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RESEARCH ARTICLE

Intramuscular administration of injection depot medroxy progesterone acetate on day 1 of medical method of abortion

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ABSTRACT

Background: Medical method abortion (MMA) plays a crucial role in providing access to safe, effective and acceptable abortion care. The most effective way to reduce abortion rates is to prevent unintended pregnancy by improving access to consistent, effective, and affordable contraception. Injection DMPA (Depot medroxy progesterone acetate) is one such synthetic progesterone suitable to fulfil this criterion because they are effective, safe, and reversible with fewer side effects. **Objectives:** Present study was carried out to study the success rate of medical method of abortion along with injection depot medroxy progesterone acetate (DMPA) administration on day 1 of medical method of abortion. **Materials and methods:** Present prospective observational study conducted in the department of Obstetrics & Gynaecology in tertiary care hospital during October 2019 – September 2021. Participants were followed up for five visits after enrollment and were contacted at day 1, day 3 and 3 months & 6 months. **Results:** In present study 55 women were included. Majority of women 32(58.18%) belonged to the age group of 26-30 years. Maximum women 29 (52.73%) had gestational age >7-9 weeks. 46 (86.27%) women were having gravidity between G2-G4. The success rate of MMA along with administration of injection DMPA on the same day was 94.55%. The continuation rate of inj. DMPA (IM) was 90.91%. 4(7.27%) had discontinued inj. DMPA (IM) due to its side effect (amenorrhea). The success rate of injection DMPA as a contraception was 100%. **Conclusion:** It was concluded that initiation of contraception (Inj. DMPA) on initial visit for medical abortion resulted in high continuation rate without affecting the success of medical abortion.

Keywords: Medical method of abortion, injection depot medroxy progesterone acetate, induction abortion interval.

Comprehensive abortion care is included in the list of essential health care services published by WHO in 2020. According to WHO around 45% of all abortions are unsafe, of which 97% take place in developing countries. Almost 10 women die due to unsafe abortions each day [1]. Impressive gains in contraceptive use have resulted in reducing the number of unintended pregnancies, but have not eliminated the need for access to safe abortion. Unsafe abortion and associated morbidity and mortality in women are avoidable. Safe abortion services should be available and accessible for all women [2]. In this regard medical method abortion (MMA) plays a crucial role in providing access to safe, effective and acceptable abortion care. The 2012 WHO stated that many interventions in medical abortion care, particularly those in early pregnancy, can be provided on an outpatient basis at the primary care level [3]. The most effective way to reduce abortion rates is to prevent unintended pregnancy by improving access to consistent, effective, and affordable contraception. Lack of knowledge, misperceptions, and exaggerated concerns about the safety of contraceptive methods are major barriers to contraceptive use [4].

Injection DMPA (Depot medroxy progesterone acetate) is one such synthetic progesterone suitable to fulfil this criterion because they are effective, safe, and reversible with

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fewer side effects. As per Government of India guidelines recommends administration of injection DMPA any time after the first pill of MMA regimen. But there have been theoretical concerns that initiating progesterone based contraceptives like injection DMPA may affect the efficacy of medical abortion in view of potential competition between mifepristone (anti-progesterone) and injection DMPA (progesterone) at the progesterone receptor when given on day 1 of MMA along with mifepristone [5]. Also there have been very few studies conducted where injection DMPA is given on day 1 of MMA along with tablet mifepristone in India. Keeping all this in mind we conducted a study to find out the effectiveness of injection DMPA as contraceptive and to study the success rate of medical method of abortion after DMPA administration on the same day.

Materials and methods

A prospective observational study conducted in the department of Obstetrics & Gynaecology in tertiary care hospital from October 2019 – September 2021. The study was conducted after formal approval of institutional ethical committee. Total 55 samples were selected who met the designed set of criteria. Informed written consent was taken from patients and their families.

Inclusion criteria:

1. Women willing for MTP coming up to 9 weeks of gestation confirmed by ultrasonography.
2. Women willing for inj. DMPA (IM) as contraceptive.
3. Women who are willing to participate in the study.

Exclusion criteria:

1. Women with anaemia (Hb<8 gm%), heart disease, uncontrolled hypertension>160/100 & bronchial asthma.
2. Confirmed or suspected ectopic pregnancy, undiagnosed adnexal mass & chronic adrenal failure.
3. Current long-term systemic corticosteroid therapy, current anticoagulant therapy, inherited porphyrias & anti-tubercular drugs.
4. Uncontrolled seizure disorder
5. Allergic or tolerance to mifepristone/misoprostol or other prostaglandins.
6. Pregnancy with IUD in situ and pregnancy with fibroid.
7. Women with serious pelvic infections/sepsis, severe renal, liver or respiratory disease.
8. Women who were lost to follow up within day 14.

