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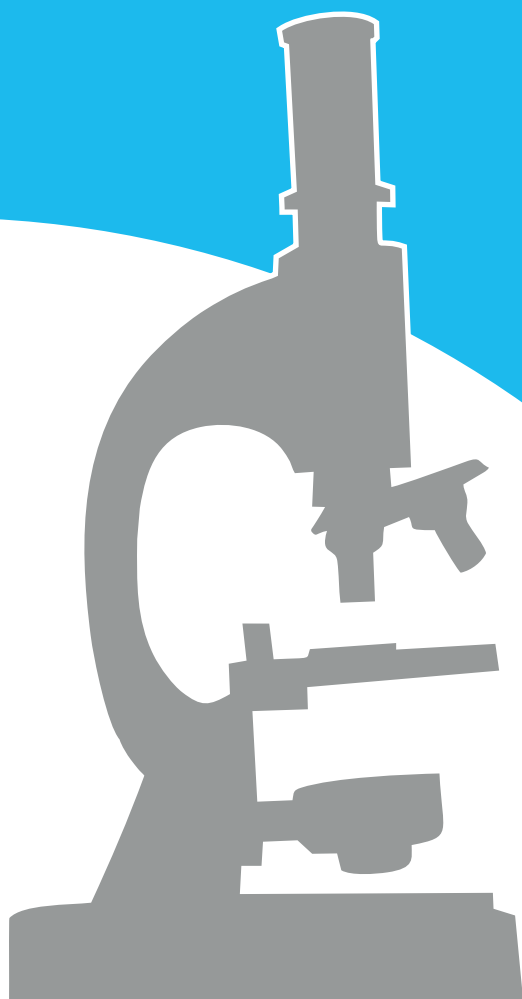
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Successful pregnancy outcome after *in vitro* fertilization at a public health facility in Nigeria

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Abstract

We present a case of 31-year-old P0+1, who presented with 2 years history of infertility on account of bilateral tubal blockage. She achieved pregnancy and successful delivery following *in vitro* fertilization at the Assisted Reproductive Technology unit of the Department of Obstetrics and Gynaecology, University of Ilorin Teaching Hospital, Kwara State, Nigeria.

Key words: Assisted reproductive technology, *in vitro* fertilization, Nigeria

INTRODUCTION

One of the most precious gifts a family can enjoy is the ability to bring new life into the world. However, the desire to have children and the disappointment of not being able to conceive can be extremely devastating to a couple. Over the past 20 years, fertility problems have increased dramatically. At least 25% of couples planning to have a baby have trouble conceiving (1 in 10 couples).^[1] The good news is that current medical technology continues to improve the chances of more couples being able to conceive children through assisted reproductive technologies (ARTs) like *in vitro* fertilization (IVF). Of the various treatment options available for the treatment of infertility, none of the treatment procedures have had an impact on the society as much as ARTs.^[2] IVF offers a chance at parenthood to couples, who until recently would have had no hope of having a “biologically related” child. We present a case of successful delivery following IVF in an infertile woman with tubal factor infertility.

CASE REPORTS

Mrs. SU a 31-year-old woman who presented at the ART unit of University of Ilorin Teaching Hospital (UITH) on 27th of June, 2013 on account of secondary infertility due to tubal factor of 1-year duration. She is a secondary school teacher while her spouse is a civil servant. They reside in Pakata, Ilorin; Kwara State, Nigeria. She got married 2 years prior to presentation and has been co-habiting with her husband since then, but unable to conceive despite having regular unprotected sexual intercourse of at least 3 times/week.

She had right ectopic gestation more than a year prior to presentation for which she had the right salpingectomy at 6 weeks in a secondary health facility. They had sought medical care at three different hospitals and had had 4 cycles of ovulation induction with clomiphene citrate to no avail.

She is married in a monogamous family setting to a 36-year-old man who had no sexual disorders and had never fathered a child out of wedlock. Husband had herniorrhaphy on the right groin 16 years prior to presentation. She neither smokes cigarettes nor does she ingest alcohol.

Physical findings were essential. The results of seminal fluid analysis done for her husband were normal. Hysterosalpingography showed a partially demonstrated right tube and nondemonstration of the left tube. Transvaginal ultrasound was essentially normal except for a left ovarian cyst

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of 30 mm × 20 mm in diameter possibly physiological cyst. Baseline hormonal profile was also normal. A diagnosis of secondary infertility secondary to tubal factor was made. She was counseled for IVF and embryo transfer.

