Second Trimester
Pregnancy Termination

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Introduction

• Abortion is defined as ‘termination of pregnancy (TOP) by any means before the fetus is viable.

• Second trimester, is a period ranging from 13 to 28 weeks of gestation.

• Worldwide mid-trimester abortion constitutes 10–15% of all TOP.

• Responsible for two-thirds of all major complications.
Aim of the presentation

- To provide a review of the current literature on mid-trimester methods of abortion with respect to efficacy, side effects and acceptability.

- To provide evidence-based recommendations for safe regimen(s) for mid-trimester pregnancy terminations.
Background

• Abortion dates back to the period of Socrates, Plato, Aristotle and Hippocrates (Anonymous, 1995).

• Different surgical and medical methods of abortion have been used since the early age.

• Surgical abortion is one of the oldest and most commonly practised techniques in many parts of the world.

• No safe drugs for inducing an abortion. (herbs, salts)

• Effective medical abortion methods with low morbidity have been emerging and become better accessible.
Vacuum aspiration by Trained providers

Weeks of gestation:
13  14  15  16  17  18  19  20  21  22

- Dilatation and evacuation by skilled practitioners
- Misoprostol only or other vaginal prostaglandins (repeated doses)
- Mifepristone and repeated doses of Gemeprost or misoprostol
- Older methods
- Hypertonic saline or urea
- Intra/extra amniotic prostaglandins
PGs and PG analogues

- PGs play an important role in the regulation of uterine contractility during pregnancy (Mitchell, 1987)
- Receptors are present throughout the pregnancy
- Both PGE and PGF analogues are widely used (PGE preferred)
- PGE selective specificity for the myometrium and fewer gastrointestinal side effects.
- PG analogues are Carboprost, Sulprostone, Gemeprost and Misoprostol.

(World Health Organization Task Force on Prostaglandins, 1988)
Carboprost

- A 15(S)-15-methyl PGF2α
- First analogue to be tested clinically on a large scale for the T2 termination
- It is used either intra-amniotically (viable T2) or administered by i.m. injection.
- Limited value as a primary method for abortion (high GI, SE)
- Used when other methods have failed (Lauersen and Wilson, 1997)
Sulprostone

- 16phenoxy-w-17, 18, 19, 20-tetranor PGE2methyl sulphonylamide.

- Used in the 1980s for the termination of second-trimester pregnancy.

- Withdrawn from the market because of its association with severe cardiovascular complications. (Ulman et al., 1992; Peyron et al., 1993).

- No similar complications have been reported with other PGs.
Gemeprost

- PGE1 analogue (16, 16-dimethyl-trans-d2- PGE1 methyl ester)

- Used as a vaginal pessary.

- Extensively used as a non-surgical method to dilate the cervix before VA in late-first and early-second-trimester abortion (Smith and Baird, 1980; Welch and Elder, 1982).

- More efficacious when compared with intra-amniotic PGF2α or extra-amniotic PGE2 and dinoprostone intracervically (Cameron and Baird, 1984; Andersen et al., 1989; Kjolhede et al., 1994)
Misoprostol

- A synthetic PGE1 analogue (15-deoxy-16-hydroxy-16-methyl PGE1).
- Prevention and treatment of peptic ulcer and later used off-label as an abortifacient.
- Advantages over other PGs; cheap, stable at room temperature and can be stored for a long time.
- Limited effect on the bronchi or blood vessels.
- Effective in different routes of administration.
- Few and dose-dependent side effects.
- Available in many countries
Antiprogesterone

- Progesterone is a key hormone in maintaining the pregnancy by keeping the uterus in a quiescent state.

- It prevents softening and dilatation of the cervix, reduces PG output from the decidua, and suppresses uterine contractions.

- Mifepristone is the only anti-progestin approved for the induction of abortion.

- Binds with high affinity to the progesterone receptor, inhibiting the effect of the hormone.
Mifepristone

- soften the cervix, increase the sensitivity to PGs
- Convert the quiet pregnant uterus into an organ of spontaneous activity (Norman et al., 1991)
- The sensitivity of the myometrium is increased by 5 times with maximal effect on uterine contractility and cervical ripening at 36–48 h following treatment (Rådestad et al., 1988).
- The benefits of pretreatment with mifepristone in comparison with placebo and laminaria tent are well evidenced.
Medical abortion with Mifepristone and a PG analogue

- For mid-trimester abortion (13–24 weeks of gestation)

- Medical abortion with Mifepristone followed by PG is an appropriate Method and has been shown to be safe and effective (RCOG, 2004).

