

# Manual Vacuum Aspiration

Joanne Fletcher  
Consultant Nurse Gynaecology STHFT

# Agenda

- History Of MVA
- MVA Products
- Guidelines
- Clinical Papers
- Efficacy
- Safety
- Cost
- MVA Techniques
- Pain Management
- Case studies

# History of MVA

- 1970s - Harvey Karman invented and developed a plastic flexible cannula and Manual Vacuum Aspirator for uterine evacuation.



# MVA is used worldwide

- Developing and developed countries
- Very Popular in USA & Holland
- Regularly used in UK by Marie Stopes and BPAS
- Technique now performed by nurses in UK

# What is MVA

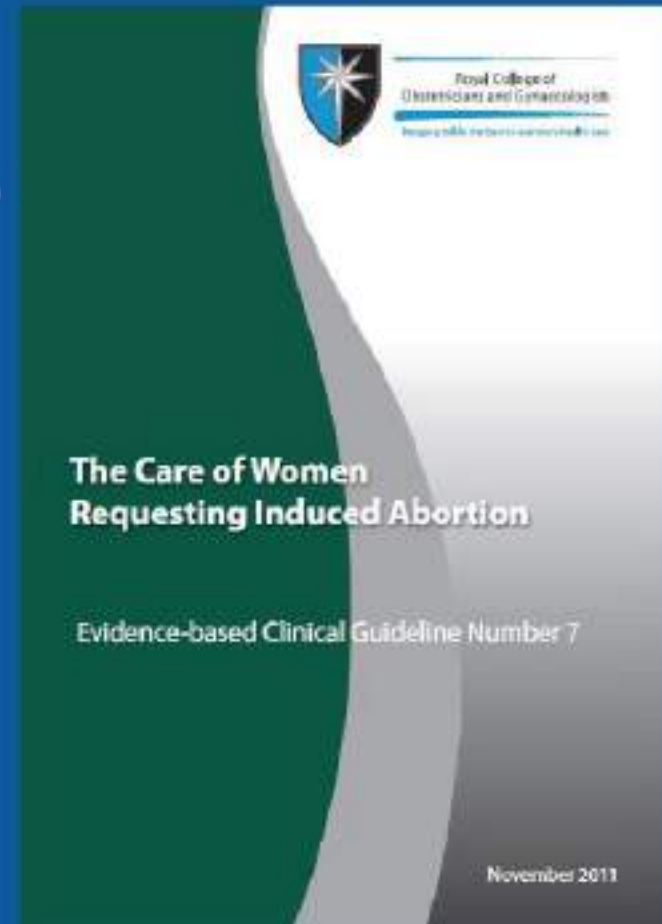
- Vacuum aspiration of uterine contents using a hand held aspirator attached to a plastic cannula.
- Used with a local anaesthetic
- 98% effective
- No need for theatre or admission
- Cost effective
- 5 to 12 Weeks Gestation

# Indications for MVA

- First trimester abortion
- Endometrial Biopsy
  
- Incomplete miscarriage
- Missed miscarriage
- Failed Medical abortion
- RPOC post abortion & miscarriage

# RCOG Guidelines

- 4.23 - ***“Services should provide surgical abortion under both local and general anaesthesia”.***
- 7.2 - ***“Either electric or manual vacuum aspiration may be used as both are effective and acceptable to women and clinicians.”***
- 7.14 - ***“Services should be able to provide surgical abortions without resort to general anaesthesia.”***