Women who fulfilled the above inclusion criteria were counselled and detailed information of the study was given. Informed written consent obtained from each woman after explaining the purpose of the study. All study participants were registered and complete physical and bimanual pelvic examination was done to assess the size of the uterus and contraindications like ectopic pregnancy, fibroid or any infection was ruled out, which was further confirmed by ultrasound. Formalities for MMA ('I' and 'C' form) were completed and required MTP documentation was done. Baseline characteristics and detailed history was noted. Routine investigations were sent.

On day 1 (1st visit): Women were given 200 mg of tab. mifepristone orally. Under all aseptic precautions, Inj. DMPA (Intramuscular) 150 mg administered at the site (arm or buttocks) preferred by the woman on the same day i.e., immediately after the first pill intake of MMA. Injection anti D (150 microgram) given intramuscularly to Rh negative women. Then advised to avoid sexual intercourse and counselled that may have abdominal pain; bleeding and may sometimes even expel products of conception.

On day 3 (2^{nd} visit): H/o bleeding, pain, or any other side effects was noted. Then 2 tabs of misoprostol i.e., 400 micro gm were given sublingually. The women were kept under observation. Women were stayed in the hospital for 4 hours, and her vitals were recorded hourly. Analgesics (Tab paracetamol 650mg oral SOS) were given to those women who had intolerable pain. Oral antibiotic (Tab amoxicillin + clavulanic acid 625mg oral BD along with tab pantoprazole 40mg OD) coverage was started and asked to continue for next 3 days. They were advised to avoid sexual intercourse, use clean sanitary napkins and avoid tampons. The timing of onset of pain, bleeding PV, or passage of products was recorded. Any side effects were noted. Also bleeding and other warning signs and symptoms for the next 4 hours and at the end of 4 hours, per vaginal examination was conducted to see if the cervical os was open or not and products if felt were partially expelled, removing them digitally and was sent home with proper counselling. In cases where there was no bleeding PV or if cervical os was not open after 4 hours, an additional dose of tab misoprostol 400 mg (2 tablets) was given sublingually and observed for bleeding and other warning signs and symptoms for another 4 hours and sent home. They advised to report back to the hospital in case of excessive bleeding (soakage of 2 thick pads in an hour for two consecutive hours), acute abdominal pain or fainting attacks or if any other adverse reactions occur. Phone number of the doctor was given to every woman and asked to telephonically contact in case of any questions following the administration of the tab. misoprostol. Patient advised to follow up on day 14.

On day 14 (3rd visit): Per vaginal examination was then performed to clinically judge the completion of abortion, and if the cervix was open and if any products of conception felt were digitally removed. Ultrasound examination of pelvis was carried out to rule out retained products of conception in cases where the examination didn't confirm the expulsion of products. If pelvic ultrasound examination showed the presence of an ongoing pregnancy, vacuum aspiration was arranged. The onset of bleeding, timing of passage of POC, duration of bleeding was noted. Side effects of the drugs used for MMA were noted. Complications were noted in the form of incomplete abortion, perforation of uterus, haemorrhage requiring blood transfusion and sepsis. Women were followed up after 3 months and 6 months. In the follow up visit, repeat pregnancy rate and side effects with continuation of inj. DMPA were noted.

At end of 3 months (4th visit): Side effects of injection DMPA were noted. In follow up visit, repeat pregnancy rate with continuation of inj. DMPA as contraceptive was noted.

At the end of 6 months (5th visit): Side effects of injection DMPA were noted. Repeat pregnancy rate with continuation of inj. DMPA as contraceptive was noted.

Statistical analysis: Data was compiled in MS-EXCEL Sheet and for analysis of this data SPSS (Statistical package for social sciences) Version 25th was used. Qualitative data was represented by frequency and percentage and quantitative data was represented by mean and SD.

