

# Lecture 3: Complications of diagnostic and operative Hysteroscopy

BSGE Approved Course

Dubai

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# Complications of diagnostic Hysteroscopy

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- Avoidance and management of Complications
  - Diagnostic
  - Operative
- The Outpatient setting – special considerations
- Conclusions



# Complications of diagnostic Hysteroscopy

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- Complications
  - Anaesthesia
  - Perioperative complications
    - Trauma & Haemorrhage
    - Distention media
  - Post operative complications
    - Short term
      - Pain
      - Bleeding
    - Long term
      - Infection
      - Ashermans



# Complications of diagnostic Hysteroscopy

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- Complications - Anaesthesia

- Inadequate anaesthesia – esp if high uterine pressures
- Vaso vagal response – may need atropine administration
  - Incidence 1.85% rigid v 0.21% flexible scopes  $p=0.00013$ 
    - JAAGL 2004 Agostini et al
- Uterine overdistention – tachycardia
- Prolonged anaesthesia



# Complications of diagnostic Hysteroscopy

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- Complications
  - Perioperative complications
    - Trauma
      - Vulvo - Vaginal
        - Tears due to atrophic changes
      - Cervical
        - Volsellum tears / bleeds
        - Bleeding - trauma of cervical vessels
        - False passage (1 – 5% of cases)
      - Uterine
        - Endometrial bleeding
        - Perforation (<1% of cases)



# Complications of diagnostic Hysteroscopy

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- Avoidance
  - Perioperative complications
    - Vulvo vaginal tears
      - Adequate lubrication
      - Gentle use of speculum / handling of tissues
      - Use of pre operative local estrogens
      - Vaginoscopic approach



# Hysteroscopy

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- Vaginoscopy

- Stefano Bettocchi JAAGL 1997 Curr Op Obstet Gynecol

- Proposed vaginoscopic approach

- Reduced discomfort - no additional complications

- Sharma Magos BJOG 2005

- 120 women, 60 traditional v 60 no touch technique

- Traditional 27% v No touch 10% local anaesthetic requirements



# Complications of diagnostic Hysteroscopy

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- Avoidance
  - Perioperative complications
    - Cervical lacerations
      - Avoidance of over excessive traction with volsellum
      - Avoiding dilatation of cervix – use of hydrostatic pressure to dilate cervix
      - Gentle dilatation of cervix if required at all
      - Priming of cervix prior to procedure with oral / vaginal misoprostol if Cx stenosis
      - Careful removal of volsellum at end of procedure (not blindly ripping off)



# Complications of diagnostic Hysteroscopy

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- Avoidance

- Perioperative complications

- Cervical canal bleeding / trauma / false passage

- Continuous visualisation of canal when inserting hysteroscope
- Patient slow insertion of hysteroscope (allow saline to distend canal)
- Avoidance of excessive force during dilatation / insertion of hysteroscope
- Correct steering of hysteroscope (remember 30 degree fore-oblique - canal must be at 6 o clock)



# Complications of diagnostic Hysteroscopy

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- Avoidance

- Perioperative complications

- Uterine perforation / bleeding

- If dilating minimise progression of Hegar dilator into uterine cavity (stop @ snap)
  - minimises endometrial & uterine trauma
  - minimises risk of false passage
  - maximises view
- Continuous visualisation of canal / lower uterus when inserting hysteroscope into internal os / cavity
- Allow cavity to distend fully and debris to wash away before continuing inspection

