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**Case Report**

# Intrauterine Embryonic Pregnancy During Use of Levonorgestrel Subdermal Implant : A Case Report.

## *Grossesse Embryonnaire Intra-Utérine lors de l'Utilisation de l'Implant Sous-Cutané de Lévonorgestrel : À Propos d'un Cas*

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**ABSTRACT**

Subdermal implants represent one of the most effective contraceptive procedures. Gestation is reported as a rare possible consequence in cases of contraceptive failure of these products. We submit a case of gestation occurring in a woman using levonorgestrel-releasing subdermal implant (JADELLE®). We present the case of a 24-year-old G3P2002, non-obese, Cameroonian (Black African) housewife using the JADELLE® implant for 2 years, consulted at our Mbanga District Hospital (MBD) for a positive qualitative urine pregnancy test despite the implant. She presented with a 4 months history of amenorrhea and 1 week history of abnormal intra-abdominal movements. Clinical examination was unremarkable but an abdominopelvic ultrasound revealed a viable singleton intrauterine pregnancy of 19 weeks. This case report highlights the possibility of an embryonic pregnancy occurring in women using the levonorgestrel-releasing subdermal implant (JADELLE*).

**RÉSUMÉ**

Les implants sous-cutanés représentent l'une des méthodes contraceptives les plus efficaces. La gestation est rapportée comme une conséquence rare possible en cas d'échec contraceptif de ces produits. Nous présentons un cas de gestation survenue chez une femme utilisant l'implant sous-cutané libérant du lévonorgestrel (JADELLE®). Nous présentons le cas d'une femme camerounaise (africaine noire) de 24 ans, G3P2002, non obèse, femme au foyer utilisant l'implant JADELLE® pendant 2 ans, consultée à notre Hôpital de District de Mbanga (MBD) pour un test de grossesse urinaire qualitatif positif malgré l'implant. Elle présentait une aménorrhée depuis 4 mois et des mouvements anormaux intra-abdominaux depuis 1 semaine. L'examen clinique était normal, mais une échographie abdomino-pelvienne a révélé une grossesse unique intra-utérine viable de 19 semaines. Ce rapport de cas met en évidence la possibilité d'une grossesse embryonnaire survenant chez les femmes utilisant l'implant sous-cutané libérant du lévonorgestrel (JADELLE*).

## INTRODUCTION

A contraceptive implant is a common form of long-acting reversible contraception. Subdermal contraceptive implants are very effective with failure rates of only 0.05% within the first year of typical use **[1],** providing prevention against pregnancy for 3 to 5 years. Contraceptive failures associated with etonogestrel implant (IMPLANON®) have been attributed to failure to insert the implant, incorrect timing of insertion, and interaction with hepatic enzyme-inducing medicines, product/method failure, and unknown factors **[2].** No significant difference was observed between the three types of implants evaluated with regard to hormonal adverse effects and events. The levonorgestrel-releasing subdermal implant (JADELLE®) was approved by the Food and Drug Administration (FDA) in 1996. The possibility of occurrence of pregnancy in case of contraceptive failure with JADELLE® is rare:in women < 36 years of age, 8 pregnancies occurred within 5 years of JADELLE placement. One of the 8 pregnancies was ectopic **[3,4].** Intrauterine embryonic pregnancy refers to a condition in which an embryo develop in a gestational sac. A fertilized egg implants in the uterus, an early embryo then develops resulting to the formation of a gestational sac. Intrauterine embryonic pregnancy presents clinically with a history of amenorrhea, with or without pregnancy signs. Ultrasound findings typically

reveal a gestational sac with a single or multiple intrauterine lives. We present a rare case of an intrauterine embryonic pregnancy occurring in a non-obese Cameroonian woman with JADELLE® implant on.

