

Case Report

Heartache to Happiness: Managing a Six Year Hormonal Subfertility with a Successful Rate of Conception

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Abstract: Background: The inability to conceive is emotionally distressing and indeed a very painful struggle in which the pain stays with the individual every day. Hormonal disorders are the leading cause of infertility globally. They do not only include the hypothalamic pituitary ovarian axis but also the non-reproductive endocrine glands. Hormonal management helps promote ovum maturation, which triggers ovulation, increasing the likelihood of conception. **Case presentation:** We report a 36-year-old African lady who presented with an inability to conceive for six years since marriage and it was associated with an irregular menstruation cycle length of twenty-four to thirty-six days. She had anovulatory cycles for seven years, and high Prolactin levels. Her body mass index was 34.4kg/m². She had visited several hospitals in and outside Tanzania without success in conceiving. At Bugando Medical Centre we managed her case by diet, fertility awareness, and medical management. She conceived after three months of treatment. **Conclusion:** Anovulatory cycles with abnormal bleeding patterns are a major cause of infertility in reproductive woman. Basic hormonal profiles are essential to confirm where the problem is. Prolactinemia and insulin resistance affects ovulation. Fertility awareness, lifestyle changes, and medical management will bring back happiness to most women with subfertility secondary to hormonal disorders.

Keywords: Subfertility, obesity, hyperglycemia, hyperprolactinemia, anovulatory, FEMM.

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INTRODUCTION

Infertility is a disease of either the male or female reproductive system defined by the failure to achieve pregnancy after 12 months or more of regular unprotected sexual intercourse [1]. It is also defined as a condition or status characterized by the inability to achieve a successful pregnancy based on the patient's medical, sexual, and reproductive history, age physical findings, diagnostic findings, or combination of these factors [1].

Here we report a 36-year-old African woman, with regular sexual intercourse practice, who presented with an inability to conceive for six years since she got married. Her husband had a normal seminal analysis. We diagnosed her with hormonal subfertility and successfully managed her with lifestyle modification and medication. In three months the lady conceived and at 38 weeks we did a Caesarean section and delivered a live baby boy.

CASE REPORT

Our case is for a 36-year-old African woman who presented with the inability to conceive for six years since she got married. It was associated with loss of sexual intercourse desire, loss of cervical mucus, excessive bleeding of more than seven days, associated with light, heavy, and moderate bleeding patterns. She had acanthosis nigricans, acrochordons, acne, and some beard. She was obese with a BMI of 34.4kg/m². She also complained of pain in the breasts which were sometimes oozing milk, had some watery discharge and had a nickel allergy. This lady was psychologically affected by her condition. She had taken both modern and herbal medications for five years in order to conceive without success and after coming to our facility we did the following:

1. Counselling/helping her to understand that all will be fine because she had lost hope completely.
2. Gave her fertility education and taught her charting of the menstrual cycle.

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3. Lifestyle modifications: which include diet, exercise, and positive thinking about her condition.

4. Studied her hormonal profile and was as seen in the table below:

Hormonal profile of the patient

Hormones	Patient Hormonal Levels	Recommended Hormone Levels
Prolactin (Ng/ml)	37	5-19
Tsh (Miu/L)	1.3	0.35-2.5
Hba1c (%)	5.9	4-5.6
Estradiol (Pg/ml)	22.4	50-200
Fsh (Miu/ml)	8.12	<7

The patient did an Oral Glucose Tolerance Test (OGTT), where she took 75 grams of glucose and at different intervals, Glucose levels were tested using a GlucoPlus machine and stripes, blood insulin by

biochemistry analyzer machine. Below is a table with test results:

GLUCOSE TOLERANCE TEST

GLUCOSE LEVELS	INSULIN LEVELS
P-Glucose- Basal 5.2mmol/L	Insulin Basal 23.3 uIU/ml
P-Glucose-30 minutes 7.3mmol/L	Insulin 30 minutes 136.0 uIU/ml
P-Glucose-1 hour 8.7mmol/L	Insulin 1 hour 153.0 uIU/ml
P-Glucose-1.5 hours 7.7mmol/L	Insulin 90 minutes 132.0 uIU/ml
P-Glucose- 2 hours 9.8mmol/L	Insulin 2 hour 153.0 uIU/ml

MANAGEMENT

We diagnosed her with hyperprolactinemia (Prolactin 37 ng/mL) and insulin resistance.

