

***'For everything you gain,
you lose something'.***

Ralph Waldo Emerson

Abortion after 12 Completed Weeks WHO Technical & Policy Guidance

2 Methods of abortion

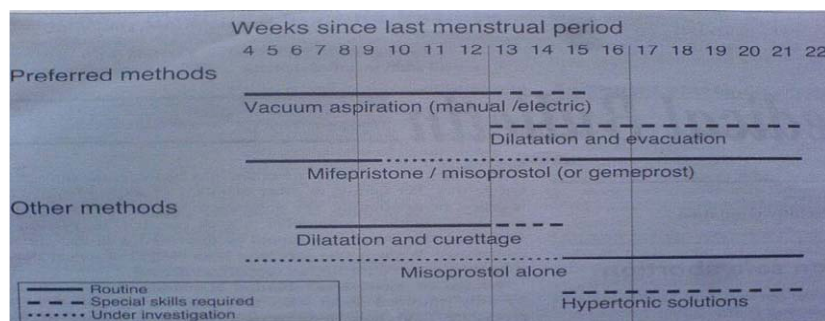
- ◆ Preferred medical method is mifepristone followed by repeated doses of misoprostol or gemeprost
- ◆ Preferred surgical method is D&E using VA & forceps

2.4.3 Other medical abortion agents

- ◆ Intraamniotic saline or urea
- ◆ Intra or extraamniotic ethacridine
- ◆ Parenteral, intra or extraamniotic PG analogues
- ◆ IV or IM oxytocin

WHO Technical Guidance, 2003

Instillation Methods – Out of Favor



- ◆ *The intra or extraamniotic instillation of various solutions is less safe & less effective than D&E & should be discouraged*

IMAP Statement, IPPF Med Bull, 40(3):1, 2006

Second Trimester Abortion Are Instillation Methods still a valid option?

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Intraamniotic Ethacridine Lactate Instillation

- ◆ *Retrospective analysis of 54 procedures*
 - *Successful in 93% with mean instillation - delivery interval 40.5 hours (14-58)*
 - *Mean analgesic need & mean hemoglobin drop low*
- ◆ *Intraamniotic instillation of ethacridine lactate is safe, cheap & successful*
 - *Disadvantages are a longer induction - delivery interval & invasive mode of application*
 - *Side effects of repeated prostaglandin application & multiple vaginal examinations avoided*

Berg et al, Eur J Obs Gyn Rep Biol, 126(2):193, 2006

Extraamniotic Ethacridine Lactate Instillation

Randomized prospective study of 388 terminations of pregnancy between 13 & 24 weeks

	<i>Mean time to abortion</i>
<i>Extraamniotic ethacridine lactate (85)</i>	<i>14.8 hours</i>
<i>Extraamniotic ethacridine lactate with oxytocin infusion (93)</i>	<i>10.2 hours</i>
<i>Vaginal & oral misoprostol (102)</i>	<i>13.2 hours</i>

Kelekci et al, Acta Obs Gyn Scand, 85(7):825, 2006

Mechanism of Action of Ethacridine Lactate

- ◆ *Ethodin (Rivanol, 6,9-diamino-2-oxyethyl acridine lactate) effective in inducing uterine contractions*
- ◆ *Available in India as Emcredil / Abortil / Vecredil*
 - *Contraction of smooth-muscle myometrial cells through processes akin to the onset of labor*
 - *Contractile effect of ethodin is mediated through the activation of uterine mast cells that release mediators to contract the myometrium*

Rudolph et al, Gen Pharma, 28(3):381, 1997

**Say not,
'I have found the truth'
but rather,
'I have found a truth'.**

Khalil Gibran

Extraamniotic Ethacridine Lactate Optimizing Efficacy

- ◆ *Retrospective study of 315 consecutive women undergoing late abortions with extra-amniotic ethacridine over 3 1/2 years*
 - *Extraamniotic ethacridine alone - 207*
 - *Extraamniotic ethacridine supplemented by extraamniotic 15-methyl PG F2 alpha - 108*
- ◆ *Demographic features were similar in the two groups*

Bhathena, Sheriar, Walvekar & Guillebaud, Br J Obs Gyn, 97(11):1026, 1990

Extraamniotic Ethacridine Lactate Technical Variations

- ◆ *Extraamniotic ethacridine - 207 cases*
 - *150 ml of 0.1% ethacridine lactate injected slowly through a 14/16 F Foley's catheter into the extraamniotic space*
- ◆ *Extraamniotic ethacridine with 15 methyl PG F2 alpha – 108 cases*
 - *Initial injection supplemented 6 hours later by extraamniotic injection of 250 micrograms of 15 methyl PG F2 alpha (1 ml diluted to 10 ml)*