Procedure

Informed consent sort was obtained for IVF. She had ovarian downregulation with daily subcutaneous injection of 0.5 mg of buserelin (Suprefact (R); Aventis Pharm, West Malling, UK) commencing from day 21 of the cycle preceding the IVF. She menstruated on 11th December, 2013 and had precervical assessment (dummy transfer) done on 13th December, 2013 with the following findings: Uterine depth of 9 cm, easy retrograde passage of embryo replacement catheter. An easy embryo transfer was anticipated.

With onset of menstruation, the dose of buserelin was reduced to 0.25 mg on day 3 and controlled ovarian hyperstimulation (COS) was effected using daily intramuscular injections of 150 IU (2 vials) of highly purified human menopausal gonadotrophin (Menopur; Ferring Pharmaceuticals, Kiel, Germany) which was subsequently step up to 225 IU (3 vials) on day 6.

Controlled ovarian hyperstimulation was assessed by serial monitoring of follicular size and endometrial thickness. When the leading follicle reaches a diameter of 18 mm or more at day 13th of COS, intramuscular injections of 10,000 IU of human chorionic gonadotropin (hCG) (Pregnyl; NV Organon, Oss, The Netherlands) was administered for final follicular maturation; followed by oocyte retrieval 36 h after hCG administration under transvaginal ultrasound guidance with the aid of paracervical block on 28/12/13.

A total of 10 follicles and seven oocytes were obtained from the client. Husband's semen was collected through masturbation, analyzed and processed. After 3–6 h of incubation oocytes were inseminated in a petri dish using 50,000–10,000 potentiated sperm per oocyte and then returned to the incubator. They were then examined for fertilization after 16 h of incubation and all the oocytes got fertilized.

Assessments of embryos quality were conducted using Niu *et al.* criteria.^[3] Three highest quality (grade A; 1 at 12 cells, 2 at 8 cells stage) embryos were selected for transfer by the author 72 h after retrieval. Embryo transfer was done with a flexible Edwards-Wallace catheter (Simcare, Lancing, UK)^[4] aided by abdominal ultrasound as described by García-Velasco *et al.*^[5] Luteal phase progesterone supplementation was achieved using twice daily doses of 800 mg intravaginal micronized progesterone pessaries (Cyclogest; Cox, Brarnstaple, UK) starting from the day of oocyte retrieval. Pregnancy test was done on the 2nd week after embryo transfer and a repeat 2 weeks later using serum β-hCG level. Positive results were obtained with increasing serum β-hCG titre on the 4th week postembryo transfer. She had a transvaginal ultrasound 3 weeks later which showed a viable fetus at 7 weeks 1-day. She commenced antenatal care at 16 weeks gestation in the

same unit. Pregnancy has been uncomplicated and was booked for an elective cesarean section at 38 weeks of gestation. She was successfully delivered of a live female infant with birth weight of 2.7 kg.

DISCUSSION

Infertility is a worldwide problem, affecting 8–15% of the couples in their reproductive age.^[6] However, the incidence varies from one region of the world to the other, being highest in the so-called infertility belt of Africa, of which Nigeria is inclusive.^[7] In some parts of this belt, infertility is said to constitute up to 65% of gynaecological consultations^[8] and tubal factor largely constitute the cause of female factor infertility stemming from sexually transmitted diseases, postal abortal and postdelivery complications.^[9,10] Possibly either one or more of these factors could account for bilateral tubal blockage experienced by our client.

Our client had sought help in several hospitals and had had 4 cycles of ovulation induction with clomiphene citrate when tubal factor infertility has not been ruled out. However, this is not surprising because the clinicians in resource-limited settings like ours face the challenge of harmonizing cost with efficient and effective infertility management^[11] thereby resulting to delay in diagnosis and late presentation at ART centres when their chance of success have reduced significantly. Furthermore, patients are rarely referred for ART in developing countries, most patients present on their own. Our client presented early possibly due to the fact that our centre is a sub-unit of Obstetrics and Gynaecology Department of the hospital where clients' referral is expected from the general gynaecological clinic.

The success recorded at the first attempt of IVF in this client was not a surprise because fecundity and fecundability are age dependent.^[12] More so, aside from tubal factor infertility there were no confounding factors that could affect the success, coupled with the fact that the unit have been recording success in the last 2 years of its operation.

Successful delivery of an IVF baby in a public health institution in a poor resource setting like ours has reiterated/reinforced the feasibility of ART services in our locality. The need for increased awareness and intervention of government and nongovernmental organization and availability of drugs/consumables possibly through removal of subsidy on importation and or encouraging indigenous production coupled with provision of grants to trained personnel and on the whole implementation of millennium development goal 1^[13] will further assist in the domestication of this technology in the country.

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