- Pretreatment with mifepristone 36–48 h before PG administration can increase the success rate, shorten the induction-to-abortion interval and reduce the amount of PGs required in T2 abortion.

(Thong and Baird, 1992a; Ho et al., 1995, 1997).
Mifepristone and Gemeprost

- The vaginal gemeprost-only regimens > abortion rate of 88–96.5%.
- Pretreatment with Mifepristone 36–48 h before gemeprost, the induction-to-abortion could be decreased to nearly half (from 15.7 to 6.6 h), and the abortion rate in 24 h was increased from 72 to 95% (Van Look and Bygdeman, 1989).
- Side effects were reduced, and the dose of mifepristone and gemeprost decreased to one-third and one-half respectively, without the loss of clinical efficacy (Thong and Baird, 1993).
Mifepristone and Gemeprost

- Gemeprost was considered as the standard PG analogue in medical abortion and cervical priming until misoprostol emerged and was made available (Bartley et al., 2001).

- Gemeprost has several disadvantages compared with misoprostol (i.e. cost, need for refrigeration limits, its usage in developing countries and it is only available as vaginal pessary)
Mifepristone and Misoprostol

- Misoprostol has been shown to be equally or more effective compared with gemeprost (Ho et al., 1996; Bartley and Baird, 2002).

- In a study of 98 women, it was shown that vaginal misoprostol is more effective than oral misoprostol after pretreatment with mifepristone, but more women preferred the oral route (Ho et al., 1997).

- The induction-to-abortion interval was shorter, and the amount of misoprostol required was lower after vaginally administered misoprostol (Ngai et al., 2000).

- Women preferred oral administration considering it more convenient. Incidence of diarrhoea was higher with oral misoprostol.
FIGURE
Royal College of Obstetricians and Gynecologists recommended regimen

Day One: Mifepristone 200 mg orally

\[ \downarrow \]

36 – 48 hours later: Misoprostol 800 micrograms vaginally

\[ \downarrow \]

3 hours later: Misoprostol 400 micrograms orally every 3 hours until delivery or total of 4 doses

\[ \downarrow \]

If undelivered 3 hours after 4th dose: Repeat Mifepristone 200 mg and resume induction next day or consider surgical abortion

Medical abortion with PG alone

- The misoprostol-only regimen used in countries where mifepristone is not available.

- Doses of 600 and 800 μg have shown comparable successful abortion rates but are associated with high rates of fever, diarrhea, N&V (Pongsatha et al, 2001).

- 3-h interval is more effective than 6-h interval (Wong et al., 2000)
• Can providers substitute vaginal for oral misoprostol if patients prefer that route of administration?
• Vaginal misoprostol is more effective in the first trimester.
• El-Rafaey et al, reported no difference in efficacy of vaginal vs oral misoprostol for T2 abortion after an 800-g vaginal loading dose.

• Tang et al, studied sublingual misoprostol for T2 abortion.

• Vaginal administration was more successful at 24 hours, but both regimens were similarly effective at 48 hours.

Surgical evacuation of the placenta

- Routine surgical evacuation of the uterus is not required. It should only be undertaken if there is clinical evidence that the abortion is incomplete (El-Refaey and Templeton, 1995).

- Only 8–11% of women needed surgical evacuation following T2 medical abortion (Ashok et al., 2004).

- Surgical evacuation was as low as 2.5% (Hamoda et al., 2005a).
Feticide before late abortion

- When medical abortion is chosen, in many settings, clinicians are required to ensure that the fetus is dead at the time of abortion.

- A legal abortion must not be allowed to result in a live birth.

- Terminations after 21 weeks, the method chosen should ensure that the fetus is not born alive (RCOG, 1996).
Feticide before late abortion

- Agents used for feticide are hypertonic saline, 1% lidocaine and potassium chloride (Senat et al., 2003).

- Feticide with potassium chloride reduced the PG requirement for midtrimester medical abortion, compared with similar procedures conducted without feticide (Elimian et al., 1999).

- Up to 20 weeks of pregnancy, the contractions induced by PG make feticide unnecessary.
Mid-trimester surgical abortion
Vacuum aspiration

- VA is the surgical method of choice for first-trimester pregnancy termination.
- During the procedure, the uterus should be emptied by suction curette and by blunt forceps (if required).
- Can be used during the early T2 (13-15wks).
- Risk of complications increases with gestational age (Brenner and Edelman, 1974).
- Complications could be reduced by preoperative cervical dilatation (Grimes et al., 1984).
Vacuum aspiration

- Study by Gottlieb et al. (1991), 127 women at 13–14th week of pregnancy

- No case of cervical injury or uterine perforation or re-curretage.
- Post-abortion infection rate of 1.6%.
- The mean amount of blood loss 49 ml (range 0–400 ml)
- Only six patients had blood loss >100 ml.
- The patients were pretreated with PGs.
Dilatation and evacuation

• Safe and an effective option for gestations >15wks when undertaken by specialist practitioners with a sufficient workload to maintain their skills (RCOG 2004).