We managed her with Bromocriptine 2.5 mg daily, Vitamin D of 0.25 mcg daily, Integrated iron of 200mg/5 mg daily, Metformin 500mg in the first week, 1 gm daily for the second week, 1.5 gm in the third week, and 2 gm from the fourth week onwards. The lady was also asked to avoid both carbohydrates and sugary beverages. She used to take vegetables, proteins, and some fresh fruits. Exercises and workouts were part of her daily routine.

After three months of medication, the patient experienced two days of slippery cervical mucus which was clear in color at the 10 and 11 days of her menstrual cycle. In the fourth month she missed her menses and it was confirmed that the patient had conceived, she continued with the above medications. She was also started on Micronized progesterone inserted vaginally once a day for 3 months. She attended Antenatal care and was closely monitored, her pregnancy had no complications and at 38 weeks she delivered by Caesarean section, a live 2900 grams (6.393 pounds) male baby with APGAR scored 9 in the first minute and 10 in the fifth minute.



Figure 1: Stretchy clear cervical mucus at day ten of her cycle (estrogenic mucus)

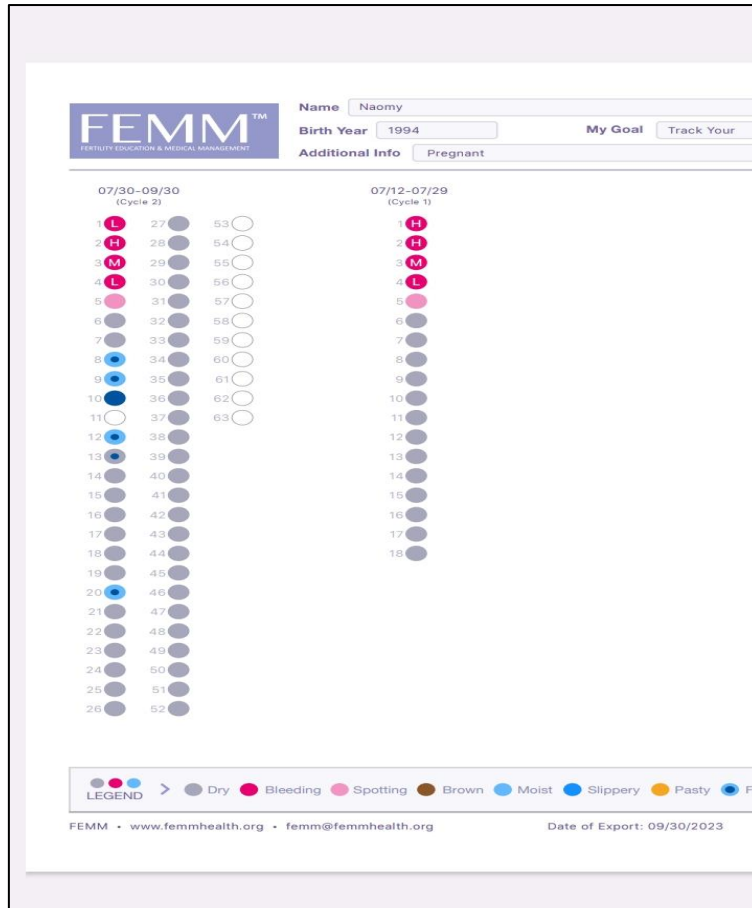


Figure 2. Menstrual chart patterns: cycle 1 shows an anovulatory cycle and cycle 2, shows an ovulatory cycle, with long dry periods after, indicating the conception period



Figure 3: First-trimester ultrasound at 12 weeks gestation age.

