

Case Report



# Conservative Management of Ectopic Pregnancy Following Depot Medroxyprogesterone Acetate Injection: A Case Report

Farzaneh Rashidi<sup>1</sup>, Saeideh Shahsavari<sup>2</sup>, Azam Moridi<sup>2</sup>, Sareh Dashti<sup>3</sup>, Nasibeh Roozbeh<sup>2\*</sup>

1. Department of Midwifery, School of Medicine, North Khorasan University of Medical Sciences, Bojnurd, Iran.
2. Mother and Child Welfare Research Center, Hormozgan University of Medical Sciences, Bandar Abbas, Iran.
3. Department of Midwifery, Faculty of Nursing and Midwifery, Mashhad Branch, Islamic Azad University, Mashhad, Iran.



**Citation** Rashidi F, Shahsavari S, Moridi A, Dashti S, Roozbeh N. Conservative Management of Ectopic Pregnancy Following Depot Medroxyprogesterone Acetate Injection: A Case Report. *Hormozgan Medical Journal*. 2024; 28(1):55-58. <http://dx.doi.org/10.32598/hmj.28.1.9>

**doi** <http://dx.doi.org/10.32598/hmj.28.1.9>



**Article info:**

**Received:** 21 Sep 2023  
**Accepted:** 17 Nov 2023  
**Available Online:** 01 Jan 2024

**Keywords:**

Ectopic pregnancy, Pelvic pain, Depomedroxyprogesterone acetate, Pregnancy

## ABSTRACT

**Objectives:** Ectopic pregnancy is the most common cause of maternal mortality in the first trimester of pregnancy. The use of progesterone-containing contraceptives is a risk factor for ectopic pregnancy. This study reports a rare case of ectopic pregnancy following a depot medroxyprogesterone acetate (DMPA) injection that was managed conservatively.

**Case Presentation:** A 36-year-old woman (gravida 2) was referred to the Gynecology Clinic of the Persian Gulf Hospital, Bandar Abbas, Iran with a history of amenorrhea, vague pelvic pain, and no past medical history, except for DMPA injection, three months before the symptoms. Ectopic pregnancy was determined based on ultrasonography and beta-human chorionic gonadotropin (BHCG) evaluation. The patient was managed conservatively with serial ultrasonography and BHCG titration due to normal laboratory tests, stable clinical status, and a decline in BHCG titration.

**Conclusion:** Amenorrhea and pelvic pain in all women of childbearing age should be considered an alarming sign of ectopic pregnancy. In case of stable hemodynamic status, the patient can be conservatively managed with serial trans-vaginal ultrasonography and evaluation of serum BHCG till the resolution of symptoms.

**\* Corresponding Author:**

*Nasibeh Roozbeh, Associate Professor.*

*Address: Mother and Child Welfare Research Center, Hormozgan University of Medical Sciences, Bandar Abbas, Iran.*

*Tel: +98 (763) 3350445*

*E-mail: [nasibe62@yahoo.com](mailto:nasibe62@yahoo.com)*

## Introduction

**E**ctopic pregnancy is defined as the implantation of the fertilized ovum in any tissue other than endometrium [1]. Ectopic pregnancy can be life-threatening and is the leading cause of maternal mortality in the first trimester [1, 2]. Ectopic pregnancy is a common pregnancy complication worldwide; however, its prevalence differs between countries. The prevalence of ectopic pregnancy in developing countries ranges from one in 21 to 44 pregnancies. The prevalence of ectopic pregnancy has increased four-fold during the past 20 years [3]. The reasons for the increased prevalence of ectopic pregnancy include the growing use of fertility techniques, fallopian tube surgery, fallopian tube damage, and genitourinary system infections. Infertility and its management methods, as well as failure in progesterone-containing contraception, are also considered risk factors for ectopic pregnancy [4, 5].

Although ovulation is completely suppressed by progesterone injection, progesterone contraception failure increases the risk of ectopic pregnancy. Unlike implantation methods, contraception success in injection progesterone depends on the ability of women to use this method properly and perform the injections at the exact time intervals. The known physiologic effects of progesterone on the fallopian tubes include reduced mobility of the isthmus and utero-tubal junction sections of the fallopian tubes, destruction of ciliated cells, and increased frequency of cilia movement. The combination of these mechanisms can invert gamete transport into the fallopian tubes. The relationship between ectopic pregnancy and progestin-only pills and emergency contraceptive pills has been reported in some studies. However, the prevalence of ectopic pregnancy is low in the administration of progesterone injections [5]. This study reports a case of ectopic pregnancy following a depot medroxyprogesterone acetate (DMPA) injection that was successfully managed conservatively.

