

## Extremely Elevated Serum Quantitative Beta Hcg in a Live Ectopic and a Mirenar IUS In situ

Disu S<sup>1\*</sup>, Yongue G<sup>2</sup> and Ita FI<sup>3</sup>

<sup>1</sup>Consultant Gynecologist Department of Obstetrics and Gynaecology Northwick Park Hospital, HA1 3UJ, London, UK

<sup>2</sup>Foundation Year Trainee, The Whittington Hospital, N19 5NF, London, UK

<sup>3</sup>Consultant Gynaecologist, West Middlesex University Hospital, TW7 6AF, UK

### Abstract

The Levonorgestrel Intrauterine System (LNG-IUS) has become increasingly popular due to its success in treating heavy menstrual bleeding and as a contraceptive. It still however carries a significant risk of an ectopic pregnancy at any time in its five year half-life. This case highlights an atypical presentation and as failure to diagnose can lead to significant morbidity and mortality.

**Keywords:** Serum; Triennium

### Introduction

The evidence of Ectopic pregnancies as a complication of the levonorgestrel intrauterine system (LNG-IUS) Mirena<sup>®</sup> is relatively lacking. The rate of ectopic pregnancies in LNG-IUS users has been reported as 0.02-0.06 per 100 woman years [1].

In the UK, 6 women die in a triennium as a direct consequence of an ectopic pregnancy not being diagnosed correctly [2]. Atypical symptoms, particularly in women with a LNG-IUS in situ, can easily be misinterpreted. This case report describes such a situation, unique to the present literature, when an ampullary ectopic pregnancy presented with an unusually high serum beta Human Chorionic Gonadotrophin ( $\beta$ -HCG) in a woman who had a LNG-IUS in situ for 2 years.

### Case Report

A 40 year old para 2+1 woman presented with a two week history of lower abdominal pain increasing in severity and localizing to the right iliac fossa. This was associated with nausea and vomiting and resulted in two syncopal episodes. Two days prior to her hospital admission, she had presented to her General Practitioner (GP) with lower abdominal pain, bloating and a concern that her symptoms were due to her LNG-IUS becoming dislodged.

Her abdominal pain however worsened, becoming sharp and intermittent without vaginal bleeding. Her past obstetric and gynecological history consisted of 2 spontaneous vaginal deliveries and Heavy Menstrual Bleeding (HMB) for which she had been successfully managed with a LNG-IUS becoming amenorrheic for the last 18 months.

She was afebrile but tachycardic (pulse rate 120 beats per minute), her blood pressure was stable at 117/69 mmhg. Her serum  $\beta$ -HCG was 89,007 mIU/mL. Subsequently a transvaginal USS detected a live extrauterine ectopic pregnancy consisting of a gestation sac (18.6×24.8×21.5 mm) in the Pouch of Douglas with a yolk sac, amnion, a crown rump length of 10.2 mm (equivalent to 8 weeks+1 day gestation) and a fetal heartbeat (Hadlock's criteria, Voluson 1500<sup>®</sup>). A haemoperitoneum measuring 86.2×40.8×48.4 mm was also found.

Her haemoglobin had dropped from 11.2 to 8.2 g/dL. An urgent operative laparoscopy identified a right ruptured tubal pregnancy (Figure 1). A right salpingectomy was performed with a haemoperitoneum of 3000 mLs requiring a 4 unit blood transfusion. Hysteroscopy confirmed a correctly placed Mirena<sup>®</sup> within a normal uterine cavity.

Histology confirmed a tubal pregnancy and excluded Gestational Trophoblastic Disease (GTD). Contraception was replaced with by laparoscopic sterilisation as well as a repeat Mirena<sup>®</sup> IUS for her HMB.

### Discussion

The LNG-IUS contains a reservoir of 52 mg levonorgestrel which releases 20 mcg per day. Its contraceptive effect includes endometrial suppression; thickening of the cervical mucus and alteration of uterotubal fluid inhibiting sperm migration and suppression of ovarian function in <25% of women. The pearl index (PI) for all pregnancies with LNG-IUS at 5 years use is 0.2, this is lower than in both women without contraception (PI=85) and those who have been sterilised (PI=0.5) [3].