Results

In present study 55 women were enrolled. Majority of 32(58.18%) women belonged to the age group of 26-30 years and mean the age was 28.58 ± 3.51 years (figure 1). As 46 (83.64%) women were belongs to urban area and 9 (16.36%) were from rural area. Majority of women 38 (69.09%) were having secondary education whereas 10 (18.18%) were having primary education. 50 (90.91%) women belonged to lower middle class. Majority of 46 (86.27%) women were having gravidity between G2-G4 and 9 (16.36 %) women were having gravidity ≥ 5. Out of 55 women, 29 (52.73%) women were having gestational age between 7-9 weeks and 26 (47.27%) were having less than or equal to 7 weeks (table 1).

Out of 55 women, 5 (9.09%) women had previous history of LSCS, 4 (7.27%) women had history previous abortion. One woman had history of leprosy (on tab Dapsone 100mg OD), one had history of epilepsy (controlled on tab levitracetam 500mg BD) and one woman had history of diabetes with hypertension (controlled on tab metformin 500 mg BD and tab. nicardia 20 mg BD). Ground 5 was the most common indication for MTP (50.98%) and ground 2 accounted for the remaining 49.02%. 51 (92.73%) women were administered inj. DMPA at deltoid region and 4 (7.27%) at gluteal region as per her choice of site.

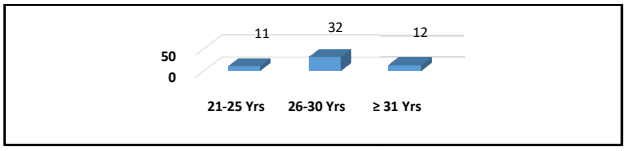

Figure 1: Age wise frequency of study women

Table 1: Distribution according to gestational age (weeks)

Gestational age in weeks	Frequency (n = 55)	Percentage
≤7 weeks	26	47.27
>7 – 9 weeks	29	52.73
Total	55	100

Table 2: Distribution according to induction abortion interval in hours

Induction abortion interval in hours	≤ 7 weeks (n=26)	>7 – 9 weeks (n=29)	Total (n=55)
≤ 4Hours	25 (96.15%)	27 (93.1%)	52 (94.54%)
> 4 Hours	01 (3.85%)	02 (6.9%)	03 (5.46%)

Table 3: Distribution according to average duration of bleeding (days)

Categories	≤ 7 weeks (n=26)	>7 – 9 weeks (n=29)	Total (n=55)
Duration of bleeding for 0-6 days	10(38.46%)	10(34.48%)	20(36.36%)
Duration of bleeding for 7-14 days	16(61.54%)	19(65.52%)	35(63.64%)
Average duration of bleeding in days ± SD	7.23 ± 1.21	7.26 ± 1.21	7.22 ± 1.20
Range in days	6-10	6-13	6-13

Table 4: Side effects of MMA

Side effects of MMA	≤ 7 weeks (n=26)	>7 – 9 weeks (n=29)	Total
Abdominal pain requiring analgesia	13 (50.00%)	11 (37.93%)	23 (41.8%)
Shivering	02 (07.69%)	03 (10.34%)	05(9.1%)
Nausea	12 (46.15%)	17 (58.62%)	29(52.7%)
Vomiting	02 (07.69%)	05 (17.24%)	07(12.7%)
Diarrhoea	01(3.8%)	01(3.4%)	02(3.6%)

Note: Some participants had more than one symptom

Majority of 52 (94.54%) women had induction abortion interval of ≤ 4 hours and 3 (5.46%) women had >4 hours of induction abortion interval (table 2). During MMA 3(5.46%) women required an additional dose of 400 microgram of misoprostol for complete abortion.35(63.64%) women had bleeding for 7-14 days and 20(36.36%) women had bleeding up to 6 days. Average duration of bleeding was 7.22±1.20 days with range of 6-13 days (table 3). Out of 26 women belonging to gestational age group of ≤ 7 weeks,13 (50%) women had abdominal pain requiring analgesia, shivering in 2 (7.69%), nausea in 12 (46.15%), vomiting in 2 (7.69%) and diarrhea in 1(3.8%) women. But in women with GA >7-9

weeks majority i.e., 17 (58.62%) had nausea, 11 (37.93%) had abdominal pain requiring analgesia, 5 (17.24%) had vomiting, shivering in 2 (7.69%), and diarrhea in 01(3.4%) (table 4). Out of 55 women, 1 (3.85%) woman had incomplete abortion requiring MVA with gestational age ≤ 7 weeks and 2 (6.90%) women had incomplete abortion with gestational >7 – 9 weeks requiring MVA. Not a single woman required blood transfusion. Not a single woman had infection or sepsis.