# NICE Guidelines

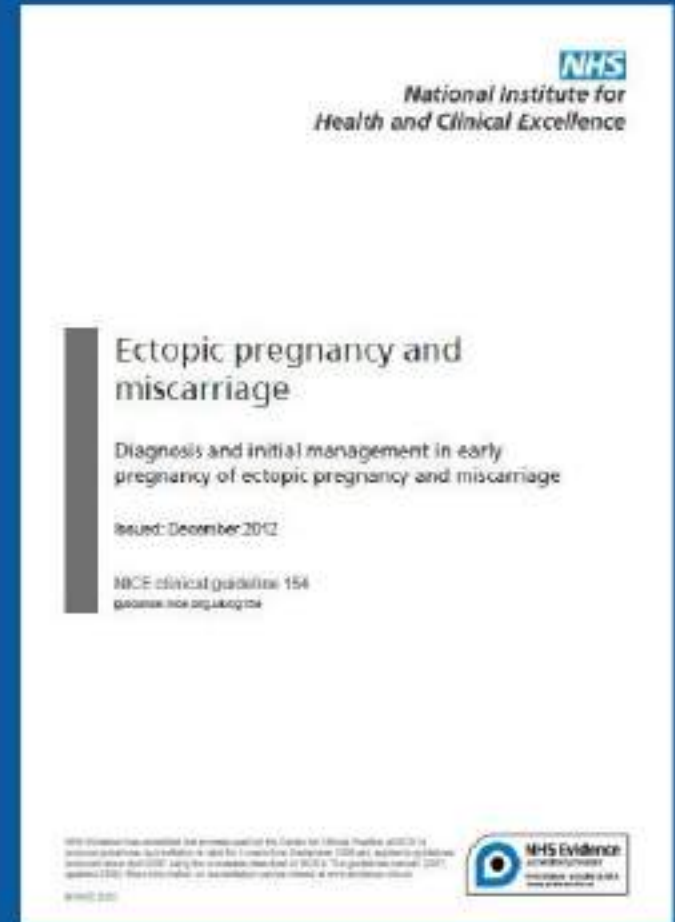
## 1.5.18 Surgical management

*Where clinically appropriate, offer women undergoing a miscarriage a choice of:*

*manual vacuum aspiration under local anaesthetic in an outpatient or clinic setting*

**or**

*surgical management in a theatre under general anaesthetic.*





# MVA Aspirator

- Made of latex free plastic
- Disposable single use
- Volume: 60 ml
- Vacuum: 24-26 in or 609.6 - 660.4 mm Hg



# MVA Cannulae

- Syringe is attached to one of these cannulae, 4mm to 12mm
- Colour coding according to the size eg yellow is 4mm and white is 8 mm.
- Rounded tip
- Flexible
- Graduated



# Research Papers

## Aberdeen study:

Milingos et al (2009) manual vacuum aspiration: a safe alternative for the surgical management of early pregnancy loss. BJOG, 06/2009, 116(9):1266-71



# Aberdeen results:

- 246 women undergoing MVA for missed miscarriage and incomplete miscarriage under LA found the efficacy of the procedure to be 94.7%.
- 56.3% cases performed by Specialist Registrar
- 18% by Consultant
- 15.1% by SHO
- 10.6% by Senior Specialist Registrar
- No major complications in the form of uterine perforation or heavy bleeding requiring blood transfusion

# Birmingham Women's Hospital:

Kumar et al (2013) Manual vacuum aspiration under local anaesthetic for early miscarriage. 2 years experience in a university teaching hospital in UK. *Gynecol Surg* 24 (6)



# Birmingham Women's Hospital results:

- 131 women <12/40
- Successful evacuation in 100%
- 87% LA intra Cx block, 13% nil
- No complications: 96%
- Vaso-vagal 1.5%; Cx injury 1.5%. ?perf 1
- Vag bleeding 'minimal or mild': 100%
- 'high levels of patient satisfaction & acceptability'  
93%

# Efficacy of Early Abortion with Vacuum Aspiration

<b>Author</b>	<b>Date</b>	<b>N</b>	<b>Gestational Age</b>	<b>Efficacy</b>
Paul et al.	2002	1,132 (MVA+EVA)	<6	<b>98%</b>
Creinin & Edwards	1997	2,399 MVA	<6	<b>99%</b>
Hemlin & Möller	2001	91 MVA	<8	<b>98%</b>
Laufe	1977	12,888	"About 6"	<b>98%</b>

Paul ME, et al. Am J Obstet Gynecol 2002;187:407-11.

Creinin MD, Edwards J. Curr Prob Obstet Gynecol Fertil 1997;20:6-32.

Hemlin J, Möller B. Acta Obstet Gynecol Scand 2001;80:563-7.

Laufe LE. Stud Fam Plann 1977;8:253-6.



# Safety

- Complication rates for four complications most commonly associated with uterine evacuation (excessive blood loss, pelvic infection, cervical injury and uterine perforation) are lower for vacuum aspiration than for D&C.—Greenslade et al., 1993b
- Results in studies at least as good as EVA in theatre
- Specific data on the safety of MVA find few complications associated with the method. In general, MVA demonstrates the same level of safety as EVA, and greater safety than sharp curettage (Laufe, 1977; Freedman et al., 1986).
- A report on 12,888 MVA procedures occurring in 21 countries found an immediate complication rate of 0.8 per 100 procedures, and no deaths (Laufe, 1977).
- No need for General anaesthesia
- Some units believe less likely to get perforation



# Cost Benefits

- No need for theatre time reported as £1200/hr + staffing costs (Royal College of Surgeons , The productive operating theatre, 3<sup>rd</sup> September 2010, NICE 2014)
- No need for a bed and associated costs
- Generally no need for admission and associated costs
- Frees up theatre and beds for other cases.
- Remember to cost the empty bed which you have freed up when writing business cases

# Cost Benefits

## Blumenthal & Remsburg (1994) A time & cost analysis of the management of incomplete abortion with manual vacuum aspiration.