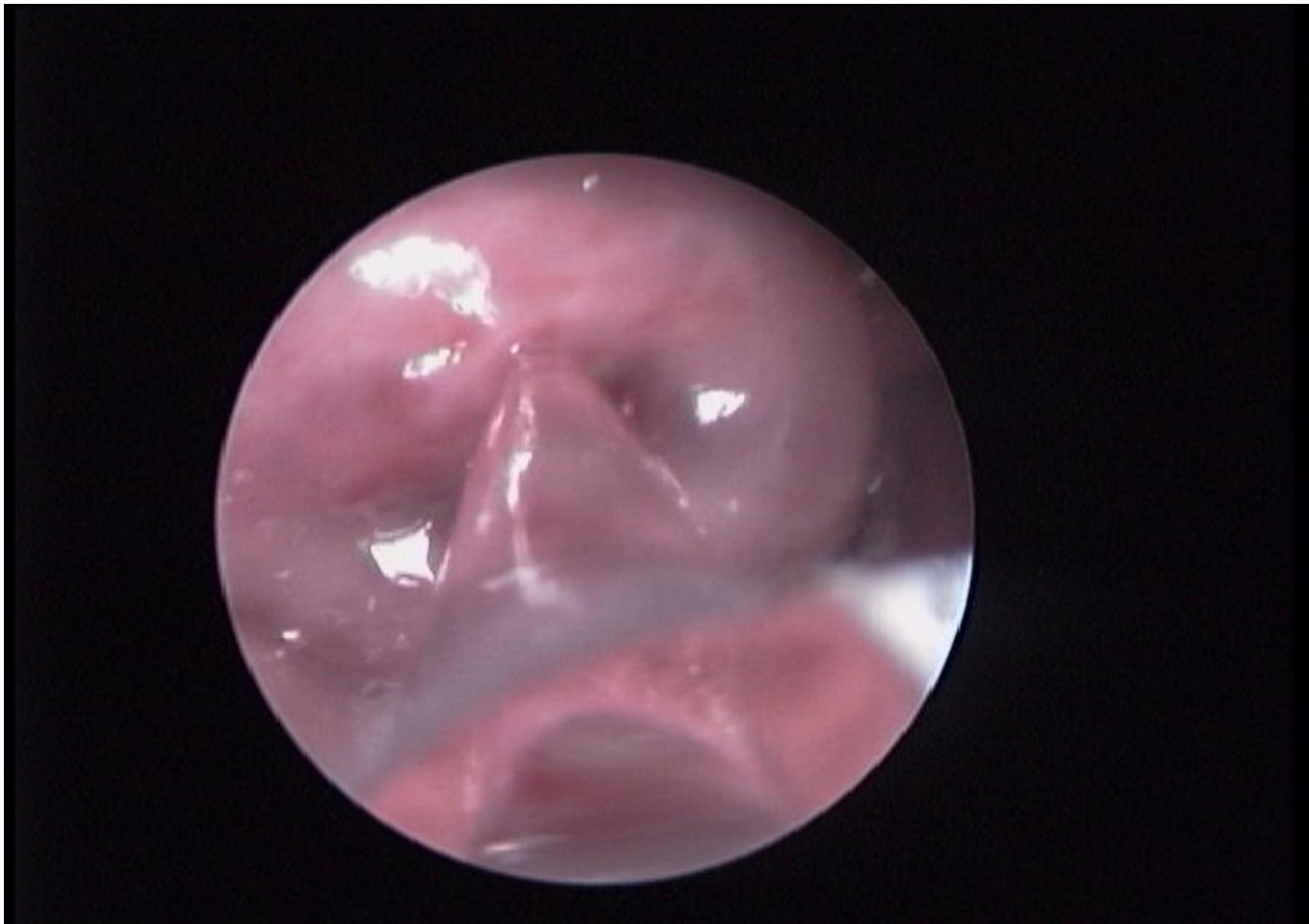


# Complications of diagnostic Hysteroscopy

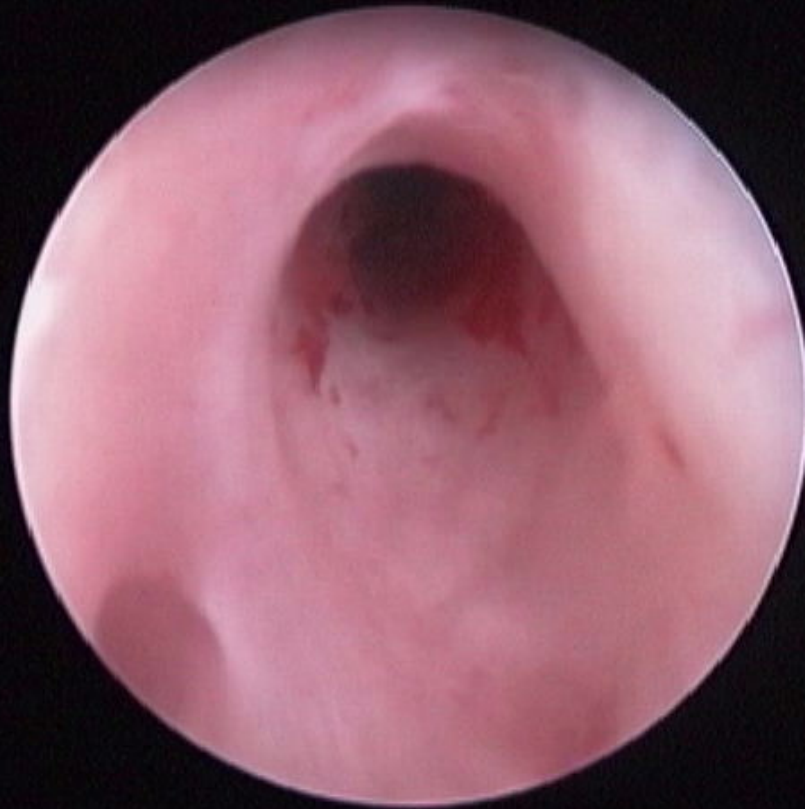
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- Avoidance
  - Perioperative complications
    - Uterine perforation / bleeding
      - Never move hysteroscope around unless you know where you are!
      - ie. without good vision you have nothing

# OP Diagnostic Hysteroscopy – entry into Cx Canal without dilation

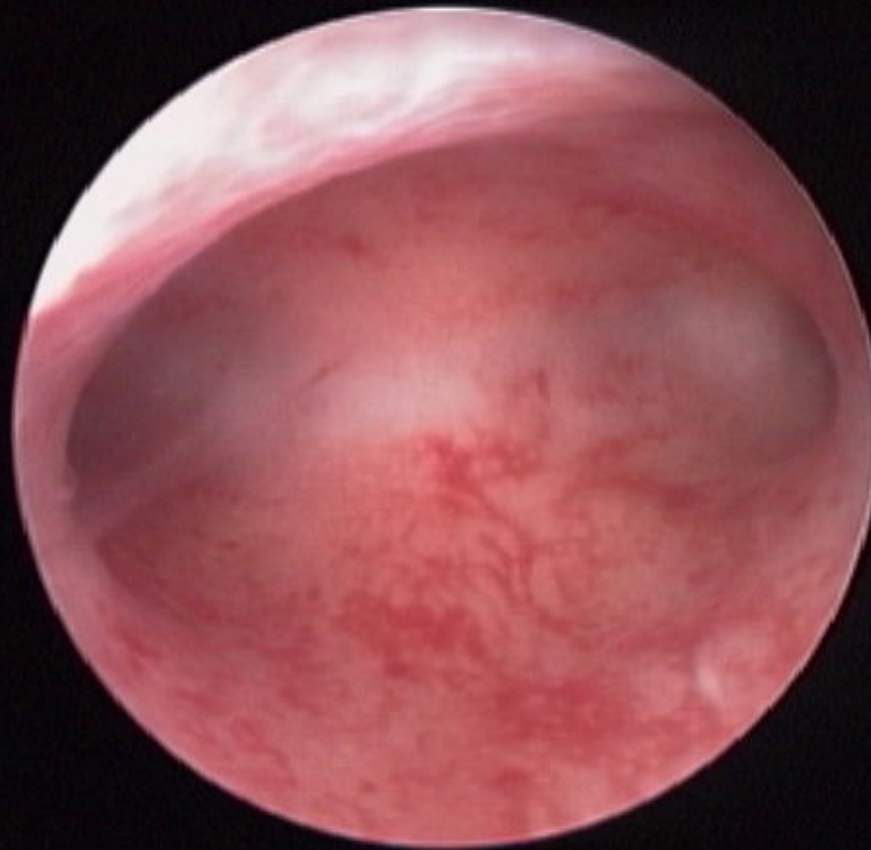


OP Diagnostic Hysteroscopy – distension of Cx  
Canal with saline





## OP Diagnostic Hysteroscopy – normal cavity





# Complications of diagnostic Hysteroscopy

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- Management of
  - Perioperative complications
    - Uterine perforation
      - Discontinue procedure
      - If electrosurgery / semi - rigid instruments not in use can manage conservatively
      - Observe overnight and discharge if stable
      - Give 1 week course of broad spectrum antibiotics e.g. cefuroxime & flagyl
      - Should report any pyrexia / pain immediately