DISCUSSION

Hyperprolactinemia is the most common endocrine disorder of the hypothalamic-pituitary axis among infertility patients. Its prevalence ranges from 0.4% in an unselected normal adult population to as high as 9-17% in women with reproductive disorders [2]. Pathological hyperprolactinemia normally causes defective ovulation and low fecundability [3]. Normal prolactin hormone directly acts on Kiss1-expressing neurons and induces suppression of Kiss1 mRNA expression and kisspeptin secretion, leading to a lower activation of GnRH and gonadotropin secretion [4]. It also modulates the reproductive axis at the peripheral level, hence playing a direct inhibitory effect on the ovaries, leading to a decreased estrogen synthesis because of stimulation of 3 β -hydroxyl-dehydrogenase catalytic activity [5]. Therefore an excessive prolactin secretion normally decreases the pulsatile release of GnRH impairing the pituitary production of FSH and LH and also impairing the endocrine activity of ovarian follicles, resulting in a defective luteal phase, irregular ovulation, and chronic anovulation [3]. Our patient had high levels of Prolactin and this may have contributed to the anovulation observed in her menstrual cycle charts.

The binding of dopamine agonists to dopamine D2 receptors on the surface of adenylyl cyclase activity therefore inhibiting the prolactin secretion [3] allowing for the occurrence of spontaneous ovulatory cycles and normalization of the defective luteal phase [3]. Our patient was prescribed Bromocriptine to reverse to activity of high Prolactin and she established ovulatory cycles.

Obesity and overweight are common conditions that have consequences not only on general health but also to a great extent on reproductive health and there is a high prevalence of obese women in the infertile population. Obesity contributes to anovulation and menstrual irregularities, reduced conception rate, and a reduced response to fertility treatment. It also increases miscarriage and contributes to maternal and perinatal complications [6]. In obese women, gonadotropin secretion is affected because of the increased peripheral aromatization of androgens to estrogens. The insulin resistance and hyperinsulinemia in obese women leads to hyperandrogenemia. The sex hormone-binding globulin (SHBG), growth hormone (GH), and insulin-like growth factor binding proteins (IGFBP) are decreased and leptin levels are increased [7].

The first sign of an underlying health problem is often an abnormality in ovulation followed by irregular cycles. It has also been shown that varying cycle lengths, short cycle lengths, and long cycle lengths are associated with decreased fecundity and that menstrual cycle patterns may predict whether a pregnancy will survive [8]. However, menstrual cycles with a normal length are not an indicator of proper ovarian function, because these women can also present with anovulatory cycles [9].

Ovulation is a sign of health, therefore it is regular ovulation and not just regular menstruation that evidences good health in women. The first sign of an underlying health problem a woman may experience is an abnormality in ovulation followed by irregular cycles or amenorrhea. Fertility awareness is a valuable tool in helping women to identify gynecological disorders [10] and the persistence of irregularities within the mucus patterns and the menstrual cycle is of more concern in women presenting with subfertility.

CONCLUSION

Hyperprolactinemia and hyperinsulinemia are among the metabolic disorders that lead to subfertility in women. Weight loss, diet and stress control, exercises, and medical management were used to manage these conditions. Knowledge about fertility awareness which is acquired by self-observation of cervical mucus patterns at the vulva is an invaluable tool for women desiring to achieve pregnancy.

Availability of Data and Materials: Not applicable in this case report.

Ethical Consideration: Approval for the publication of this case was sought from the Joint CUHAS/BMC Ethics Review Committee.

Consent for Publication Written informed consent was obtained from the patient for publishing this case and the accompanying images. Acknowledge the use of FEMM charts and treatment protocols. FEMM allowed the use of their materials and protocols.

Authors' Contributions JM, AK, RK, and CC contributed to treating and following the patient; JM, AK, RK, and CC prepared the case; DM, GK, FJ, and CC reviewed and edited the case ready for publication.

Conflict of Interest: All authors declare no conflict of interest in this case report.

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