Full Abstract: Clinical Case Report

A Rare Case of Unilateral Mastitis in a Healthy 19-year-old Female Post-Depo-Provera Injection

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INTRODUCTION

Non-lactating mastitis is a condition that is rarely seen but is more common in the reproductive age group than in menopausal women. It is an infrequent adverse reaction to the contraceptive injection, Depo-Provera, also known as medroxyprogesterone acetate, a progesterone derivative hormone. The corresponding case reports a healthy 19-year old female who developed a painful left breast mass, within a month, post-Depo-Provera injection. Radiography ruled out any malignancy and concluded mastitis. We intend to acknowledge that there is a correlation between Depo-Provera and the development of non-lactating mastitis. The purpose is to generate awareness about this possible rare side effect and prevent misdiagnosis.

CASE DESCRIPTION

A 19-year-old healthy African-American female presented to the Family Medicine clinic for a follow-up. The patient stated that one week prior, she was admitted to the Emergency Department for left breast pain. Days leading up to her ED visit, the patient experienced non-radiating left breast pain localized in the periareolar region that progressively worsened and rated it 8 out of 10 on the pain scale. The patient characterized the pain as constant, tender, and throbbing. She also experienced flu-like symptoms and headaches that eventually resolved. A unilateral left breast ultrasound was performed at the ED which reported an ill-defined, heterogeneous 6 cm subareolar mass with a slight increase in vascularity. She was prescribed Motrin 600 mg to alleviate the pain temporarily. On physical examination at the clinic, a 6 cm subareolar mass at the 1 o'clock position with an inverted nipple was noted. Upon palpation of the left breast, a well-defined-circumscribed mass, hard in consistency, was found to be tender with no discharge from the nipple. Unilateral right cervical lymphadenopathy was a positive finding on review of systems. Patient was referred for a bilateral mammogram to rule out any malignancy. Bilateral digital mammography and left breast ultrasound findings concluded improving mastitis with possible development of a tiny abscess collection in the retroareolar region. In comparison with the prior assessment, the overall size of the abnormal region appeared decreased with mild persistent hyperemia. Patient reported receiving her first dose of

Depo-Provera injection one month prior to the onset of her symptoms. Her last menstrual period was a few days before receiving Depo-Provera. Patient noted experiencing premenstrual symptoms that month; however, denied menses. She reported that menses resumed a month later, which lasted for three weeks. Her pertinent family history includes findings of a breast mass in the patient's paternal aunt and grandmother. The patient denied prescription and recreational drug use, alcohol intake, and smoking. After further discussion with her family physician, the patient was prescribed Clindamycin 300 mg tablet, 1 capsule three times a day for 10 days as a prophylactic measure. She was advised to avoid skin-to-skin contact to prevent the spread of infection. Patient was reassured and counseled to return to the clinic for a one week follow-up. Patient was also referred for an ultrasound of the breast as part of the assessment plan to be scheduled in three months.

DISCUSSION OF PRACTICE GUIDELINES

Mastitis is defined as the inflammation of the breast tissue that often coincides with an infection[1]. Clinically, it presents with breast pain, swelling, tenderness, warmth, and redness. Other findings which may occur are purulent nipple discharge and flu-like symptoms. Mastitis is commonly seen in women who are breastfeeding and, less commonly, in those who are not[2]. Though the prevalence of non-lactating mastitis is rare, it is more common in the reproductive age group compared to menopausal women[3]. In a study where biopsies of breast tissue were obtained from benign breast disease, it was reported that the frequency of non-lactational mastitis was 3%[4] . Many factors may lead to non-lactating mastitis; however, for this case study, the emphasis will be directed to the correlation between the use of Depo-Provera and the development of mastitis.

Depo-Provera is an intramuscular injectable suspension containing the active ingredient medroxyprogesterone acetate (progestin hormone), given as a method of contraception. The recommended dose of 150 mg per mL is administered every three months. This birth control method is not recommended for long-term use, i.e., longer than 2 years[5]. The mode of action of progestin is to bind to the progesterone receptor in the hypothalamus, the pituitary gland, and the female reproductive tract by inhibiting the GnRH (gonadotropin-releasing hormone) secretion. The decrease in pulsatile release of GnRH halts the midcycle Luteinizing Hormone (LH) surge, leading to inhibition of follicular maturation and ovulation. Progesterone acts synergistically with estrogen in the development of the breast. The action of progesterone on the progesterone receptor is crucial for the mammary gland tissue expansion during post-puberty breast development[6].

In our case study, the patient developed mastitis within a month of her first dose of Depo-Provera injection. This led us to question if Depo-Provera is a potential trigger to the development of mastitis in this patient. Evidence shows that during the clinical trials and post-marketing

experience, the adverse reaction using Depo-Provera was breast pain and breast lump. In the two clinical trials conducted by Pfizer, breast pain was reported to have an incidence of 2.8% among 3,900 women ranging from the ages of 15 to 51[5].

In a phase IV clinical study administered by the US Food and Drug Administration (FDA), data collected from 2005 to 2019, reported that women developed mastitis within a month of taking Depo-Provera. 12 out of 14,308 women (0.09%), ranging from age 10 to 49, who experienced these side effects post-Depo-Provera, reported having mastitis[7].

Occurrence of mastitis in women post-Depo-Provera are in the following age groups[7]:

- **10-19: 16.67%**
- **20-29: 33.33%**
- **30-39: 41.69%**
- **40-49: 8.33 %**

Family Physicians have a significant responsibility to educate and reassure patients on the common and rare adverse effects before starting Depo-Provera in order to help establish realistic expectations. This plan should be encouraged to decrease the chance of unanticipated side effects. Patients should also be assessed for medical eligibility before and during the use of hormonal contraceptives. Typically, the adverse effects of hormonal contraceptives usually diminish with continued use of the same method. If there are significant alarming concerns beyond the three months of usage, then alternative methods should be considered, and the patient may need to be reassessed. If a patient shows signs and symptoms of mastitis, they need to be reassured and managed with care, with the use of digital mammography, ultrasound, and antibiotics. A sound clinical judgment is the cornerstone for treating patients with benign breast disease, consisting of a thorough evaluation, comprehensive check and proper treatment to avoid the risk of over diagnosing in some.

CONCLUSION

The primary purpose of this case is to establish the prevalence of mastitis in women taking Depo-Provera injection. The case study has shown a strong correlation in the development of mastitis among young non-lactating women who are receiving Depo-Provera shots. Primary care physicians are the gateway to medicine; playing a crucial role in addressing and acknowledging the associated risk factors and the adverse effects when initiating any course of treatment for patients. Though the degree of association between Depo-Provera and the development of mastitis is yet to be determined, mastitis should be considered as a possible differential for similar cases following the injection.

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