***Case study***

# A Case Report On Primary Infertility With Hypothyroidism And Diabetes Mellitus

***ABSTRACT-***

***Introduction****: Infertility is the inability, by natural means, of an animal to reproduce. Typically, adult species are not in their normal state of health. A woman who is unable to conceive well will define infertility as unable to bear a full-term pregnancy. Because of any ejaculating disease, and any declining sperm count, men are directly liable for 30-40% infertility. The WHO estimates the overall prevalence of primary infertility in India at 3.9% and 16.8%. Fertility estimates differ widely between India and 3.7% in Utter Pradesh and Maharashtra.* ***Case presentation:*** *On 9/12/2020, a 38-year-old female came for In Vitro Fertilization with a known case of primary infertility in AVBR Hospital, Wardha. Her complaint was inability to conceive for 4 years, irregular menses, headache, sleep disturbance, loss of appetite. She was admitted for in-vitro fertilization therapy for the 2nd cycle. She had a history of hypothyroidism for 8 years for which she has been taking Thyrox 50mg OD tablet and has Diabetes Mellitus for one year since she is taking Metformin 500mg BD tablet. Instead, she has no concerns about asthma, tuberculosis, epilepsy, etc. On 9/12/2020, she underwent an embryo transfer.* ***Diagnostic Evaluation:*** *The diagnostic hysteroscopy was conducted at the private hospital in Amravati 2 years ago. She has been diagnosed with nullipara for 4 years as a primary infertility. She has already undergone 2 cycles of Intra Uterine Insemination (IUI) and 1 cycle of in vitro fertilization.* ***Hysterosalpingography:*** *Both fallopian tubes are normal & patent uterus is normal.* ***Conclusion:*** *There is multifactorial infertility. In both men and women, anatomy, physiology, the environment, hormones and genetics all play a role in causing infertility. Therefore, in the coming years, it is a very important problem and research in this zone is very essential.*

***Key words-*** *Infertility, Primary infertility, Hypothyroidism, Diabetes mellitus.*



## INTRODUCTION

A 38-year-old girl, with a reported case of primary infertility in Acharya Vino Bhave Rural Hospital, came for IVF treatment on 9/12/2020 with a key complaint of 4-year inability to conceive, irregular menses, headache, sleep disturbance, loss of appetite. She was admitted for in-vitro fertilization (IVF) therapy for the 2nd cycle. She has a history of hypothyroidism for 8 years for which she has been taking Thyrox 50mg OD tablet and has Diabetes Mellitus for one year since she is taking

Metformin 500mg BD tablet. Instead, she has no concerns about asthma, tuberculosis, epilepsy, etc. On 9/12/2020, she underwent an embryo transfer. The diagnostic hysteroscopy was conducted at the private hospital in Amravati 2 years ago. She has been diagnosed with nullipara for 4 years as a primary infertility. She had previously undergone 2 cycles of Intra Uterine Insemination (IUI) and 1 cycle of In-vitro Fertilization (IVF), but that was not possible. Menarche's age is 14 years and her LMP is 23/11/2020. All patient physical measurements were normal for physical examination. Hypothyroidism and diabetes mellitus have been diagnosed as primary infertility in patients.

**Signs and symptoms** was inability to conceive for 4 years, prolonged menstruation, headache, disruption of sleep, lack of appetite. All basic blood tests were regular diagnostic examination of the patient except WBC shows monocytopenia, granulocytopenia, lymphocytopenia, Thyroid Stimulating Hormone level also shows hypothyroidism and prolactin level was increased. The impression of hysterosalpingography indicates that both fallopian tubes are natural with normal uterine cavity.

**Management:**

Assisted reproductive technology involves, by artificial or partially artificial means, all approaches used to achieve conception. For the treatment of infertility, it includes stimulation of gametes and embryos outside the body. In ART, either IUI or the fertilization of the oocytes in the laboratory setting as in IVF bypass the mechanism of intercourse. In vitro fertilization is a mechanism by which sperm outside the body is fertilized in vitro by an egg. A long thin sterile tube with a syringe at one end, "test tube babies" is a colloquial term for babies born as a result of IVF. One or more embryos suspended in a drop of culture are drawn into a transfer catheter. The tip of the transfer catheter is directed through the cervix and brings the fluid containing the embryos into the uterus cavity.

