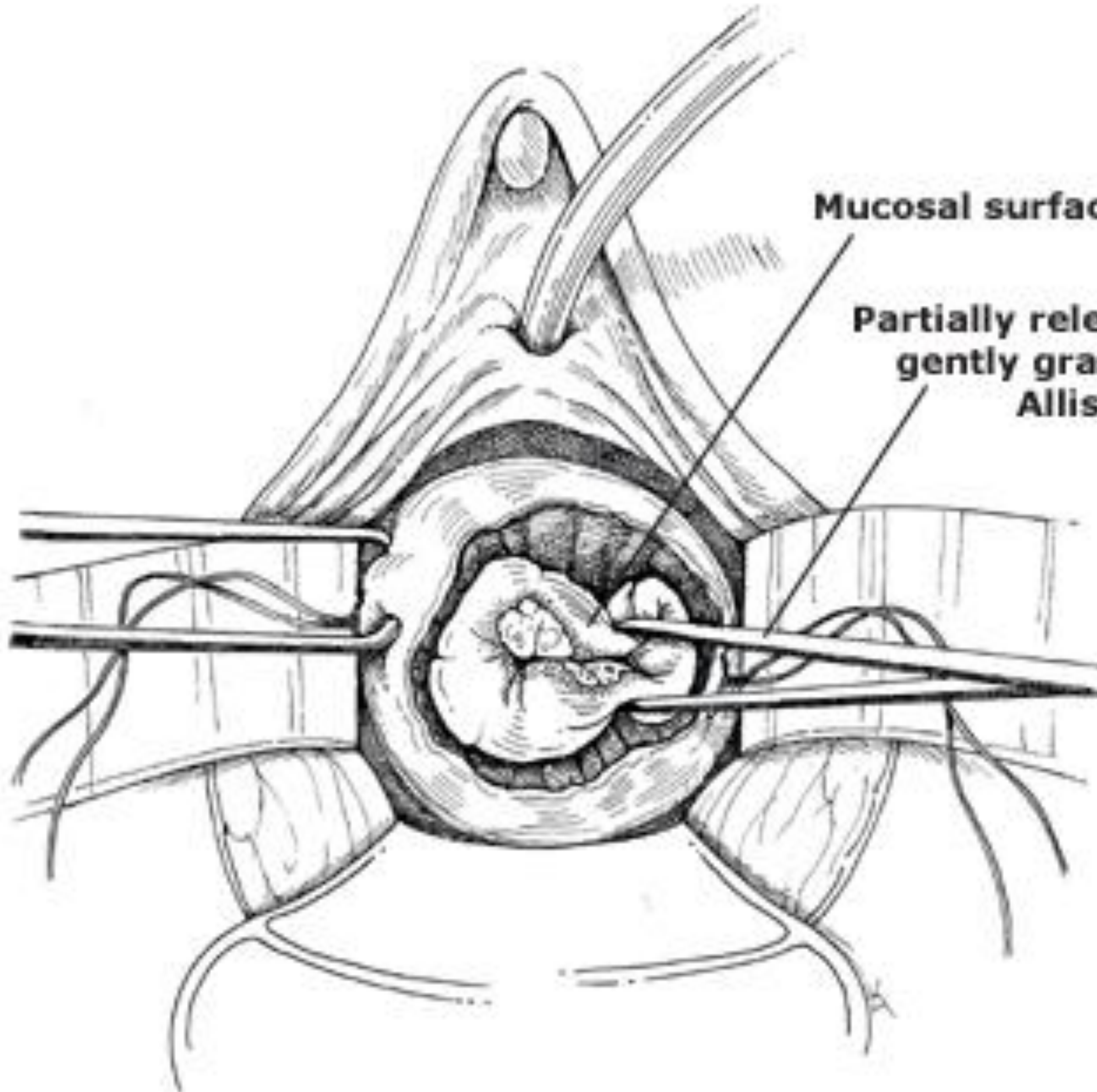
CKC

- Sound uterus
- Visualize the lesion
- Usually general anesthesia
- Hemostatic sutures at 3 and 9 o'clock
- Antibiotics?


Lateral suture
being placed at
cervicovaginal
junction
Lateral
cervical
suture
in place


Exocervical
circumferential
incision almost
complete


Mucosal surface not touched
Partially released specimen gently grasped with an Allis clamp

