

## CLINICAL CASE ROUNDS IN CHILD AND ADOLESCENT PSYCHIATRY

# De Novo Self-Mutilation and Depressive Symptoms in a 17-year-old Adolescent Girl Receiving Depot-Medroxyprogesterone Acetate

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## Abstract

**Introduction:** Contraception-induced mood changes have been identified since the 1960s. To our knowledge, there has been no reported case about self-mutilation associated to any form of contraception. We report the case of a 17-year-old adolescent girl who presented with de novo self-mutilation and depressive symptoms three and a half weeks after the administration of 150 mg of Depot-Medroxyprogesterone Acetate (DMPA). **Method:** Clinical case report and literature review. Possible confounding factors are reviewed. **Results:** The patient had no personal psychiatric history and no significant family psychiatric history. A DSM-IV diagnosis of “mood disorder due to DMPA with depressive features” was formulated. There was no evidence of abnormal personality functioning. The mental status exam and collateral information validated the severity of her condition. **Discussion:** DMPA is a birth control method especially useful for adolescent girls and possible secondary mood symptoms should not limit its access. However, since depressive symptoms substantially interfere with daily functioning and may have unfortunate consequences like self-mutilation and suicidal ideation, it is important to remain vigilant regarding the onset of mood symptoms following contraceptive use in adolescent girls. This vigilance should be more specific regarding adolescent girls with a history of mood disorders, anxiety disorders, self-mutilation or family diathesis of these conditions.

**Key words:** *contraceptive, mood disorder, self-mutilation, adolescent*

## Résumé

**Introduction:** Les changements d'humeur liés à la contraception sont étudiés depuis les années 60. À notre connaissance, aucun cas d'automutilation lié à la contraception n'a été signalé. Les auteurs présentent le cas d'une adolescente de 17 ans qui présentait des comportements d'auto-mutilation à répétition et des symptômes de dépression, trois semaines et demie après avoir reçu 150 mg d'acétate de médroxyprogestérone en dépôt (DMPA). **Méthodologie:** Étude du rapport clinique de la patiente et de la littérature, analyse des éventuels facteurs confondants. **Résultats:** La patiente n'avait ni dossier psychiatrique ni antécédent de maladie psychiatrique dans sa famille. Elle a reçu un diagnostic de «trouble de l'humeur» dû au DMPA, avec traits dépressifs, d'après le DSM IV. Aucune anomalie de la personnalité n'a été constatée. L'examen mental et les informations connexes ont confirmé la gravité de l'état de l'adolescente. **Discussion:** Le DMPA étant un contraceptif particulièrement bien adapté aux adolescentes, l'apparition de troubles de l'humeur secondaires ne devrait pas restreindre son utilisation. Toutefois, étant donné que les symptômes dépressifs interfèrent de manière significative sur le fonctionnement quotidien et risquent d'avoir des conséquences graves telles que l'automutilation ou l'idéation suicidaire, il convient de surveiller l'apparition de troubles de l'humeur chez les adolescentes sous contraceptif, surtout si, dans le passé, elles ont souffert de troubles de l'humeur ou d'anxiété, se sont automutilées ou s'il existe une prédisposition familiale à ces troubles.

**Mots clés:** *contraceptif, trouble de l'humeur, automutilation, adolescente*

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## Introduction

Depot-medroxyprogesterone acetate (DMPA) is a Health-Canada approved contraceptive since 1997. Dysmenorrhea and menorrhagia are among its multiple therapeutic uses. The usual intramuscular dose of DMPA is 150mg every 3 months. In the largest clinical trial with DMPA which included over 3 900 women who were treated for up to 7 years, the most reported side effects of DMPA (< 5%) were menstrual irregularities, weight changes, abdominal pain, dizziness, headache, nervousness and asthenia. Depression was reported as an adverse reaction by 1-5% of subjects (Depo-Provera U.S. Physician Prescribing Information).