**Nursing care**- Thorough medical history and physical assessment

- Perform blood tests and hormonal tests in patients receiving IVF and transfer of embryos
- Evaluation of contraindications for different medications, situations of prudent use, and probable drug interactions
- Therapeutic outcomes track

- Decrease in infertility symptoms such as anovulation, irregular menstruation, maintenance of T3 and T4 levels
- Medical outcomes should be confirmed by radiological tests.
- Observe the absence of clinical therapy response, suggesting potential drug resistance
- Adverse Effect Control
- Instruct patients about the adverse effects that should be promptly reported to the doctor.
- Take medicine exactly as ordered, every day at the same time.
- Emphasize the value of strict adherence to the disease or cure improvement regimen
- Emphasize self-care for patients, including proper nutrition and rest.

Prevention should be taken since, even after a full course of care, infertility rates remain very high.

**Diet should be advice-Energy rich foods-**

Carbohydrate and fats: seeds of whole grains, millets, edible oils, ghee, butter, nuts and oils, sugar seeds. For protein: Pulse, nuts, milk and milk products, meat, fish, poultry, and some oilseed. Protective foods: minerals and vitamins, green vegetables, fruits. Eggs, milk and milk products and food for flesh

**Discussion-**

A 38-year-old female came for In Vitro Fertilization with a known case of primary infertility on 9/12/2020 in AVBR Hospital, Wardha. She had a complaint of inability to conceive for 4 years, irregular menses, headache, sleep disturbance, loss of appetite. She was admitted for in-vitro fertilization therapy for the 2nd cycle. She had a history of hypothyroidism for 8 years for which she has been taking Thyrox 50mg OD tablet and has Diabetes Mellitus for one year since she is taking Metformin 500mg BD tablet. Instead, she has no concerns about asthma, tuberculosis, epilepsy, etc. On 9/12/2020, she underwent an embryo.

A similar study was conducted on prevalence of hypothyroidism in infertile women and evaluation of response of treatment for hypothyroidism on infertility to study the prevalence of clinical/sub-clinical hypothyroidism in infertile women and the response of treatment for hypothyroidism on infertility. A total of 394 infertile women visiting the infertility clinic for the first time were investigated for thyroid stimulating hormone (TSH) and prolactin (PRL). Infertile

women with hypothyroidism alone or with associated hyperprolactinemia were given treatment for hypothyroidism with thyroxine 25-150 μg.

The result shows that of 394 infertile women, 23.9% were hypothyroid (TSH > 4.2 μIU/ml). After treatment for hypothyroidism, 76.6% of infertile women conceived within 6 weeks to 1 year. Infertile women with both hypothyroidism and hyperprolactinemia also responded to treatment and their PRL levels returned to normal. This study concluded that measurement of TSH and PRL should be done at early stage of infertility check-up rather than straight away going for more costly tests or invasive procedures. Simple, oral hypothyroidism treatment for 3 months to 1 year can be of great benefit to conceive in otherwise asymptomatic infertile women.

A similar study was conducted on type 1 diabetes mellitus associated or not with primary hypothyroidism and women's fertility with the aim of to evaluate the prevalence of infertility and other reproductive parameters in women with type 1 diabetes mellitus (DM1) with and without primary hypothyroidism (PH). A cross-sectional study conducted at Division of Endocrinology. They interviewed the samples in order to obtain data on their gynecological and obstetric history; medical charts were reviewed to determine the characteristics of the diseases and to assess clinical/laboratory data. We used the chi-square and Mann-Whitney's tests, and logistic regression analysis. The prevalence of infertility in the total sample was 24.5%, no differences were found between groups regarding obstetric outcomes and gynecologic variables. Factors associated with infertility were microvascular complication, polycystic ovary syndrome, primary hypothyroidism, and older age at onset of type 1 diabetes mellitus. The presence of primary hypothyroidism in women with type 1 diabetes mellitus was a predictive factor for infertility. Women with type 1 diabetes mellitus showed poorer reproductive outcomes compared to the general population.

**Conclusion:** There is multifactorial infertility. In both men and women, anatomy, physiology, the environment, hormones and genetics all play a role in causing infertility. Therefore, in the coming years, it is a very important problem and research in this zone is very essential. Infertility is the inability to a person animal to reproduce by natural means. It is usually not to natural state of health adult organism.

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