## Case Presentation

Our patient was a 36-year-old gravida 2 woman who received one DMPA injection (150 mg) on the third menstruation day for contraception three months before admission. She experienced amenorrhea in the first two months after DMPA injection. The patient was referred to the Gynecology Clinic of the [Persian Gulf Hospital](#), Bandar Abbas, Iran, due to gastrointestinal symptoms, including flatulence and nausea along with vague pelvic pain. She underwent ultrasonography, which revealed a

114×28×71 mm hypoechoic multiseptated avascular region expanding from left to right adnexa in the posterior cul-de-sac, and an 18×43 mm deformed and collapsed lesion with the thick membrane in the left ovary. These findings were indicative of ectopic pregnancy. Therefore, serum beta human chorionic gonadotropin (BHCG) was assessed. Serum BHCG level was 8756 mIU/mL.

She was admitted to the hospital with the diagnosis of ectopic pregnancy. Laboratory evaluation, including anemia workup, liver, and renal function tests, and coagulation tests as well as blood group and Rh were performed for the patient. Except for a mild anemia, all other laboratory parameters were within normal range. Transvaginal ultrasonography and serum BHCG assessments were performed 48 h after the first BHCG titration. This time serum BHCG level was 5430 mIU/mL. The pelvic ultrasonography revealed a 30×36 mm gestational sac mainly in the right adnexa and a 214-cc hypoechoic septate region in the posterior cul-de-sac. The patient was discharged, considering her stable vital signs, normal laboratory assessments, and reduction in BHCG titration. The patient was instructed to refer to the Gynecology Clinic for serial BHCG and transvaginal ultrasonography.

Her BHC continued to decline and reached 2075 mIU/mL four days after the first titration. Third pelvic ultrasonography was performed 10 days after the primary assessment and revealed a 40×29 mm gestational sac. The patient was followed up with serial BHCG and ultrasonography till negative Bacillus Calmette-Guerin and complete resolution of the gestational sac in ultrasonography were determined. The patient gave consent to present all the data in this case report.

## Discussion

The current case report demonstrated a rare case of ectopic pregnancy after DMPA injection that was conservatively managed. All ectopic pregnancies do not require treatment and watchful waiting and conservative management may be logical for the management of some ectopic pregnancies. Extensive observation of vital signs, serum BHCG titration, and trans-vaginal ultrasonography are recommended in case of conservative management in ectopic pregnancies [6]. In the current case report, conservative management was chosen for the patient due to her stable vital signs and laboratory findings, regardless of the extent of adnexal involvement. The patient recovered with no complications after serial serum BHCG titration and transvaginal ultrasonography.

Theoretically, DMPA inhibits estrogen receptors and reduces circulatory E2 levels due to its anti-estrogenic effects. Therefore, DMPA can reduce the expression of estrogen receptors in the fallopian tubes and thus reduce fallopian tube movements and facilitate ectopic pregnancy [7, 8]. The findings of previous studies have shown that the rate of pregnancy after injection contraceptive methods is low and is approximately 0.1 to 1.7 in 100 women [9-13]. In a study on 949182 women who received DMPA injections, only four cases of pregnancies were reported. The majority of pregnancies after DMPA injection are detected in the second trimester [14, 15]. Therefore, it is recommended that pregnancy should be ruled out before DMPA administration [15].

## Conclusion

Amenorrhea and pelvic pain should be considered alarming symptoms of ectopic pregnancy. Furthermore, in hemodynamically stable patients, conservative management can be considered by extensive vital signs surveillance along with serial serum BHCG and transvaginal ultrasonography.

## Ethical Considerations

### Compliance with ethical guidelines

All ethical principles are considered in this article. The participants were informed of the purpose of the research and its implementation stages. She was also assured about the confidentiality of their information and were free to leave the study whenever they wished, and if desired, the research results would be available to them. A written consent has been obtained from the subject. Principles of the Helsinki Convention was also observed.

### Funding

This research did not receive any grant from funding agencies in the public, commercial, or non-profit sectors.

### Authors' contributions

Conceptualization and supervision: Farzaneh Rashidi and Nasibeh Roozbeh; Data collection: Farzaneh Rashidi, Saeideh Shahsavari, Azam Moridi and Sareh Dashti; Funding acquisition and resources: Saeideh Shahsavari, Azam Moridi and Nasibeh Roozbeh; Methodology, investigation and writing: All authors.

## Conflict of interest

The authors declared no conflict of interest.

## Acknowledgments

The authors thank all the staff of the [Persian Gulf Hospital](#) and the clinical team of [Hormozgan University of Medical Sciences](#) based in the hospital who helped us in this study.

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