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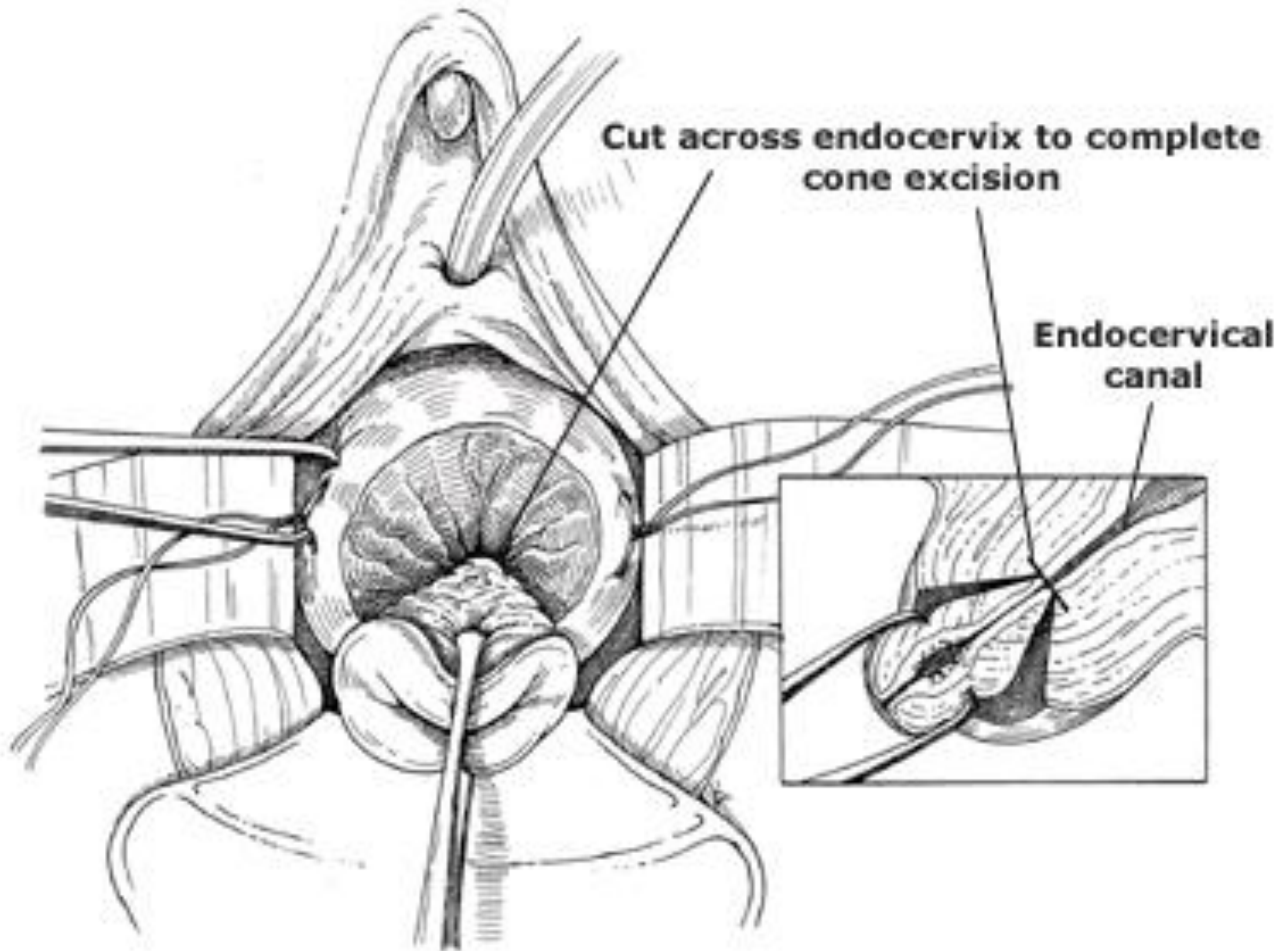

Plus ECC!

