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1 **Title:** Uncomplicated abortion with mifepristone and misoprostol in a hemophilia A
2 carrier

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18 **Abstract:**

19 Little evidence exists regarding medical abortion for women with inherited bleeding
20 disorders. A 21-year old primigravid hemophilia A carrier desired a medical
21 abortion. After counseling, she chose medical abortion, which occurred without
22 excess bleeding or surgical intervention.

23

24 **Introduction:**

25 Medical abortion using mifepristone and misoprostol is a safe and effective
26 method for early first trimester termination of pregnancy.[1] However, medical
27 abortion is associated with heavier and longer bleeding compared to surgical
28 abortion. **Women undergoing medical abortion, compared to those having a manual**
29 **vacuum aspiration, have a mean of 14 days versus 9 days of bleeding, respectively,**
30 **and have a decrease in hemoglobin of 0.7 mg/dL or less.**[2-5] Women with
31 coagulopathies have been excluded from clinical trials; accordingly, mifepristone's
32 product label and protocols from major medical organizations list bleeding disorders
33 as a contraindication for mifepristone.[6] This case report describes a hemophilia A
34 carrier, **who is a symptomatic hemophilia A heterozygote,** undergoing an
35 uncomplicated abortion with mifepristone and misoprostol.

36

37 **Case:**

38 A 21 year old gravida 1, para 0 woman presented to our clinic at 46 days
39 gestation requesting an abortion. She is a mildly symptomatic hemophilia A carrier;
40 **her occasional symptoms include** easy bruising, delayed clotting, and heavy
41 menses. **She was diagnosed as a child on routine family surveillance testing due to**
42 **a family history of hemophilia A.** Her menses are light while **using** combined

43 hormonal contraception. Her surgical history includes an uncomplicated wisdom
44 tooth extraction after using nasal desmopressin acetate, which is a synthetic
45 analogue of vasopressin used in patients with hemophilia A to stop bleeding in
46 episodes of spontaneous or trauma-induced injuries. She has two brothers and an
47 uncle with hemophilia A, categorized by factor VIII levels as mild disease, with no
48 history of catastrophic bleeding events. Her last hemophilia panel 7 years prior
49 indicated a factor VIII level of 46% (normal range: 50-150% of normal human
50 plasma, NHP) with all other coagulation factors within normal limits. She recently
51 joined the military and was undergoing basic military training at time of
52 presentation. She reported no bleeding problems or need for desmopressin for
53 several years.

54 The patient had a strong preference for medical abortion for termination,
55 even after extensive counseling regarding her indeterminate bleeding risk. She was
56 aware that need for an emergent surgical intervention was a possibility, and stated
57 that she lived within 10 minutes of an emergency room and that a family member
58 would be staying with her. Her hemoglobin was 12.1 g/dL. She received
59 mifepristone 200 mg orally in the office, and she elected to insert misoprostol 800
60 mcg vaginally approximately 6 hours following mifepristone. She was instructed to
61 self-administer desmopressin 150 mcg intranasally 30 minutes prior to misoprostol
62 use.

63 She returned to clinic one week later for her scheduled follow-up. She used
64 desmopressin and misoprostol as instructed. She reported that she began bleeding
65 and cramping 2 hours later with the heaviest flow occurring 4 hours after
66 misoprostol, soaking 2 pads in that hour. The bleeding then quickly ceased. Her
67 pregnancy symptoms resolved and she reported only spotting at her follow-up visit.

68 Transvaginal ultrasonography revealed no intrauterine gestational sac and an
69 endometrial stripe measuring 8 mm. The patient had a levonorgestrel 52 mg
70 intrauterine system placed for contraception in the same visit, but did not have her
71 requested postabortion hemoglobin drawn. Six months after her abortion, she
72 reported light menses and high satisfaction with her intrauterine contraceptive.

73

74 **Comment:**

75 Medical abortion is associated with heavier and longer bleeding compared to
76 surgical abortion,[2] but excessive bleeding or need for blood transfusion appear
77 similar.[7] However, clinicians may have concern that the bleeding associated with
78 medical abortion makes medical abortion an unsafe option for women with inherited
79 bleeding disorders.[6]

80 Hemophilia A is a genetic deficiency in clotting factor VIII, and bleeding
81 symptoms inversely correlate with factor VIII levels. Its X-linked recessive
82 inheritance affects males, but female heterozygote carriers may have variable
83 bleeding symptoms. Most hemophilia A carriers have a factor VIII level between 30-
84 70% and the majority do not have heavy menstrual bleeding.[8] Very little has been
85 published on hemophilia A carriers' experience with pregnancy termination options,
86 pregnancy complications, or gynecologic issues.[9] Pregnancy complications such
87 as miscarriage, placental abruption, and postpartum hemorrhage have been
88 described in women with inherited bleeding disorders, but primarily among patients
89 with von Willebrand disease, a more prevalent coagulopathy caused by a deficiency
90 of von Willebrand factor. Many of these accounts were case reports and series,
91 which do not allow an estimate of rates.[9] Among 43 women affected by inherited
92 bleeding disorders who reported a miscarriage in a survey by the United States

93 Hemophilia Treatment Centers, 33 (76.7%) self-reported a problem with bleeding
94 during the miscarriage. However, the report did not describe the women's bleeding
95 disorders, how their bleeding problems manifested during the miscarriage, or if
96 their bleeding required medications such as desmopressin, hospitalization, blood
97 transfusion, or surgical intervention.[10]

98 This patient's medical abortion experience was similar to that described by
99 other women, which suggests that medical abortion may be a reasonable option for
100 some hemophilia A carriers with an undesired pregnancy. Information on identifying
101 whether a woman is an appropriate candidate is limited since women with bleeding
102 disorders have been excluded from medical abortion trials. A clinician's evaluation
103 should include a thorough history of her coagulation disorder and other bleeding
104 risk factors, including any recent traumas that could give an estimate of the
105 patient's likelihood of having a bleeding event with her medical abortion and her
106 previous experience with factor replacement therapies. Consultation with a
107 hematologist may help assess bleeding risk, but if it cannot occur before
108 institutional or legal limits for medical abortion, a partial thromboplastin time (PTT)
109 and factor VIII level can provide more information. However, even with a normal
110 factor VIII level of at least 50%, clinicians should still administer desmopressin
111 acetate for bleeding prophylaxis in medical abortion as they would for a surgical
112 procedure. Clinicians should remind patients that emergent curettage remains a
113 possibility and should assess a patient's access to emergency care during the
114 abortion process.

115 In this case of a symptomatic hemophilia A carrier with access to
116 desmopressin and emergency care, the patient highly valued having a choice in
117 abortion options, with a strong preference for medical management. A careful

118 assessment of her bleeding risk included a confirmation of her hemophilia A carrier
119 status, family history, prior use of and response to desmopressin, and recent history
120 of military training with frequent small injuries without needing desmopressin. Her
121 uncomplicated course supports the feasibility of offering medical abortions to select
122 patients with hemophilia A, and the importance of careful history-taking such as
123 their specific coagulopathy, surgical history, and prior bleeding episodes and
124 treatments, to assess their bleeding risk and candidacy for medical abortion.

125

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