Contraception-induced mood changes have been identified since the 1960s. Changes in mood are important factors of discontinuation of hormonal contraceptives, but data about a causal association are inconsistent (Sanders, Graham, Bass, & Bancroft, 2001). More specifically, studies of DMPA demonstrated negative effects (Civic et al., 2000) or no effects on mood in adult women (Westhoff et al., 1998; Westhoff, Wieland, & Tiezzi, 1995). When adolescent girls are concerned, one study described an improvement of mood over a 1-year period with DMPA use (Gupta et al. 2001), another study reported higher levels of negative mood in DMPA users compared to non-users (Ott, Shew, Ofner, Tu, & Fortenberry, 2008) and finally no significant changes in occurrence rates of depression were detected in a third study of adolescent girls using DMPA (Cromer, Smith, Dwyer, McArdle Blair, & Brown, 1994). DMPA and oral contraceptive effects on mood seem to be similar in adult and adolescent populations. To our knowledge, there has been no reported case about self-mutilation associated to any form of contraception. One case report described de novo obsessive-compulsive symptoms in an adolescent girl receiving a combined oral contraceptive for 30 days (Rodopman-Arman & Yanki Yazgan, 1998).

## Case presentation

M. was a 17-year-old Caucasian female referred by her adolescent gynecologist to the psychiatry consultation liaison service. Her gynecologist had noticed intense mood symptoms during a follow-up visit, three and a half weeks after the administration of 150 mg of DMPA.

M. had been referred to the pediatric and adolescent gynecology clinic for irregular bleeding associated with abdominal pain. The gynecological work-up was negative and included pelvic and abdominal ultrasound as well as STD screening. Since she was already on a triphasic combined oral contraceptive (OC), M. was put on a continuous combined OC (norgestimate/ethinyl estradiol 30ug) for cyclic pelvic pain, which led to the improvement of her symptoms. However, M.'s medication had been changed

to DMPA because of increasing headaches. The day before the psychiatric consultation, M. had also started a seven-day course of metronidazole 500 mg BID for bacterial vaginosis.

M.'s past psychiatric history was unremarkable, with no anxious or depressive symptoms, suicidal gesture, self-mutilation, trauma or alcohol and substance use. M. showed very good premorbid functioning in the socio-emotional and cognitive spheres; she was successful at school and had stable and harmonious relations with her family, friends and boyfriend. She had had a boyfriend for over a year and reported no concerns about her sexual development or functioning. Her familial psychiatric history revealed that her mother had previously suffered from a mild depressive episode, that her brother had been diagnosed with attention deficit hyperactivity disorder, and that a deceased grandfather had made regular use of alcohol. M.'s past medical history was negative.

Before her psychiatric consultation, M. had a two-week episode of dysphoria, sadness and what she called "neutral mood". She complained of lack of energy, moderate anhedonia, agitated sleep, nightmares and difficulty concentrating at school. She had lost five pounds in two weeks. Significantly, her father reported that she had made several superficial wrist self-lacerations in the past two weeks; M. stated that the gestures had helped alleviate her sense of inner discomfort. M. also disclosed that she presented with morbid "inner visions" such as "people hanging from trees". She had no rituals or compulsions. She denied having any delusional or suicidal thoughts. School functioning was diminished. Surprisingly, M. and her family reported no current individual or family stressors.

M.'s mental status exam at the first visit revealed a good-looking adolescent who was calm but ashamed to be in a state of distress. She had a dysphoric affect and some mild irritability. Thought processes were coherent and her contact with reality was preserved. She was non-suicidal. She presented no hallucinations but had distressing obsessional thoughts. Concentration, judgment and insight were within normal limits.

A DSM-IV diagnosis of "mood disorder due to DMPA with depressive features" was formulated. There was no evidence of abnormal personality functioning. M.'s past-year score on the standardized DSM-IV Global Assessment Functioning (GAF) scale was rated around 90. Her current GAF score was estimated at 55, within the moderate-to-severe range of impairment. Although we did not use other standardized measures or questionnaires, the mental status exam and collateral information by her father validated the severity of her condition.

Psycho-education was provided to M. and her family regarding her symptoms and their most probable cause. A thyroid-stimulating hormone (TSH) blood test was requested and came back normal. At the patient's clear request to receive immediate medical treatment for her condition and considering the severity of her symptoms, she was prescribed the selective serotonin reuptake inhibitor (SSRI) citalopram at 10mg QD. Informed consent was obtained regarding the slightly elevated risk of parasuicidal behaviours following SSRI treatment in adolescents, although M. and her family were reassured that no research demonstrated an increased risk of completed suicide with this class of medication. A follow-up appointment was set for six days after starting this medication. M. and her family were also told to call one of the authors (MSA) or to consult our pediatric emergency if self-mutilation of morbid thoughts worsened or if M. became acutely suicidal. Liaison was also made with M.'s referring gynecologist.