Diagnosis of ectopic pregnancies with an IUD can be difficult with 85% being misdiagnosed on the patient's first visit to a healthcare professional [4]. Difficulties in diagnosis are more profound in patients presenting with atypical symptoms as well as absent vaginal bleeding,

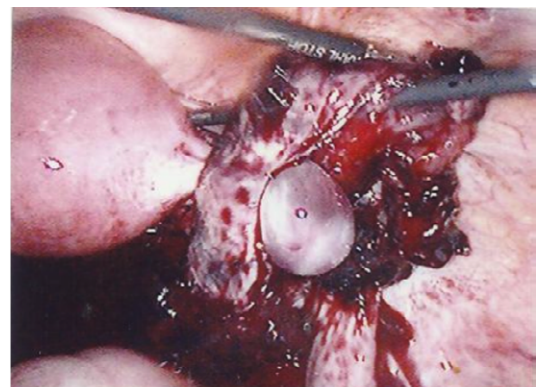


Figure 1: Laparoscopy image showing a live ruptured tubal pregnancy.

**\*Corresponding author:** Stewart Disu, Consultant Gynecologist Department of Obstetrics and Gynaecology Northwick Park Hospital, HA1 3UJ, London, UK, Tel: +44 20 8864 3232p; E-mail: [stewart.disu@nhs.net](mailto:stewart.disu@nhs.net)

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which were both characteristics in this patient. Furthermore, levels of serum  $\beta$ -HCG tend to increase exponentially with gestational age up until 8-10 weeks gestation, but in ectopic pregnancies this rise does not occur to the same extent. Yet with this patient, an unusually high serum  $\beta$ -HCG of 89,007 mIU/mL could be related to an initial diagnosis of intrauterine pregnancy with Mirena<sup>R</sup> in situ. Additionally, the prolonged 18 month period of amenorrhea secondary to a correctly placed Mirena<sup>R</sup> meant a reference value for calculating the gestation age of this pregnancy from the last menstrual period was not available to correlate with her serum  $\beta$ -HCG.

Extremely elevated serum  $\beta$ -HCG levels with Mirena<sup>R</sup> in situ have been previously reported in cornual ectopic pregnancies with levels of 21,003 mIU/mL [5] but there has been no previous report of an ampullary live ectopic pregnancy

In conclusion, being vigilant as well as an early and prompt diagnosis with transvaginal ultrasound reduces the delay to treatment reducing the morbidity/mortality risk.

This is the first case report in literature of an extremely elevated serum HCG in a live ampullary ectopic pregnancy with a well-positioned LNG-IUS in situ within a normal uterine cavity.

#### References

1. Andersson K, Odland V, Rybo G (1994) Levonorgestrel-releasing and copper-releasing (Nova T) IUDs during five years of use: a randomized comparative trial. *Contraception* 49: 56-72.
2. Lewis G (2011) Saving Mothers Lives: Reviewing Maternal Deaths to make motherhood safer 2006-2008. The Eighth Report of Confidential Enquiry into Maternal Deaths in United Kingdom, London. Centre for Maternal and Child Enquiries (CMACE). *BJOG*. 118: P82.
3. Cates W, Raymond E (2008) Vaginal Barriers and Spermicides. *Contraceptive Technology*. (19th edn), New York: Ardent Media.0020
4. Kalu E, Disu S, Gordon-Wright H, Pisal N (2006) Primary ovarian pregnancy with a levonorgestrel intrauterine system. *The journal of family planning and reproductive health care/Faculty of Family Planning and Reproductive Health Care, Royal College of Obstetricians and Gynaecologists* 32: pp. 253-254.
5. Abu JI, Wandless GM, Emembolu JO (2002) Ectopic pregnancy in the levonorgestrel releasing intrauterine system (LNG-IUS) user: atypical presentation. *J Obstet Gynaecol* 22: 567-568.