• Grimes et al. 1984, compared D&E to primary PGs, PGF2α.

• D&E was faster, safer and more acceptable up to about 18 weeks of gestation.

• Cervical injury is more frequent with D&E, preoperative cervical priming reduces the complications.
Surgical versus Medical abortion

• No randomized study comparing mifepristone and a PG analogue and D&E for mid-trimester abortion has been published.

• Retrospective cohort study of 297 women (Autry et al., 2002)
  • complication rate of D&E and medical methods for T2 abortion was compared.
  • Method used for medical abortion was not specified (most cases vaginal misoprostol)
  • Higher frequency of failed treatment (7 versus 0%) and incomplete abortion (21 versus 0.7%).
  • One patient with a history of a previous Caesarean delivery who received misoprostol 200 μg vaginally every 4 h (total dose not reported) had a uterine rupture.
  • Increased risk of perforation of the uterus during D&E at advancing gestations
Making choices

• Although D&E is a very safe and effective procedure, its safety profile derives from the surgeon’s knowledge, experience, and skills.

• In the past, institutions that have lacked skilled D&E providers have had to refer patients to other facilities or choose medical induction regimens characterized by long induction-abortion intervals and relatively high rates of complications.

• Newer medical regimens using PG E1 analogue with or without mifepristone offer sufficiently effective, well tolerated abortion-induction intervals so that clinicians have far greater latitude choosing a medical vs surgical approach.

RCOG, 2004
Pain management

• Abdominal pain is one of the most common adverse effects of medical abortion.

• Services should make a range of oral and parenteral analgesics available to meet women’s needs (RCOG, 2004)
Pain management

• In routine clinical practice, analgesia is offered to women following surgical abortion and both during and after medical abortion.

• There is little research evidence to guide the choice of analgesic regimens.

• Large case series, data on analgesic use for over 178 women undergoing T2 terminatin.

  26% required no analgesia, 36% received oral analgesia only (paracetamol 500 mg plus dihydrocodeine 10 mg) and 38% received parenteral opiate (morphine 10 mg).

Midtrimester induced abortion and prior CS

- Mazouni et al, conducted a retrospective study of 252 women (15 and 35 wks).
- 50 of whom had uterine scars.
- Prior cesarean section did not increase the risk of hemorrhage (2% vs 0.9%; \( P = 0.56 \))
- Median induction-abortion interval (8.5 vs 9.0 hours; \( P = 0.26 \))
- 1 case of uterine rupture and 1 case of uterine dehiscence were noted in women with prior cesarean section.

Midtrimester induced abortion and prior CS

- Conversely, Series reported by Daskalakis et al
- 108 women with prior cesarean undergoing T2 misoprostol induction
- Only 1 case of uterine rupture
- Occurred in 1 of the 216 non-scarred control subjects.

Midtrimester induced abortion and prior CS

- Absolut risk of uterine rupture during second-trimester induction is unknown.

- Most studies suggest that misoprostol can be used safely.

- In most series, rates of uterine rupture in midtrimester among patients with scarred uteri are less than 1%

- The impact of PG dose and dosing interval remain unclear.
Summery of Current recommendations

• Cervical priming is mandatory before mid-trimester surgical abortion.

• Misoprostol 400 μg (2 200 μg tablets) vaginally 3 h before surgery.

• Gemeprost 1 mg vaginally 3 h before surgery.

• Mifepristone 200 mg orally 12–48 h before surgery.
Mid-trimester surgical abortion

• VA can be carried out up to 15 weeks gestation preceded by cervical priming.

• D&E can be used by trained and skilled providers with sufficient experience.
Mid-trimester medical abortion

- Mifepristone 200 mg orally, followed 24–48 h later by misoprostol 800 μg vaginally and thereafter by repeated doses of misoprostol 400 μg orally, every 3 h, to a maximum of four oral doses.

- Mifepristone 200 mg orally, followed 24–48 h later by gemeprost 1 mg vaginally every 6 h to a maximum of five pessaries.

- Misoprostol only regimens (in countries where mifepristone is not available); vaginal misoprostol 800 μg every 12 h.
References

- The Care of Women Requesting Induced Abortion, evidenced based clinical guidelines, RCOG 2004.