## CASE PRESENTATION

We present the case of a 24-year-old Cameroonian (black African) housewife with a JADELLE® subdermal implant in her left arm for the past 02 years, inserted by an experienced midwife, and a last normal menstrual period, presented to our hospitalcomplaining of a 5 months amenorrhea, and abnormal abdominal movement of 1 week duration **(Figure 1).**

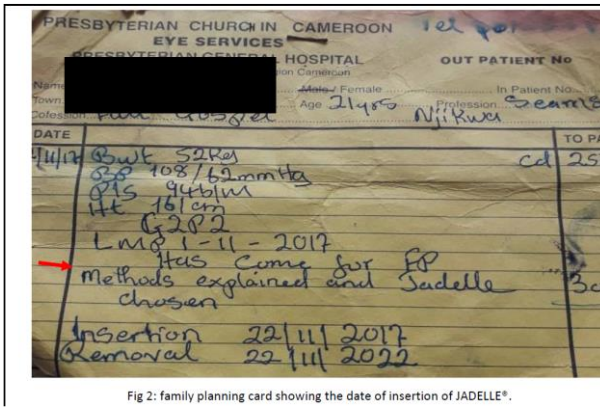

Fig 2: family planning card showing the date of insertion of JADELLE®.

Fig 2. Family planning card showing the date of insertion of Jadelle

Four days prior to her consultation at our Mbanga district hospital, she was consulted at a local health center where a beta-human chorionic gonadotrophin (ß-HCG) qualitative urine pregnancy test was done with positive result. This result prompted her consultation at our hospital. In her pasthistory, she had two gestations: two normal vaginal term deliveries; the last child aged 5 years. She had menarche at 12 years, with no history of sexually transmitted infections, was on no routine medications and denied any tobacco consumption. On physical examination, she looked well, had stable vital signs and a body mass index of 22.67kg/m2 (weight: 64kgs). The rest of her physical examination was unremarkable. On pelvic ultrasound, by an obstetrician, an intrauterine viablefetus was visualized **(Figure 2).**

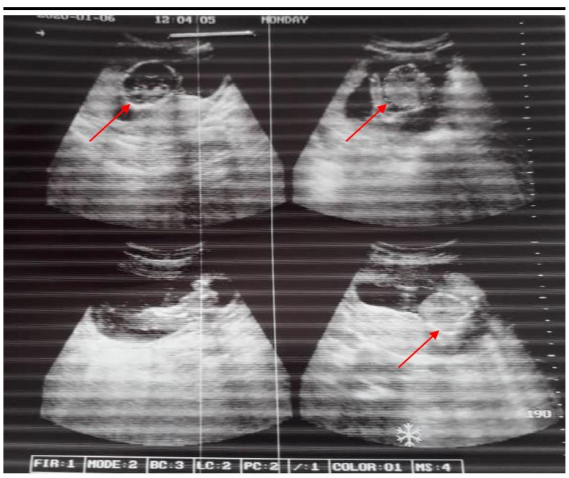


Fig 2. Pelvic ultrasound showing an intrauterine viable fetus

We concluded in a diagnosis of an intrauterine embryonic pregnancy of 19 weeks gestational age and our patient was counselled and booked for removal of the implant and to start antenatal care. We performed the extraction of JADELLE® under local anesthesia. She was monitored for 2 hours and later discharged.

## DISCUSSION

The levonorgestrel implant (Jadelle®)is a synthetic progestin.These implants are a set of two flexible cylindrical rods, each containing 75 mg of the progestin levonorgestrel. The total administered (implanted) dose is 150 mg. Insertion is subdermal in the midportion of the inner surface of the upper arm about 8 to 10 cm above the medial epicondyle. The two implants should be placed in a "V" shape about 30 degrees apart **[4].** These implants have a reliable contraceptive effect during the expected life of the product, which is 5 years. **[5].** Levonorgestrel induces thickening of the cervical mucus, thus preventing sperm from entering the uterus. It also slows down the development of the endometrium and can prevent the implantation of the blastocyst. **[5].** Maximum serum levonorgestrel concentrations, approximately 772 pg / ml, are reached 48 hours after insertion. After the initial phase, levonorgestrel concentrations decrease to 435 pg / ml in one month, to 355 pg / ml in 6 months, to 341 pg / ml in one year and 277 pg / ml over 5 years. There is an inverse relationship between serum levonorgestrel levels and body weight. However, given the significant variability in serum levonorgestrel concentrations and individual responses, serum concentrations alone cannot predict the risk of pregnancy in a given woman. **[5].** Contraceptive clinical trials typically report their failure rates either by the Pearl Index or Life Table Analysis. The Pearl Index is defined as the number of contraceptive failures per 100 woman-years of exposure, and uses as the denominator the total months or cycles of exposure from the initiation of the product to the end of the study or the discontinuation of the product. **[6].** The FDA has acknowledged that Pearl Indices (and, collaterally, pregnancy rates in clinical trials) are highly sensitive to study design and analytical factors, including study population demographics, pregnancy detection methods, and cycle exclusion rules. Changes in one or more of these factors has a direct impact on the Pearl Index, although the precise impact of each factor is not quantifiable because the factors are inter-related (race and socioeconomic status**).[7].** The term “effectiveness” is defined as the ability of a contraceptive to prevent pregnancy in a clinical trial setting, meaning a failure or success that occurs when a product is used perfectly in accordance with the recommended dose regimen. “Efficacy” is a term used to define the ability of a contraceptive to prevent pregnancy in typical use.For example, when the subject does not completely follow the recommended dosing regimen. **[6].** Eight (8) pregnancies occurred within 5 years of Jadelle® (levonorgestrel implants) placement in multicenter clinical trials involving 1393 women. One of the eight pregnancies was