At the follow-up visit, six days later, M. indicated that her sleep and appetite had improved noticeably. She had not presented any self-mutilation; she stated that the urge to self-mutilate had moderated considerably as a consequence of her improved mood. She reported diminished irritability and improved concentration. She added that she still felt moody at times and reported increased rejection sensitivity that she had not experienced previously in her life. Her mental status exam was much improved but her affect still showed some degree of dysphoria. She was clearly non-suicidal. Her medication was well tolerated at 10mg QD and was maintained at that dose.

Three weeks later at the second follow-up visit attended with her boyfriend, M. reported the sudden loss of her grandmother who had been a significant figure in her life. She was appropriately tearful and elaborated on the impact of the loss on her and her family. She reported no urge to self-mutilate and described being able to find support with family members and friends regarding the loss. A normal bereavement reaction was diagnosed.

Almost three months after the initial DMPA injection, M. reported no recurrence of her depressive or self-mutilation symptoms. Her GAF score returned to over 90. A gastrointestinal investigation for her abdominal pain confirmed suspected lactose intolerance. It was decided to start her on a 20 ug combined oral contraceptive to control her pelvic pain and for contraception. After discussion it was decided that M. would continue with citalopram at 10 mg until the end of the school term, that is, three and a half months after her initial DMPA injection. Thereafter, M. was to decrease citalopram to 5 mg QD for a week before ceasing the medication altogether. In collaboration with her gynecologist, she was referred to her family physician and told to call back regarding any mild exacerbation of her presenting

symptoms. M. was also advised to seek help if she presented mood symptoms in future, including eventually during pregnancy, post-partum and even menopause. She didn't attend her 4-month follow-up visit in adolescent gynecology.

## Discussion

Although depression has been suggested as a relatively uncommon but possible adverse effect of DMPA, there are few studies examining this specific association. In a prospective study of 457 subjects, Civic demonstrated that women who used DMPA were 44% more likely than non-DMPA using women to report depressive symptoms. In addition, a subgroup of women from this study who discontinued DMPA were 60% more likely to report depressive symptoms than the control group (Civic et al., 2000). In a longitudinal cohort study of 328 adolescent girls, Ott reported higher levels of negative mood but no difference in positive mood with DMPA use compared to non-use (Ott et al., 2008). In smaller studies, Westhoff, Cromer and Gupta demonstrated no such differences (Westhoff et al., 1995; Westhoff et al., 1998; Cromer et al., 1994; Gupta et al., 2001). Those negative results do not rule out the possibility of mood-related symptoms to DMPA as reported in our case.

Because it is suggested that depression is a result of a complex interaction between psychological, biological and environmental factors, other factors than DMPA must be considered as confounders in our case. M. was a high functioning non-drug using student, with stable interpersonal relationships. She had no personal history of mood disorder and only a mild family diathesis of depressive or anxious symptoms. Prior to DMPA administration, M.'s pain symptoms had not been associated with any modification of her baseline functioning. Moreover, metronidazole was ruled out as the trigger of her mood symptoms, as M. had begun to feel depressed prior to receiving this medication. No recent stressful event was reported. As no other significant confounding factor was identified, we are led to uphold our hypothesis concerning the association between DMPA and depressive symptoms in this case.

We also have to consider the possibility that M. had an atypical presentation of endogenous depression, but the symptoms' chronology is unusual for such a diagnosis. M.'s dysphoric symptoms developed in the week following DMPA administration and responded rapidly to the use of an antidepressant. Such rapid action of SSRI on hormone-related symptoms, as seen during PMDD, has been recognized in several studies recently reviewed by Pearlstein and Steiner (Pearlstein & Steiner, 2008). Finally, M. didn't present an exacerbation of her symptoms following a major stressor (death of her grandmother), which also supports an iatrogenic etiology.

## Conclusion

DMPA is a birth control method especially useful for adolescent girls and possible secondary mood symptoms should not limit its access. However, since depressive symptoms substantially interfere with daily functioning and may have unfortunate consequences like self-mutilation and suicidal ideation, it is important to remain vigilant regarding the onset of mood symptoms following contraceptive use in adolescent girls. This vigilance should be more specific regarding adolescent girls with a history of mood disorders, anxiety disorders, self-mutilation or family diathesis of these conditions. Accordingly, collaboration between adolescent gynecology and psychiatry teams can be helpful in the prevention and treatment of mood disorders in this population.

## Consent

In spite of numerous attempts by MSA and SG, the patient could not be reached for consent.

## Acknowledgements / Conflicts of Interest

The authors have no financial relationships to disclose.

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