# Complications of diagnostic Hysteroscopy

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- Complications
  - Post operative
    - Short term
    - Pain due to
      - Cervical Dilatation
      - Uterine Distention



# Complications of diagnostic Hysteroscopy

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- Avoidance
  - Post op pain
    - Cervical Dilatation
      - Pre operative NSAIDS e.g. Mefanamic Acid
      - Peri operative NSAIDS e.g. Voltarol 100mg PR
    - Uterine Distention
      - Moderate / low uterine pressures <150mmg



# Complications of diagnostic Hysteroscopy

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- Avoidance
  - Post op Bleeding
    - Correct operative technique
    - Ergometrine / Oxytocin
      - Operative
    - Foley / Rusch balloon
      - Operative



# Complications of diagnostic Hysteroscopy

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- Avoidance
  - Post op Infection / Ashermans
    - Correct operative technique
    - Minimise trauma to cervix / endometrium
    - Prophylactic antibiotics?? – not proven for diagnostic hysteroscopy unless prior diagnosed infection



# Complications of diagnostic Hysteroscopy - OP setting

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- Anxiety
  - Case selection
  - Information
  - Nurse assistant
  
- Pain
  - Correct technique
  - NSAIDS Nagele et al 1997 BJOG (Mefanamic acid) – post op
  - Minimal flow of saline (pressure <75mmHg)
  
- Vaso vagal
  - Gentle technique
  - Entry under constant vision
  - Low threshold for discontinuation
  - Atropine



# Complications of diagnostic Hysteroscopy

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- The Outpatient setting – special considerations to minimise complications
- Know when to stop!
  - If patient is uncomfortable abandon procedure
  - Nursing assistant vital in giving confidence to patient and advising on discontinuation



# Complications of diagnostic Hysteroscopy

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- The Outpatient setting – special considerations to minimise complications
- Inappropriate cases
  - Patient does not want procedure in out patients
  - Highly anxious patient
    - Gupta et al Surg Endoscopy 2004
  - Cervical stenosis e.g. following LLETZ
  - Medical problems e.g. pulmonary hypertension / mitral stenosis
  - Grossly obese



# Complications of diagnostic Hysteroscopy

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- The Outpatient setting – special considerations to minimise complications
- Ideal cases
  - Highly motivated patient
  - Previous vaginal delivery
  - Comfortable with previous procedures



# Complications of diagnostic Hysteroscopy OP Setting v GA

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- RCT: TV USS + OP hysteroscopy v GA Hysteroscopy + D & C
  - OP hysteroscopy well tolerated (n=400)
    - Tahir et al Southmead Bristol BJOG 1999
  
- RCT: OP Hysteroscopy v Day Case Hysteroscopy
  - Patient satisfaction equally acceptable (n=100)
    - Kremer et al St James Leeds BMJ 2000



# Complications of diagnostic Hysteroscopy OP Setting

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- Unfried et al HR 2001 Flexible v Rigid
- Flexible
  - less discomfort (1.7 v 0.7)  $p = 0.003$
- Rigid
  - Superior optics ( $p < 0.001$ )
  - More rapid performance (70 v 120s  $p = 0.003$ )
  - Lower costs



# Complications of diagnostic Hysteroscopy OP Setting

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- Clark et al JAMA 2002
- Serious complications rare
  - 25000 outpatient diagnostic hysteroscopic procedures
  - 5 uterine perforations
  - 2 life threatening complications



# Patient Satisfaction in a 'See and Treat' Outpatient Hysteroscopy Clinic

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- Complications
  - 6 (1.5%) vasovagal episodes (no atropine required)
  - 2 (0.5%) pelvic sepsis
  - 0 perforation
  - 0 fluid overload



