

β -hCG to verify success in medication abortion

Christian Fiala
MD, PhD

Gynmed Ambulatorium
Vienna, Austria
www.gynmed.at

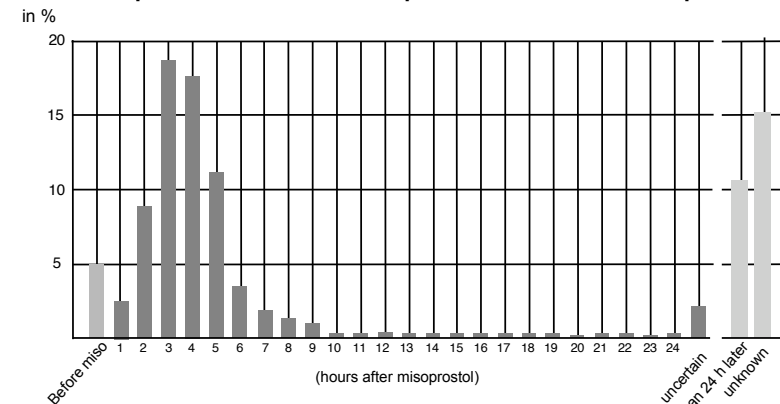
Karolinska University Hospital
Department of Women and Child Health
Stockholm/Sweden

Verifying expulsion

- No standard has been evaluated
- No guideline mentions criteria (except PPFA)
- Various methods are used in clinical practice:
 - Ultrasound examination
 - Visual verification of expulsion following intake of misoprostol (in the clinic)
 - History of clinical events (heavy/continuous bleeding, pregnancy related symptoms)
 - Gynaecological examination
 - hCG in serum
 - hCG in urine (rapid test with low sensitivity)

Medical abortion: Verifying expulsion, C. Fiala
(Trussel and Ellertson 1999, Paul et al., 2000)

Expulsion after Mifepristone and Misoprostol

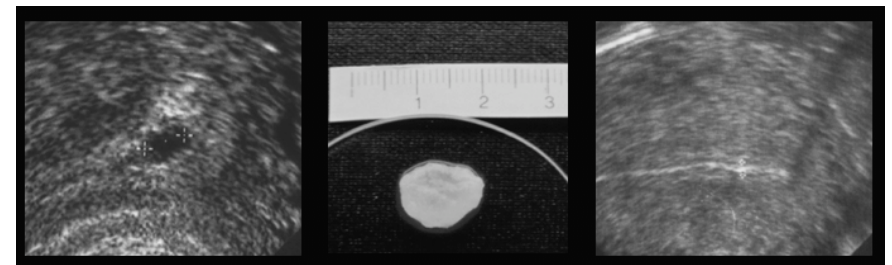


Time to expulsion of the sac in 1,720 women with successful termination of pregnancy. The women took mifepristone on day 1 and misoprostol 48 hours later. Uncertain means expulsion at some point during 24 hours following misoprostol. Unknown means expulsion at some point later than 24 after misoprostol.