Table 5: Side effects of injection DMPA (IM)

Inj. DMPA (IM) interval	Side effects	Frequency (%)
After injection day 1, (Dose 1) n=55	Pain at injection site	7 (26.92%)
After 3 months (Dose 2) n=53	Irregular spotting PV	15 (28.30%)
	Amenorrhea	17 (32.08%)
	Weight gain	05 (9.43%)
After 6 months (Dose 3) n=50	Irregular spotting PV	20 (40%)
	Amenorrhea	28 (56%)
	Weight gain	07 (14%)

Some women had more than one side effect.

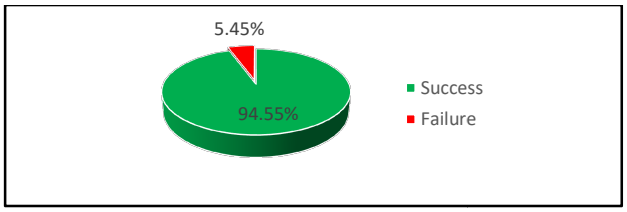

Figure 2: Success rate of MMA along with administration of inj. DMPA (IM)

The overall success rate of MMA along with administration of injection DMPA on the same day was 94.55%. Only 3 (5.45%) women had incomplete abortion requiring MVA during the course of study (figure 2).

About 53 women reported for follow up at the end of 3 months and 50 women reported for follow up at the end of 6 months. Thus, the overall continuation rate of inj. DMPA (IM) was 90.91%. During the course of study 2 women had lost to follow up at the end of 3 months and 3 women had lost to follow up at the end of 6 months. The reason for discontinuation of intramuscular inj. DMPA was side effect (amenorrhoea) in 4 (7.27%) and 1 (1.82%) discontinued because they were planning for conception. After injection, 7 (26.92%) women had pain at the injection site. Whereas after 3 months, 15(28.30%) women had irregular spotting PV, 17 (32.08%) had c/o amenorrhea and 5(9.43%) had weight gain of around 1-2 kg at the end of 3 months. After 6 months, out of 50 women, 20(40%) women had irregular spotting PV, 28(56%) had c/o amenorrhea and 07(14%) had weight gain of around 1-2 kg at the end of 6 months (table 5). As there was no repeat pregnancy observed during the course of study, the success rate of injection DMPA as contraception was 100 %.

Discussion

Injection DMPA is being made widely available and at free of cost by the Government of India at public health institutions as a family planning method. In present study, maximum of 32(58.18%) women belonged to the age group of 26-30 years with mean age of 28.58 ± 3.51 years. whereas Park J et al [6] found mean age of women was 24.8 ± 5.3 years. Also Sonalkar S et al [7] observed the mean age of 25.3 years. Raymond EG et al[8] found maximum 119 (52.9%) women belonged to 25 years or older age. In this study majority of women 38 (74.51%) had secondary education in contrary Raymond EG et al [7] reported that 36.9% of women had primary education. In present study the mean BMI was 23.04, similarly Lang C et al [8] observed the mean BMI was 23.7.

Out of 55 women, 29 (52.73%) women belonged to GA > 7 - 9 weeks and 26 (47.27%) women with GA ≤ 7 weeks. Similarly, Raymond EG et al [7] observed that 47.51% women were with GA ≤ 7 weeks and 39.19% women belonged to GA of > 7-9 weeks. Lang C et al [8] 82.00% of women were with GA ≤ 7 weeks and 18.00% women belonged to GA > 7 - 9 weeks.

In present study we observed that 4 (7.27%) women had h/o previous abortion which were less than study conducted by Raymond EG et al [8] (36.4%) and Lang C et al [9] (31%).

In the present study the induction abortion interval ≤ 4 hours among 96.15% of participants with ≤7 weeks of gestation and 93.10% women with >7 - 9 weeks of gestation. It also showed that the induction abortion interval > 4 hours among 3.85% of women with ≤7 weeks of gestation and 6.90% with >7 - 9 weeks of gestation. In one study conducted by Church E et al [10] where long-acting reversible contraception (LARC) implant was inserted on the day of the first part of the medical termination, at approximately the same time as mifepristone administration, induction abortion interval was found to be ≤4 hours in 62% of women and >4 hours in 38% of women. As there are very few studies where inj. DMPA was given on the same day of MMA, hence in present study discussion for the induction of abortion interval of MMA is done along with the other studies where inj. DMPA was not given.