# Complications of operative hysteroscopy

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# Complications of hysteroscopic surgery

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- Perforation
  - Magos 4:250 , Rankin 2:400
- Absorption of distension medium
  - TUR syndrome
- Haemorrhage
  - Magos 1:250 , Rankin 4:400
- Infection
  - BSGE survey 1% incidence



# Perforation

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- Injury to abdominal viscera
  - Rate 1 in 120-600
  - Injury to bowel
  - Bladder
  - Vascular structures
- Perforation and bowel injury
  - 0.8% Castaing et al (1999)
  - 0.2% Pasini and Belloni (2001)

# Genital tract burns

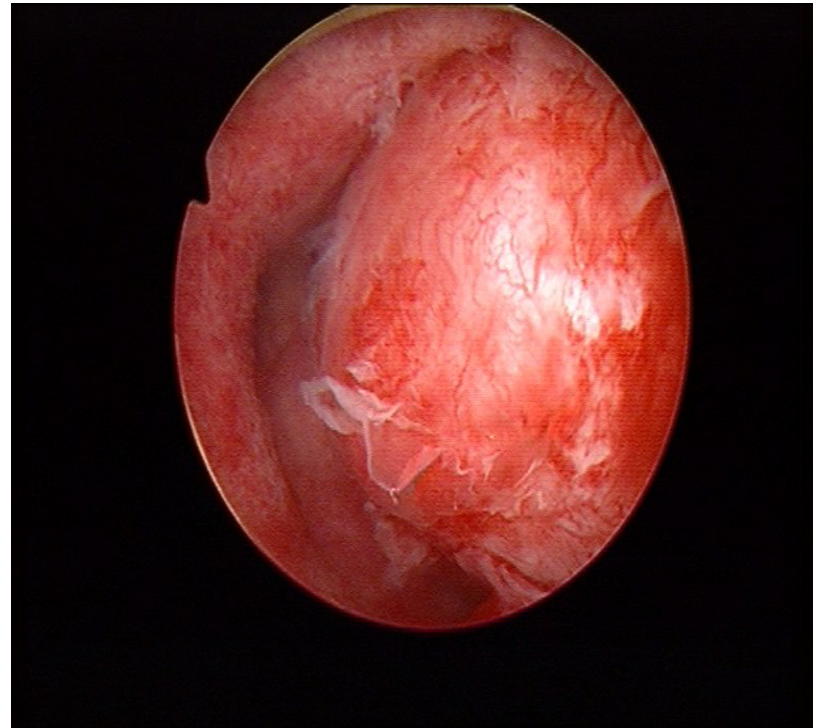
- Genital tract electrical burns during hysteroscopic endometrial ablation: report of 13 cases in the United States and Canada
- Vilos GA, Brown S, Graham G, McCulloch S, Borg P.

J Am Assoc Gynecol Laparosc.  
2000 Feb;7(1):141-7.



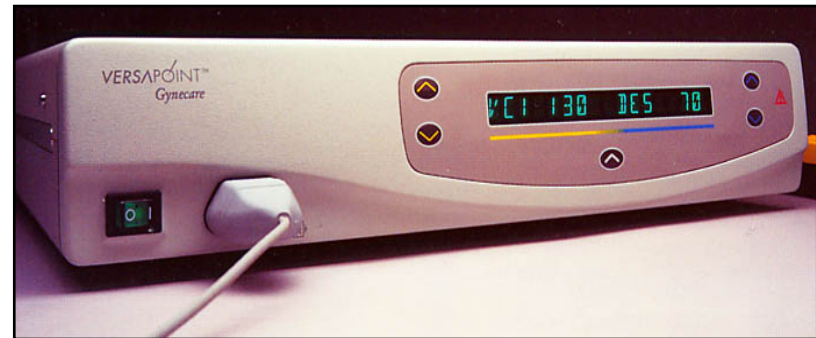
# Distention Media Problems

- Distention medium
  - CO<sub>2</sub>
  - Fluid overload
    - Saline
    - Glycine
    - Sorbitol
    - Dextran 70