Source: Spitz et al. The New England Journal of Medicine, 1998; 338 (18): 1244

Medical abortion: Verifying expulsion, C. Fiala

Treatment



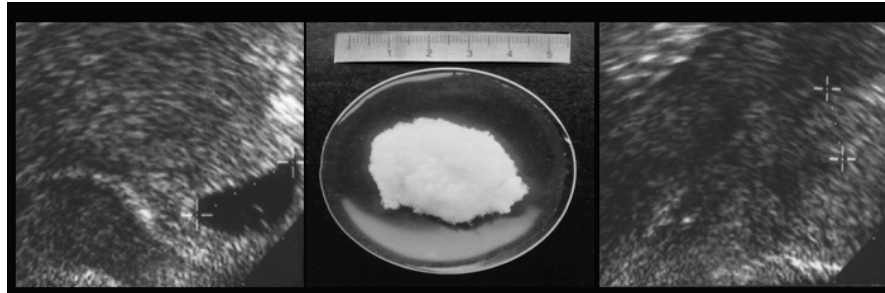
Day 1: Gestational
sac 5 mm
hCG 862

Day 3: Gestational
Sac

Day 7: hCG 7

Medical abortion: Verifying expulsion, C. Fiala

Verifying expulsion



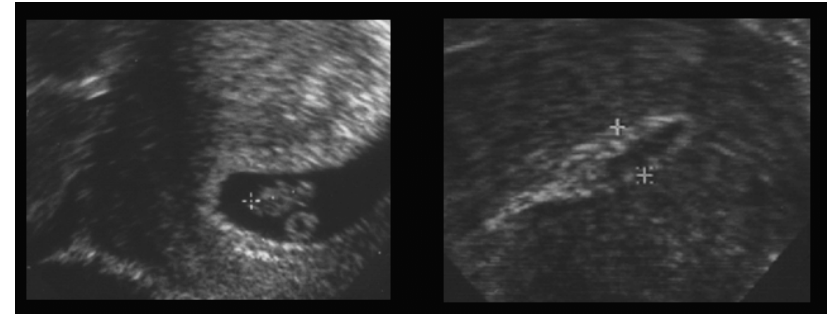
D 1: Gestational sac
+ yolk sac
hCG 32,000

D 3: Gestational
sac

D 8: E 12 mm
hCG 837

Medical abortion: Verifying expulsion, C. Fiala

Verifying expulsion

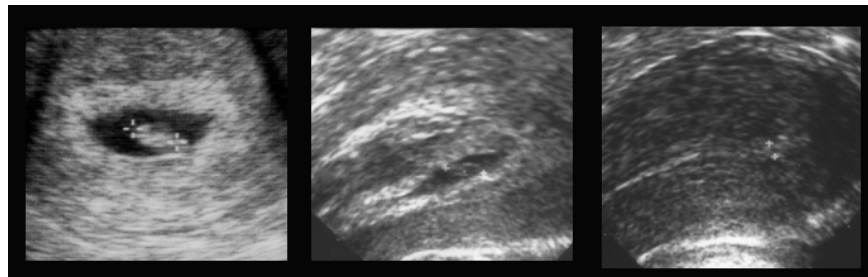


D 1: CRL 10 mm
hCG 83,439

D 6: Endometrium 6 mm
hCG 312

Medical abortion: Verifying expulsion, C. Fiala

Verifying expulsion



D 1: CRL 6 mm
hCG 104,900
D 3: Start OC

D 10: E 20 mm,
hCG 16,841
D 17: stop OC
D 21: Withdrawal-bleeding

D 28: hCG 100

Medical abortion: Verifying expulsion, C. Fiala

Verifying expulsion



D 1: Gestational +
yolk sac
hCG 13,300
D 3: Start OC

D 9: non-viable pregnancy
hCG 10,819
D 16: stop OC
D 18: Withdrawal-bleeding

D 19: Endometrium 8 mm
hCG 718

Medical abortion: Verifying expulsion, C. Fiala

Study on hCG and ultrasound

- 217 women with
- an unwanted pregnancy
- <49 days of amenorrhea
- received:
 - 600mg of Mifepristone orally
 - 400 μ g of Misoprostol orally 2 days later
 - hCG was performed at all visits
 - US was performed before Mifepristone and at follow-up

Fiala et al., Verifying the effectiveness of medical abortion; ultrasound versus hCG testing, 2003