- 41% reduction in costs ( $P < 0.01$ ).
- Compared EVA in theatre to MVA in outpatient .
- MVA procedures resulted in significant savings in terms of both waiting times and costs
- Waiting time was reduced by 52%
- Procedure time was reduced from a mean of 33 min to 19 min ( $P < 0.01$ ).



# Cost Benefits

**Dalton VK et al (2006) Patient preferences, satisfaction, and resource use in office evacuation of early pregnancy failure. *Obstet Gynecol.* 2006 Jul;108(1):103-10.**

- Compared 115 patient undergoing MVA in office setting with 50 patient undergoing EVA in theatre
- The procedure was 80% longer in theatre than in the office
- Estimated costs were more than two-fold higher in the operating room
- Both groups, complication rates were consistent with published rates
- Moving early pregnancy failures to an office setting resulted in an almost \$1,000 savings in direct and indirect costs per case.
- Manual vacuum aspiration could save \$779 million per year over traditional

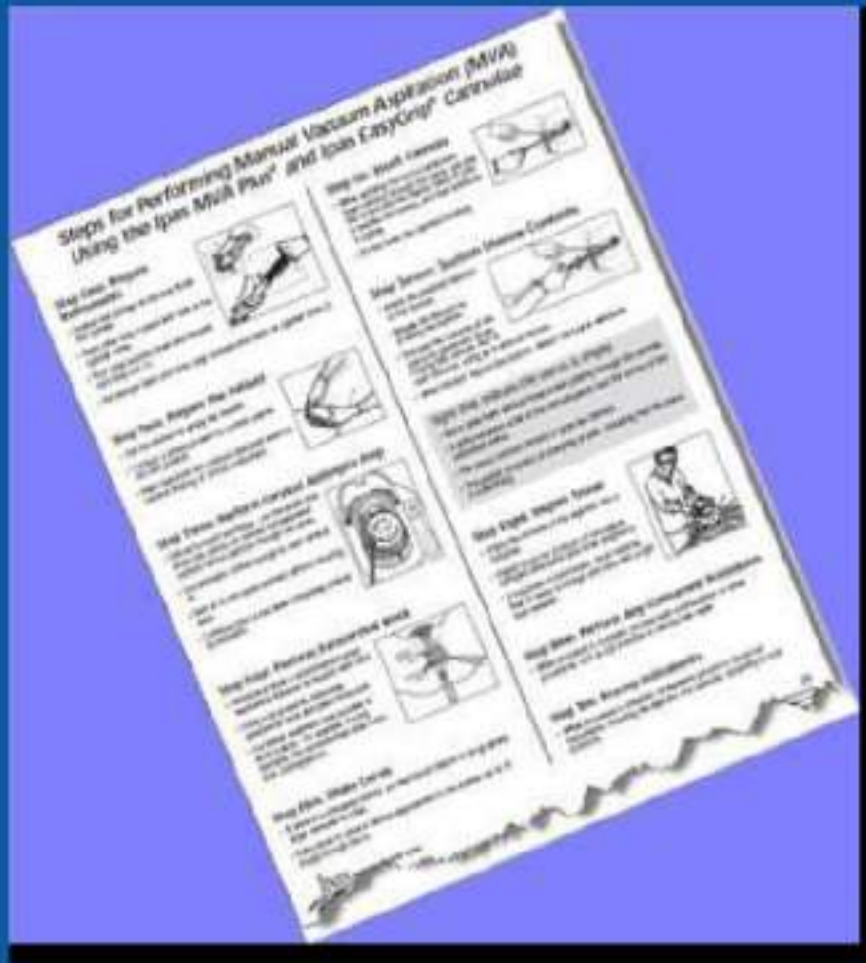
# MVA technique

- Handheld vacuum source with a plastic cannula to perform uterine evacuation
- A cannula is attached to the vacuum aspirator and inserted through the cervix
- The contents of the uterus are aspirated using a vacuum equivalent to that produced by an electric vacuum aspiration pump

# MVA technique

1. Prepare equipment & aspirator
2. Prepare patient - external cleaning & speculum
3. Clean cervix
4. LA
5. Apply tenaculum
6. Dilate cervix
7. Insert cannula
8. Perform suction of uterine contents
9. Check uterus empty
10. Inspect POC

# Steps for Performing MVA









# MVA vs EVA

## MVA

- Manual aspirator
- Inexpensive
- Quiet
- Portable
- Capacity: 60 cc
- Suction decreases as aspirator fills
- POCs likely intact

## EVA

- Electric pump
- Costly but longer life
- Variable noise level
- Not easily portable
- Capacity: 350-1,200 cc
- Constant suction
- Fragmentation of POCs