# Complications

- Gas embolism
  - During TCRE or ELA
  - Versapoint surgery?
  - Tachycardia/chest pain/shock





## Complications of hysteroscopic surgery

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- TURP syndrome (>1000ml glycine)
  - Dilutional hyponatraemia - check levels
  - Thrombocytopenia
  - Anaemia
  - Hypofibrinogenaemia
  - Cerebral Oedema
  
- due to water absorption, neurotoxicity from glycine and activated coagulation

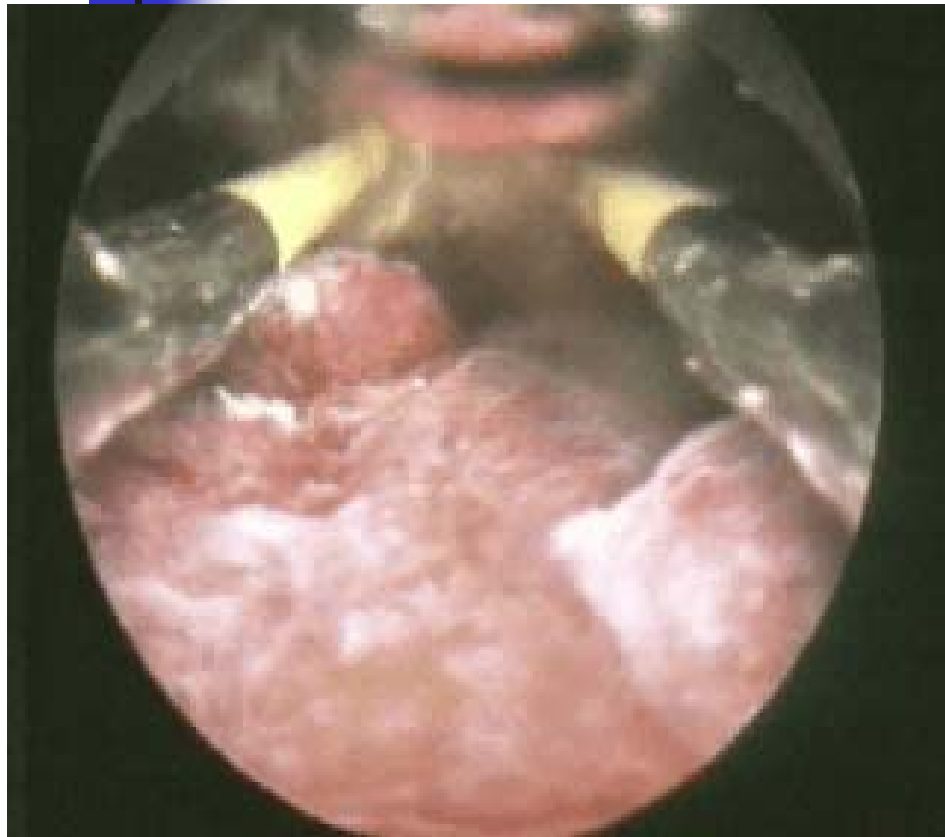


# Fluid overload - management

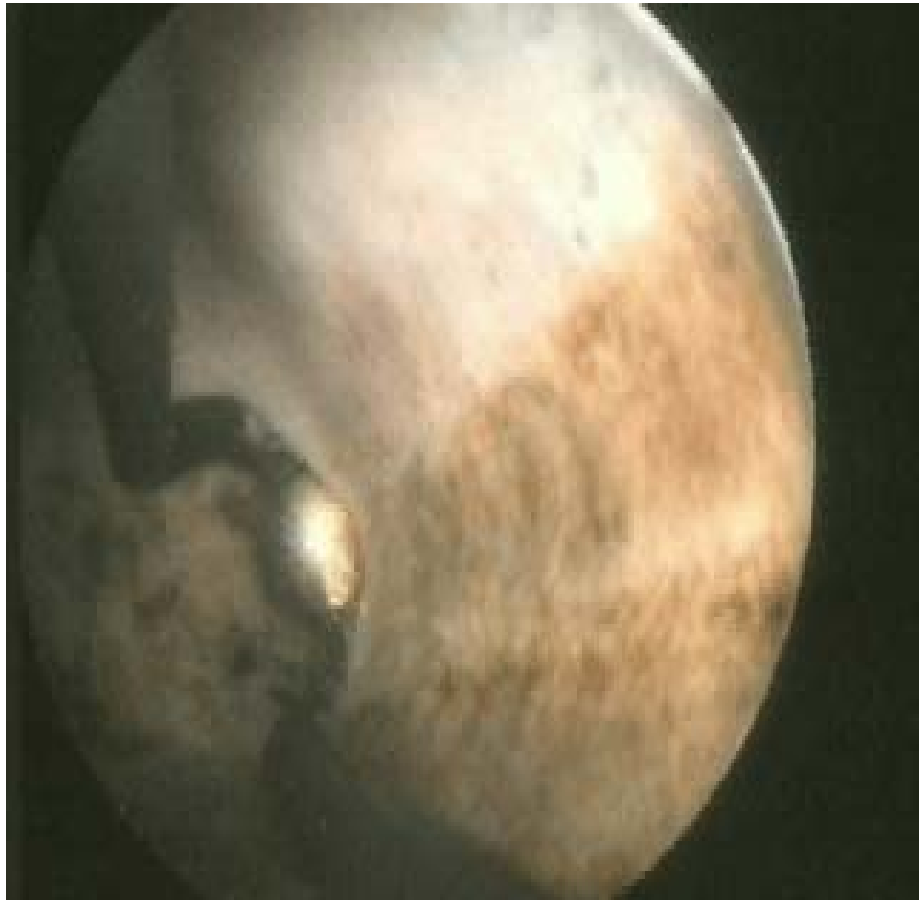
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- Observe in hospital
- Monitor fluid in / out
- Pulse oximetry
- Check electrolytes
- Consider need for diuretics

# Haemorrhage



- 0.61 to 6.9%
- Associated with perforation
- Intrauterine
  - Electro-diathermy
  - Tamponade
  - Hysterectomy



- Roller ball diathermy
  - Lower rate of haemorrhage



# Complications of hysteroscopic surgery

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- Late complications

- Pain / persistent adenomyosis

- Hysterectomy only option

- Haematometra

- Obstruction of lower uterus due to synechiae <1% incidence
- Difficult to establish rate
- Second generation to first generation 1 to 4 rate



# Complications of hysteroscopic surgery

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- Late complications

- Pain / persistent adenomyosis - hysterectomy
- Haematometra - obstruction of lower uterus due to synechiae <1% incidence
- Infection
  - About 1 in 200
  - Antibiotics - no clear evidence
  - I use broad spectrum after resection for 3-5 days