Medical abortion: Verifying expulsion, C. Fiala

hCG level and ultrasound finding prior to treatment

No gestational sac	28 - 1,752 mIU/ml
Gestational sac, no yolk sac	802 - 54,443 mIU/ml
Yolk sac	2,700 - 107,400 mIU/ml
CRL 2 - 10mm	22,900 - 190,750 mIU/ml

n=217, Fiala et al., 2003

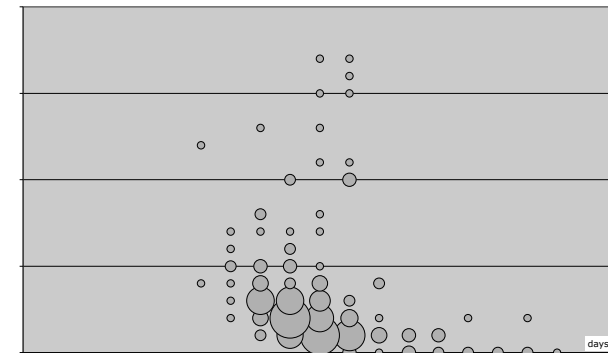
Medical abortion: Verifying expulsion, C. Fiala

hCG level and ultrasound finding prior to treatment

- The correlation between ultrasound finding and hCG level is very weak
 - Huge individual variation in hCG level
- ↓
- hCG persists for a long time \approx 1 month depending on the initial value
 - Difficult to interpret hCG value at follow up without knowledge of the initial value

Medical abortion: Verifying expulsion, C. Fiala

Serum hCG at follow-up in % of the initial value

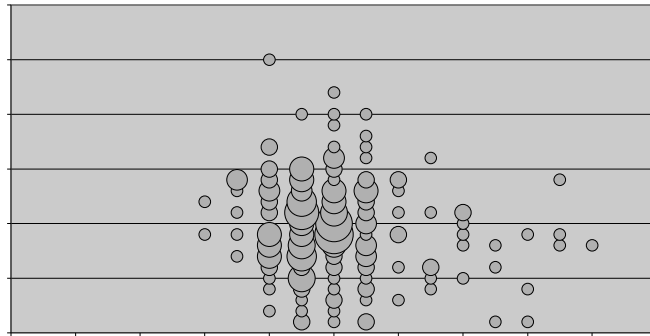


Mean 3,8% (0,1-44); the size of the circles correlates with the number of patients. The smallest circles represent 1 patient; the biggest represent 25 patients
three cases of successful abortion had a decrease of 27,32 and 44%,
two cases of missed abortion had 91 and 159%, and one case of continued pregnancy had an increase of 7,900 %

Fiala et al., 2003

Medical abortion: Verifying expulsion, C. Fiala

Endometrium thickness at follow-up



Mean 10mm (1-24mm); the size of the circles correlates with the number of patients. The smallest circles represent 1 patient; the biggest represent 10 patients

Fiala et al., 2003

Medical abortion: Verifying expulsion, C. Fiala

hCG for verification of expulsion

First trimester surgical abortion:

- Urinary test (low sensitivity of 1,000mIU/ml) at two weeks (Paul et al., 2000)

Medical abortion <9 weeks:

- Urinary test, cut off 500mIU/ml at 3 weeks (Karolinska University Hospital, Sweden)
- Urinary test, cut off 1,000mIU/ml at >1 week (Gynmed Clinic, Vienna)
- Decline in serum hCG at follow up in % of the initial value:
 - **70%** on day 10 (Jourdan and van den Bossche 1991)
 - **60%** at 1 week (Legarth et al. 1991)
 - **60-70.5%** 24 hours following misoprostol or
 - **99.4%** on day 14 (Walker et al., 2001, Honkanen et al., 2002)
 - **80%** after day 6 (Fiala et al., 2003)

Medical abortion: Verifying expulsion, C. Fiala

Verification of expulsion

- **Ultrasound**
 - Gives reliable results in most cases when the yolk sac or CRL was visualised before treatment
 - Is not reliable in very early pregnancy
 - Endometrium is thick in many patients at follow up even after successful expulsion
- **hCG**
 - Has to be used in early pregnancy
 - Is very reliable
 - Drop in hCG >80 % in almost all cases of successful expulsion
 - In the remaining few cases ⇒ ultrasound examination or another follow up hCG

Medical abortion: Verifying expulsion, C. Fiala