Bhathena, Sheriar, Walvekar & Guillebaud, Br J Obs Gyn, 97(11):1026, 1990

Extraamniotic Ethacridine Lactate Technical Nuances

- ◆ *Provider skills*
 - *Legal requirement of obstetric training background in India*
 - *Minimal skill needed to insert catheter & inject solution*
- ◆ *Mandatory pre procedure investigations*
 - *Hemoglobin, blood group, USG placental localization*
 - *Renal function, coagulation profile?*
- ◆ *Anesthesia, analgesia & cervical priming requirements*
 - *None for procedure. Individualized requirements for pain*
 - *No need for separate cervical priming*
- ◆ *Contraindications*
 - *Hypersensitivity to drug*

Extraamniotic Ethacridine Lactate Comparative Results

	<i>Successful Procedure</i>	<i>Median Induction Abortion Interval</i>
Extraamniotic ethacridine – 207 cases	191 (92%)	35 hours
Extraamniotic ethacridine with PG F2 alpha – 108 cases	106 (98%)	19 hours

Reduction in induction - abortion interval p < 0.001

Bhathena, Sheriar, Walvekar & Guillebaud, Br J Obs Gyn, 97(11):1026, 1990

Extraamniotic Ethacridine Lactate Safety Issues

- ◆ *Corrected complication rate less than 10%*
 - *Unplanned uterine evacuation in 6% (20)*
 - *Hemorrhage in 1% (4)*
 - *Pelvic infection in 4% (14)*
 - *No uterine or cervical injuries*

Bhathena, Sheriar, Walvekar & Guillebaud, Br J Obs Gyn, 97(11):1026, 1990

- ◆ *Acute renal failure – A rare complication reported in 2 cases*
 - *Presentation with anuria - 3 & 5 days*
 - *Treatment with hemodialysis & resolution - 3 & 10 days*

Karthak et al, J Obs Gyn India, 43:290, 1993

Avasthi & Gupta, J Obs Gyn India, 54:503, 2004

Second Trimester Fetal Demise

- ◆ *Prospective randomized study*
- ◆ *Poor Bishop's score between 14 & 28 weeks*
- ◆ *Assessment of success by termination within 48 hours & median induction – abortion interval*
 - *Extraamniotic ethacridine (82) - 98.8% & 15.7 hours*
 - *IV concentrated oxytocin (36) - 97.3% & 12.2 hours*
 - *Balloon insertion (73) - 97.2% & 16 hours*
 - *Intracervical PG E2 gel (100) - 90% & 20 hours*
 - *Vaginal misoprostol (49) - 77.5% & 24 hours*

Yapa et al, Eur J Obs Gyn Rep Biol, 69(2):97, 1996

Intrauterine Administration for Second Trimester Termination

- ◆ *Surgical evacuation - special skills that are not available to all*
- ◆ *Intraamniotic hypertonic saline – risk of hyponatremia or coagulopathy*
- ◆ *Intraamniotic urea – safer than saline*
- ◆ *Extraamniotic ethacridine – safer than saline & used in Scandinavia, Eastern Europe, Israel, India & Japan*
- ◆ *Intraamniotic & extraamniotic PGs - lower doses with fewer side effects & cervical lacerations*
- ◆ *Intramuscular PG F2 alpha - safer than saline though expensive & requiring medication for side effects*

Toppozada & Ismail, Clin Obs Gyn, 4(2):327, 1990

Late Abortion Practice Trends in an Indian Teaching Hospital

- ◆ *Second trimester abortions in 2055*
Represented 15% of abortions over 10 years
 - *Surgical techniques used in 39%*
 - *Shift to vaginal surgical procedures & extraamniotic ethacridine from intraamniotic saline*
 - *Extraamniotic ethacridine lactate used in 12%*
 - *IM 15 methyl PG F2 alpha used in 2.5%*
- ◆ *Complication rate 11% with 4% retained products of conception*

Bhathena, Sheriar & Guillebaud, J Obs Gyn, 10(4):299, 1990

Challenges to Access & Availability Importance of Medical Abortion

England & Wales, 2003

- ◆ *Access to late abortions is difficult since few providers can offer this service*
 - *Total abortions - 181600*
 - *Late abortions from 13 – 24 weeks (6.7%) – 12155*