# Complications with MVA

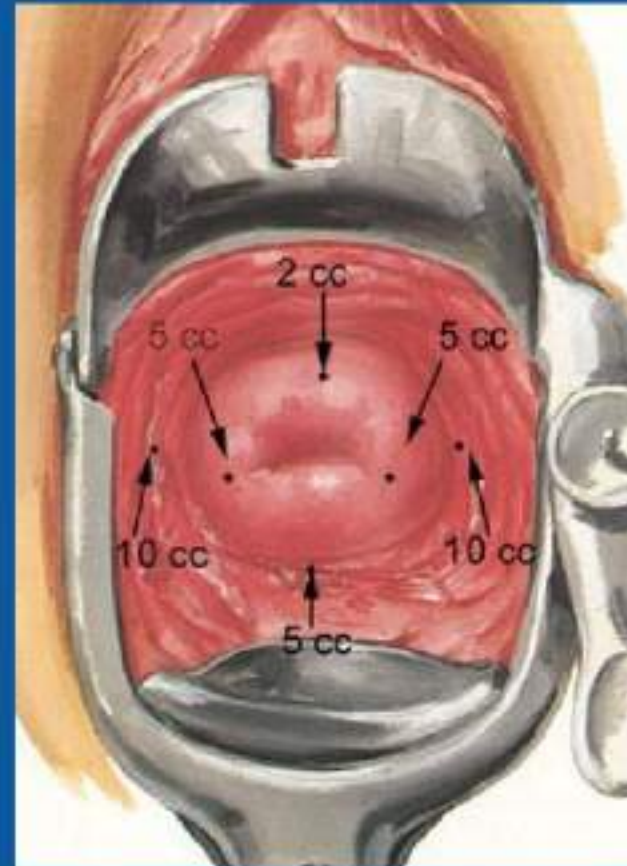
- Rare
- Same as for EVA
  - Incomplete evacuation
  - Uterine or cervical injury
  - Infection
  - Hemorrhage
  - Vaso-vagal reaction

# Pain management

To inject or  
not to inject?

***‘Given how widely used the PCB is, the paucity of data supporting the benefit of a PCB as shown in this review is surprising and concerning.’***

***The Cochrane Collaboration (2009) Pain control in first trimester surgical abortion (review).***



# Effective pain management

Psychological (context/ support) - active participation over pain management & situation are beneficial

## What worsens pain?

- young age
- nullip
- RV uterus
- dysmenorrhea
- Pre-procedure fearfulness
- moral issues (with procedure)
- Anxiety
- Depression

??? gestational age & cervical dilation ???

## What reduces pain?

- Respectful, informed and supportive staff
- Warm and friendly environment
- Gentle operative technique
- Women's involvement & sense of control
- Effective pain medications

# Sheffield pain management

- Diclofenac/ paracetamol (PR)
- Temazepam (PO)
- Misoprostol (PV)
- Instillagel (Topical)
- Entonox
- Vocal Local - supportive staff

# What women want ?

- Direct access
- Speedy service
- 1/2 daycare
- Information about choices & potential risks
- What actually happens & who will be in the room
- Does it hurt?
- Can my partner be present?

# PRACTICALITIES

- Responsive service
- Flexible
- Easy access
- Sufficient staffing
- Scan facilities
- Patient selection

# Advantages of MVA

- Effective from 5 - 12 weeks
- Moves procedures (abortion/ SMM/ ERPC) out of theatre
- Possibly less frightening for women
- One visit (compared to EMA)
- Short stay
- Inexpensive
- Low-tech
- Fast procedure
- Non-gynaecologists can do procedure



# Possible Disadvantages

- Pain more likely with Primips, teenagers, if frightened or depressed, higher gestations
- Inappropriate patient selection



# CASE STUDY 1

- Amy & her partner attend EPAU at 4.30 pm with pain and bleeding at 9 weeks.
- Scanned by nurse sonographer.
- Diagnosis = missed miscarriage at 7 weeks.
- Management options discussed. Amy wants surgical management but going on holiday in 2 days.
- Nurse sonographer performs MVA at 7.30pm
- Amy discharged home at 9pm with partner

# CASE STUDY 2

- Chloe seen as emergency admission 5 weeks post MTOP with heavy over bleeding, already had medical management for RPOC with minimal effect
- Scanned by nurse sonographer = RPOC low laying in cavity
- MVA performed immediately post scan, IUD inserted also
- PV loss settles & discharged home 2 hours later

# Summary

- Increases patient choice from 5- 12 weeks gestation/ RPOC management
- Well established procedure worldwide
- Well tolerated by patients with a high rate of satisfaction and acceptability
- MVA is a safe, effective procedure
- MVA is cost effective, frees up theatre time and beds
- Does not need a gynaecologist

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ANY  
QUESTIONS  
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