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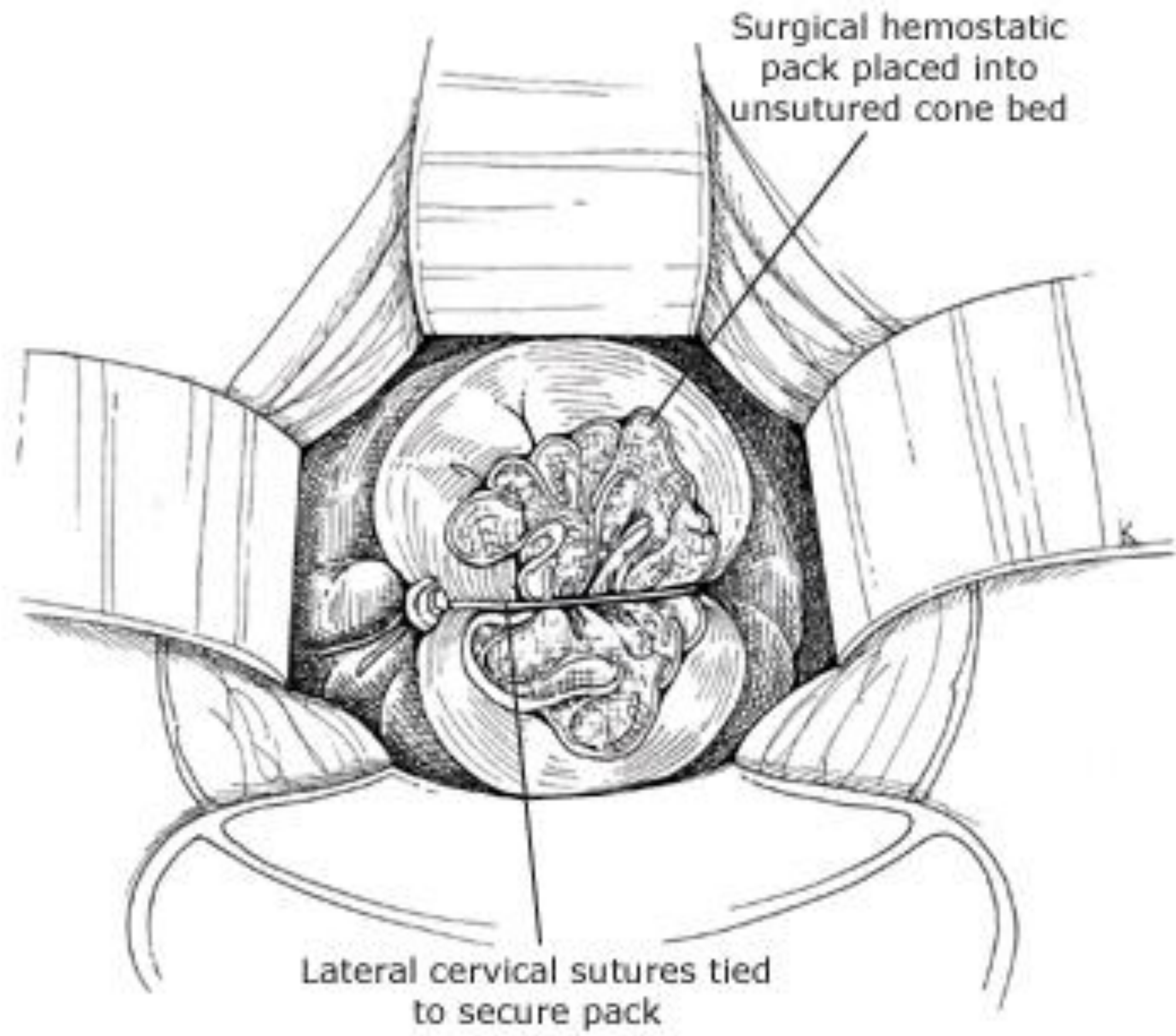

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Adenocarcinoma in situ

AIS

- Difficult to determine extent of AIS lesion
- Lesion often extends a considerable distance into canal
- AIS often multifocal and frequently has skip lesions

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LEEPS with AIS?

- With negative margins overall failure rate ~8%
- Higher rates of margin positivity and recurrence rates with LEEP vs. CKC

Soutter WP et al. BJOG. 2001;108(11):1184-1189
Bryson P et al., Gynecol Oncol. 2004; 93(2):465-468
Akiba Y et al. J Obstet Gynaecol Res. 2005; 31(3):252-256
Anderson ES and Nielsen K. Gynecol Oncol 2002;86(3):365-369

AIS

- Negative margins *does not* necessarily mean complete excision
- Simple hysterectomy is still standard of care when childbearing complete

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Microinvasive Cancer

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LEEP versus CKC in Microinvasive Carcinoma

- Retrospective review assessing histologic accuracy between LEEP/CKC and hysterectomy specimens
  - 63 consecutive pts
  - 35 CKC, 28 LEEPs

Tseng, CJ at al. Int J Gynecol Cancer 2006; 16: 1574-1578

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LEEP versus CKC in Microinvasive Carcinoma

- There was inadequate pathologic evaluation :
  - 11% LEEPs vs 0% of the CKCs
  - tissue *transection* and *orientation* main reason

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Conservative Treatment of Microinvasive Cancers

- 95% overall survival at 5 years
- With negative margins overall recurrence rate 10.3%
  - Invasive recurrence ~ 7%

Raspagliesi, F et al., Crit Rev Oncol Hem. 2003;48(3):251-268

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Positive Margins

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Positive ECC at time of cone

- In small retrospective studies PPV very high in determining residual AIS or adenocarcinoma
- Need another excisional procedure

Lea JS et al. Gynecol Oncol.2002; 87(1):1129-1132

Positive CIN III margins

- Retrospective study of CKCs (n=360)
  - ~22% risk of CIN III recurrence
- Most recurrences within the first year
- Endocervical margin *and* ectocervical positivity
    - 52% recurrence
  - Ectocervix positivity
    - 17% recurrence
  - Endocervix positivity
    - 21% recurrence

Reich O et al. Obstet Gynecol. 2002; 99(2):193-6

Quality of Life Data

…yes! Even for LEEPS!

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It is distressing

- 81% colposcopy pts and 65% LEEP pts had significant anxiety based on Hospital Anxiety and Depression Scale (HADS)
- Face to face education and support *post colposcopy* can decrease distress at subsequent colposcopy visits

Le T et al. Int J Gynecol Cancer. 2006;16(3):1089-1093

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In sum

- Become familiar with equipment
- Reconsider appropriateness of excisional procedure in young women
- Discuss the risks with patients

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In sum

- CKC preferred for glandular lesions and microinvasive cancers although preterm labor in young women is a consideration
- Pay close attention to margins and interpretability
- Talk to the patients after the procedure!