an ectopic. The following table shows pregnancy rates as Pearl Indices for each year. **[4] (Table 1).**

**Table 1. Yearly Pearl indices for JADELLE® (levonorgestrel implants**

Pearl Indices (Pregnancies per 100 woman-years) by Year for Jadelle (levonorgestrel implants (unavailable in us))

| | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
|---|---|---|---|---|---|
| Annual Pearl Index | 0.08 | 0.09 | 0.11 | 0.00 | 0.84 |
| 95% CI | (0.00,0.43) | (0.00, 0.50) | (0.00, 0.61) | (0.00, 0.50) | (0.27, 1.95) |
| Cumulative Pearl Index | 0.08 | 0.09 | 0.09 | 0.07 | 0.17 |
| 95% CI | (0.00, 0.43) | (0.01, 0.30) | (0.02, 0.26) | (0.01, 0.22) | (0.07, 0.34) |

Typically, pregnancy rates with contraceptive methods are reported only for the first year of use. The efficacy of these contraceptive methods, except for NORPLANT®, the intrauterine device (IUD), and sterilization, depends in part on the reliability of use. The efficacy of Jadelle® (levonorgestrel implants) implants does not depend on patient compliance. However, no contraceptive method is 100% effective. **[4].** In this case report, we describe a rare incident of intrauterine embryonic pregnancy following contraceptive failure with use of JADELLE® implant. Due to the fact that pregnancy is reported as a rare possible outcome in cases of contraceptive failure with the use of sub dermal implant (Pearl index 0.09) and it was the first ever case in our semi-urban hospital setting. We could not clearly establish the cause of contraceptive failure in this case. Reported causes of contraceptive failure include; poor insertion technique, poorly timed insertion, and drug Interactions. **[4].** These were all ruled out in our case after a thorough history, and examination of the implant site. It is possible that this case of contraceptive failure resulted from product/method failure. Our patient's opinion focused on the fact that she chose JADELLE® because it is efficient, reversible, convenient, and has bearable side effects. She understood her symptoms as adverse reactions to JADELLE®, and she was not aware of the possibility of having pregnancy in failed contraception. She was not happy to be pregnant after choosing JADELLE® as methods of contraception. She was satisfied with the management of the case and expressed the desire to inform other women on JADELLE® of the possibility of having an intrauterine embryonic pregnancy. This pregnancy is the fruit of a flirt with another man; the two first pregnancies were from my husband. I have been separated from my husband and children because of the crisis in the south-west region. I came to Mbanga to spendsome time and I met another man. Use of JADELLE® for two years was uneventful until last four months when I started missing my menses and a week ago when I felt some abnormal movements in my abdomen. I immediately knew these symptoms were abnormal; and I visited a health center where they decided to rule out a pregnancy with a urine pregnancy test, and this returned positive. I went back home unsatisfied, but due to the persistence of symptoms, I decided to consult at a different hospital. I was not aware I could be pregnant. I am now aware of this possibility and will be happy if other women on JADELLE® implant also become aware of this possibility."

## CONCLUSION

This case report highlights the possibility of an intrauterine embryonic pregnancy occurring in a black African woman with an ongoing levonorgestrel releasing subdermal implant (JADELLE®).

### Conflict of interest

All authors declare having no conflict of interest in the publication of this work

### Abbreviations

FDA: Food and Drug Administration;
HCG: Human Chorionic Gonadotrophin;
IUD: Intrauterine Device
MDA: Mbanga District Hospital
POSDIs: Progestin-Only SubDermal Implants

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