Argent, J Fam Plan Rep Health Care, 32(2):67, 2006

India, 2000

- ◆ *Estimated incidence of induced abortions*
 - *Total abortions – 6.7 million*
 - *Late abortions (10.7 - 15%) – 716900 - 1050000*

Sheriar, MTP Factfile, FOGSI, 2000

Patel & Leuva, J Obs Gyn India, 56(6):522, 2006

Extraamniotic Ethacridine Lactate Documented Indian Experience

<i>Authors</i>	<i>Number of cases</i>	<i>Successful procedure</i>	<i>Induction abortion interval</i>
<i>Sofat et al, 1986</i>	<i>40</i>	<i>82 %</i>	<i>32.2 hours</i>
<i>Bhosale et al, 1987</i>	<i>261</i>	<i>77.7 %</i>	<i>35.1 hours</i>
<i>Gupta & Gupta, 1989</i>	<i>150</i>	<i>98.7 %</i>	<i>36 hours</i>
<i>Raut & Agarwal, 1989</i>	<i>40</i>	<i>92 %</i>	<i>40.5 hours</i>
<i>Sofat, 1994</i>	<i>50</i>	<i>92 %</i>	<i>40.5 hours</i>
<i>Trasi & Batwar, 2000</i>	<i>50</i>	<i>84 %</i>	<i>30 hours</i>
<i>Desai & Patel, 2001</i>	<i>50</i>	<i>83 %</i>	<i>38.5 hours</i>
<i>Cumulative results</i>	<i>641</i>	<i>90.4 %</i>	<i>34.3 hours</i>

Sourced from the Journal of Obstetrics & Gynecology of India, 1986 - 2006

Adjuncts to Extraamniotic Ethacridine Documented Indian Experience

<i>Authors</i>	<i>Number of cases</i>	<i>Adjunct to EA ethacridine</i>	<i>Successful procedure</i>	<i>Induction abortion interval</i>
<i>Sofat, 1986</i>	<i>40</i>	<i>Oxytocin infusion</i>	<i>90%</i>	<i>28.2 hours</i>
<i>Nayak & Dalal, 1989</i>	<i>50</i>	<i>Oxytocin in EA solution</i>	<i>98%</i>	<i>27 hours</i>
<i>Sheila et al, 1990</i>	<i>30</i>	<i>Sulprostone IM</i>	<i>92%</i>	<i>19 hours</i>
<i>Tewari et al, 1995</i>	<i>30</i>	<i>PG E2 gel</i>	<i>86.6%</i>	<i>23.4 hours</i>
<i>Trasi & Batwar, 2000</i>	<i>50</i>	<i>EA 15 methyl F2 alpha</i>	<i>92%</i>	<i>26 hours</i>

Adjuncts seem to benefit induction abortion interval not rate of success

Sourced from the Journal of Obstetrics & Gynecology of India. 1986 - 2006

Ethacridine Lactate Vs Misoprostol

- ◆ *Prospective randomized study comparing extraamniotic ethacridine lactate & vaginal misoprostol*
- ◆ *Second trimester terminations in 120 cases*

<i>Technique of abortion</i>	<i>Successful abortion</i>	<i>Induction abortion interval</i>
<i>Extraamniotic ethacridine lactate</i>	<i>95%</i>	<i>15.5 hours</i>
<i>Vaginal misoprostol</i>	<i>30% in 24 hours</i>	<i>Complete in 70%</i>
	<i>95%</i>	<i>31.3 hours</i>
	<i>75% in 24 hours</i>	<i>Complete in 66.6%</i>

Chaudhari et al, J Obs Gyn India, 56(6):518, 2006

Need for a Medical Alternative Misoprostol not yet an Option in India

- ◆ *Approval for obstetric indications - December 8, 2006*
 - ◆ *MF – 7059/06 lists permitted indications for Misoprostol*
 - *First trimester abortion with mifepristone*
 - *Cervical ripening*
 - *Prevention of postpartum hemorrhage*
- Drug Controller General, Cent Drugs Stand Cont Organ, GOI, 2006
- ◆ *Imperative that international guidelines accept & acknowledge extraamniotic ethacridine as a safe effective alternative*
 - ◆ *Need for a randomized multicentric trial to document option*
 - *Judge ethacridine separately from hypertonic solutions*

***'If we think we have all the answers,
then we haven't asked enough questions.'***

Swedish Proverb