About 36.36% of women had bleeding up to 6 days and 63.64% of women had overall bleeding for 7-14 days. Whereas Raymond EG et al [8] found that 21.8% of women participants had bleeding for 0-6 days and 53.2% had bleeding for 7-14 days. Sonalkar S et al [7] found range of

bleeding was found to be 8-29 days. Out of 55 women participant 52 (94.55%) had complete abortion. Only 3 women required manual vacuum aspiration (MVA) after MMA along with DMPA intramuscular injection. As per Sonalkar S et al [7] complete abortion was observed in 85% of study participant. Raymond EG et al [8] reported 93.6% women had complete abortion. In another study by Park et al[5] 94.55% study women had complete abortion after DMPA injection on the same day as mifepristone and concluded that it did not affect the success rate of medical abortion.In present study side effect observed was pain at the site of injection, amenorrhea irregular spotting and weight gain. Other studies such as Kochar S et al [11] found that 7% of participant had pain at injection site and weight gain was in 10% of study participant. In study by Gupta V et al [12] 69.50% had irregular PV spotting, amenorrhea in 17.10% and weight gain in 16.20% of women participants. Success rate of inj. DMPA (IM) as a contraception in the form of repeat pregnancy was 100% which is also found in study done by Lang C et al [9] (100%) and Sonalkar S et al [7] (80%). In this present study the overall continuation rate of inj. DMPA (IM) was 90.91% which was higher than the study conducted by Sonalkar S et al [7] (20%). The high continuation rate observed in present study was due to repeated telephonic reminders to the participants. Also women were given choice to receive their follow up doses at their nearby hospital that were later followed up telephonically.

Conclusion

From the present study it was concluded that initiation of contraception (Inj. DMPA [intramuscular]) on initial visit for medical abortion resulted in high continuation rate without affecting the success of medical abortion.

Conflict of interest: None. **Disclaimer:** Nil.

References

1. WHO. Safe abortion: technical and policy guidance for health systems. Geneva: WHO; 2018.
2. World health Organization. Safe abortion care: the public health and human rights rationale. Safe Abortion: Technical and Policy Guidance for Health Systems. Geneva: WHO; 2012.
3. World Health Organization. Medical management of abortion. Geneva: WHO; 2019 Jan 30.
4. Jain R, Muralidhar S. Contraceptive methods: needs, options and utilization. The Journal of Obstetrics and Gynecology of India. 2011 Dec 1; 61(6): 626-34.
5. Family Planning Division Ministry of Health & Family Welfare. Reference Manual for Injectable contraceptive (DMPA). New Delhi: GOI; 2016.
6. Park J, Robinson N, Wessels U, Turner J, Geller S. Progestin-based contraceptive on the same day as medical abortion. International journal of gynaecology and obstetrics. 2016; 133(2): 217 - 20.
7. Sonalkar S, McClusky J, Hou MY, Borgatta L. Administration of depot medroxyprogesterone acetate on the day of mifepristone for medical abortion: a pilot study. Contraception. 2015 Feb 1; 91(2): 174-7.
8. Raymond EG, Weaver MA, Louie KS, Tan YL, Bousiéguez M, Aranguré-Peraza AG, et al. Effects of depot medroxyprogesterone acetate injection timing of medical abortion efficacy and repeat pregnancy. Obstetrics & Gynecology. 2016 Oct 1; 128(4): 739-45.
9. Lang C, Chen ZE, Johnstone A, Cameron S. Initiating intramuscular depot medroxyprogesterone acetate 24–48 hours after mifepristone administration does not affect success of early medical abortion. BMJ sexual & reproductive health. 2018 Oct 1; 44(4): 242-7.
10. Church E, Sengupta S, Chia KV. The contraceptive implant for long acting reversible contraception in patients undergoing first trimester medical termination of pregnancy. Sexual & Reproductive Healthcare. 2010 Aug 1; 1(3): 105-9.
11. Kochar S, Kumar A, Nama A, Suthar N. A prospective study to know the efficacy of short-term use of injectable depot medroxy progesterone acetate for contraception in tertiary care hospital from North West Rajasthan, India. International Journal of Reproduction, Contraception, Obstetrics and Gynecology. 2020 Jun 1; 9(6): 2482-6.
12. Gupta V, Chawla S, Goel PK. Injectable depot medroxy progesterone acetate: A safe contraceptive choice in public health system of India. International Journal of Preventive Medicine. 2020;11: 180.

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