# MISTLETOE survey (1)

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- **Minimally Invasive Surgical Techniques- Laser, EndoThermal Or Endoresection survey**
- 1993-1994, 10,686 women
- Aimed to investigate the effectiveness and safety of endometrial destruction techniques

Overton C, Hargreaves J, Maresh M.

A national survey of the complications of endometrial destruction for menstrual disorders: the MISTLETOE study. Minimally Invasive Surgical Techniques: Laser, EndoThermal or Endoresection., British Journal of Obstetrics and Gynaecology. 1997;104(12):1351-1359.



# MISTLETOE survey (2)

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- Complications
  - Haemorrhage: 2.38%
  - Perforation 1.48%
  - Highest with loop resection
- Hormonal preparation does not decrease complication risk



# Scottish survey of endometrial ablation/resection

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- 12 % complications
  - 1 death
  - Perforation <1%
  - Fluid overload <1%

Br J Obstet Gynaecol 1995;102(30):249-54



# Other rare complications

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- Pregnancy
- Missed carcinoma
- Late thermal injury
- Persistent discharge (fibroid degeneration)



# Conclusions

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- Operative procedures greater risks than diagnostic procedures
- Operator experience influences complications
- 2nd generation procedures safer than first generation



# Conclusions

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- Experience reduces complications
- Informed consent is the key to minimising complaints
- The only way to avoid complications 100% is not to operate!



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***Thank you for your  
attention!***