



## Case report

## Delayed-type hypersensitivity reaction against Nexplanon®☆☆

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## Abstract

Nexplanon® is an etonogestrel implant with a long-acting contraceptive effect. Although several studies underlined its safety profile, its implant can rarely lead to moderate or severe adverse event. Here, we presented a case of delayed-type hypersensitivity reaction against Nexplanon® that resolved after its removal.

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## 1. Introduction

In the last decades, several contraceptive methods have been developed to improve efficacy, long-term acting and patients' compliance [1]. Nexplanon® (Merck & Co., Whitehouse Station, NJ) is an innovative device developed to ensure an effective long-term birth control. After its implant in the subdermal region of a patient's upper arm, it administers a steadily dose of etonogestrel, providing a contraceptive effect for up to 3 years [2]. Several trials showed its efficacy and safety [1,3]. Mommers et al., in a large single-arm multi-center analysis, reported a very low incidence of Nexplanon®-related side effects [1].

However, as any medication, the implantation of Nexplanon® may lead to adverse events. Here, we presented a case of hypersensitivity reaction to Nexplanon®, occurred in a woman with no history of previous atopic reactions.

## 2. Case presentation

In September 2012, a 37-year-old multiparous woman had Nexplanon® implantation. Her medical history was noteworthy for two uneventful pregnancies and previous long-term (5 years) use of oral combined hormonal contraception; no history of hypersensitivity reactions (including seasonal allergy) was reported. Three months after the insertion of the contraceptive, she suddenly complained mild itching in the implant region. Few months later, the patient developed nonpainful small cutaneous maculopapular lesions of the skin surrounding the implant. Symptoms worsened, and 1 year after Nexplanon® implantation, she presented to our department with skin redness and moderate edema of the whole arm. Neither fever, leukocytosis nor eosinophilia occurred. Antibiotics were not administered. The implant was easily removed despite the presence of fibrosis surrounding the implant. Although no excessive manipulation was applied, the device appeared fractured in several segments (probably due to host reaction to Nexplanon® biomaterials). In fact, histologic examination showed active macrophagic and mastocytic reactions of the tissue surrounding Nexplanon®. Fig. 1 displays Nexplanon® after its removal. Microbiological examinations of the device and fibrotic tissue were negative. No allergologic tests were performed. One week later, total regression of symptoms was achieved. No late complication occurred at 6-month follow-up.

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Fig. 1. Nexplanon® after its removal.

### 3. Comment

In the present investigation, we reported a case of delayed-type (type IV [3]) hypersensitivity reaction to Nexplanon®. Although few cases of both early and late hypersensitivity reactions are described in women undergoing hormonal contraception with Implanon® [4], only a

study reported a sub-acute (after 24 hours) allergic reaction to Nexplanon® [5]. Nexplanon® contains etonogestrel (active ingredient), barium sulfate (radiopaque ingredient) and ethylene vinyl acetate copolymer (core and coating of the device). However, no allergologic test shows the cause of hypersensitivity.

The data showed in the present report do not aim to question the safety of Nexplanon® but only aim to present possible side effects correlating to its utilization. In fact, reporting adverse events is paramount in improving knowledge of potentially drug-related occurrence. The present case suggests that the occurrence of cutaneous maculopapular lesions, skin redness and oedema may precede more severe allergic reaction. In conclusion, although Nexplanon® has an effective and safe profile, the occurrence of potential hypersensitivity reactions should be taken into account.

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