Lecture 3: Complications of diagnostic and operative Hysteroscopy
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Complications of diagnostic Hysteroscopy

- Avoidance and management of Complications
  - Diagnostic
  - Operative

- The Outpatient setting – special considerations

- Conclusions
Complications of diagnostic Hysteroscopy

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

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

- 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

Avoidance

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

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

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

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

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

- **Avoidance**
  - Perioperative complications
    - Uterine perforation / bleeding
      - *Never* move hysteroscope around unless you know where you are!
      - i.e. 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

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

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

Avnoance

- 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

- **Avoidance**
  - Post op Bleeding
    - Correct operative technique
    - Ergometrine / Oxytocin
      - Operative
    - Foley / Rusch balloon
      - Operative
Complications of diagnostic Hysteroscopy

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

- 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

- 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

- 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

- 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

- 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**

- 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

- 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

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

- 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

- 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


Distention Media Problems

- Distention medium
  - CO$_2$
- Fluid overload
  - Saline
  - Glycine
  - Sorbitol
  - Dextran 70
Complications

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

- 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

- 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

- **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

- 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)

- **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

MISTLETOE survey (2)

- Complications
  - Haemorrhage: 2.38%
  - Perforation 1.48%
  - Highest with loop resection

- Hormonal preparation does not decrease complication risk
Scottish survey of endometrial ablation/resection

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

Br J Obstet Gynaecol 1995;102(30:249-54
Other rare complications

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

- Operative procedures greater risks than diagnostic procedures

- Operator experience influences complications

- 2nd generation procedures safer than first generation
Conclusions

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