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Rare Sucessful Pregnancy in a Woman with 46xxgondal Dysgenesis

Neeraja

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ABSTRACT
A 23 year-old lady with 4 yrs years of primary infertility was diagnosed with an infantile uterus, premature ovarian failure due to streak gonads, and 46XX gonadal dysgenesis. She has received hormone therapy irregularly since menarche and gets withdrawal bleeding only after taking estrogen and progesterone combination. She also received three cycles of ovulation induction elsewhere. Her transvaginal ultrasonogram (USG) showed uterus that measured 4×2×1.5 cm, left ovary measured 1.2x0.8×0.5 cm and right ovary could not be visualized. She was given hormone replacement therapy to achieve optimal uterine size for a period of 6months and achieved pregnancy with the first cycle of the donor oocyte program.She underwent elective lower segment caesarean section (LSCS) at 37 weeks for IUGR and severe oligohydromnios and deliverd a healthy bay of wt 2 kgs. At cesarean section, fallopian tubes were normal and ovaries were small in size and streak like.

Key words : Premature ovarian failure ,streak gonads ,pregnancy

I. INTRODUCTION

Gonadal dysgenesis is a very rare disorder that occurs during the inutero developmental stage of an individualat the time of fertilization, embryo, or fetus development.. It is due to errors in cell division and alterations in genetic material and results in a spectrum of disorders causing abnormalities in phenotype or genotype depending on a partial or complete loss of gonadal tissue. The genetics of gonadal dysgenesis include the complete absence of one of the chromosomes 46 XO or its mosaics (Turners Syndrome) 46XX and 46XY (Sweyers Syndrome). Complete gonadal dysgenesis genotypes are 46XX and 46XY and they have streak gonads, primary or secondary.amenorrhea, infertility, and absence of features of Turner syndrome.[1] The 46XX type gonadal dysgenesis has a large spectrum ranging from streak ovaries to normal size and may not respond for Gonadotropin stimulation, and is frequently diagnosed as a premature ovarian failure. A young infertile woman who was diagnosed as a premature ovarian failure with hormonal and ultrasonogram (USG) diagnosis of streak gonads with infantile uterus showed 46XX genotype was treated for infertility and the pregnancy outcome is described in this report.

CASE

25 yr old lady married for 3 years presented in 2011seeking treatment for infertility. She attained menarche at 14 years of age and her cycles were irregular since then with scanty flow. She was investigated elsewhere and found to have raised follicle stimulating hormone (FSH) and luteinising hormone (LH) and was treated with harmonal therapy with estrogen and progesterone harmone combination.She had done investigations at various places

Harmonal profile and USG
FSH 46 U/L
LH 25 IU/L
Prolactin 12 ng/dl
TSH 1.4 mIU/L
AMH 0.02

karyotype 46XX

Uterus 4.× 2.5×1.5 cm
Lt ovary 1 ×0.8×0.6cms rt ovary not visualized
Semen Analysis: Count 26 million; Motility 56%; Progressive motility 40%
HSG Bilateral tubes

USG after harmonal replacement therapy
Ut 6.4×4× 3.46cm×3cm lt ovary : 1.8×0.8×0.5 cm ; no follicles;stroma dense ,rt ovary not visualized .

On examination, she was well built with height of 148 cm; weight 54kg, and Breasts and thyroid were normal and the respiratory System and cardiovascular system were also normal.Gynecological examination showed normal external genitalia. Cervix and vagina were healthy.The uterus was mid position and size could not be made out. She had no coital problems. Trans-vaginal scan at our center revealed uterus that measured 4.1×2.5×1.5 cm, left ovary measured 1×0.8×0.5xcm and right ovary could not be

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visualized. She was diagnosed with premature ovarainfailure (POF) has her FSH was 45 IU/L and LH was 25 IU/L, infantile uterus with streak gonads (46XX gonadal dysgenesis), and counseled regarding the prognosis, necessity of donor oocyte program, and optimizing the size of the uterus before the program. She was advised to take tab Estradiol Valerate 2.5mg once daily for 30 days and Tab. medroxy progesterone acetate 5mg from Day 14 to 25 for six cycles. She was counseled for adoption and donor egg program, and asked to arrange an egg donor. She returned after 6 months of taking cyclical hormonal therapy. Her uterus measurements are shown then is 6.5×4×3.4 cm and planned for embryo trasfer.

The donor was 32 years old, had two children, and was tubectomized. She was counseled regarding ovarian hyperstimulation and antagonist protocol was initiated after the basic and hormonal investigations that were normal. She (the donor) developed 6 follicles on the right ovary and 4 follicles on the left sid,e and E2 was 2080pg/ml. Only five oocytes were obtairest were empty follicles. ICSI was performed and on day 5 and there were only two grade 1 blastocyst : one 1×4 cellsgrade 2andthe otherwasverypoorquality1×2cellarrested embryo. These were frozen after counseling regarding the poor chances of pregnancy. The endometrium of the recipient was prepared by hormone replacement therapy (HRT) cycle and she had an embryo transfer (ET) of 11mm and AB Grade 3 on Doppler on day 24 and ET was performed after thawing.She wascontinuedon estrogen andprogesterone support for 2 weeks and shev achieved pregnancy.

She underwent Elective lowersegment caesarean section (LSCS) at 37 completed weeks for Intra uterine growth restriction and oiligohydrmnios and an alive baby weighed 2kg was born.At LSCS the ovaries were confirmed to be streak and normal fallopaian tubes (Fig 1,2,3). She was discharged on the 6 postoperative day.

Fig 1 left adenexa

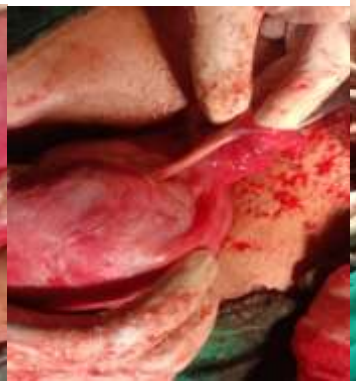

Fig 2 rt adnexa

Fig 3 uterus and fallopian tubes

II. DISCUSSION

Premature ovarianfailure affects1%of young women and is diagnosed when women present with amenorrhea and primary infertility and elevated gonadotropin levels before 40 years of age. It is rare before 20 years and occurs 1 in 1000. The known causes include viral and bacterial infections such as varicella and tuberculosis, autoimmune diseases, and iatrogenic factors such as chemotherapy and radiotherapy. Genetic causes are X chromosome abnormalities, X chromosome deletions, Mosaic karyotype, bone morhogenetic protein (BMP) 15 gene mutations, and autosomal disorders such as galactosemia, gene defect, gonadotropin receptor gene dysfunction, Inhibin gene mutation, and so forth.[2] Environmental factors such as toxins are also cited. Autoimmune thyroiditis and adrenal insufficiency are the other causes that need to be explored and these were negative in this lady.

The genetics of premature ovarian failure include autosomal defects and defects on X chromosomes. It has been known since a long time that the defect on the short arm of the X chromosome (Xp) leads to short stature and somatic abnormalities and deletions in the long arm (Xq) leads to ovarian failure without somatic abnormalities.[3] Deletions of the X chromosome that most commonly occur are X q13. 3- q22, Xq26-q28, and Xp11. 2. Deletions at X q13 region produce primary amenorrhea and at Xp11.2 result in primary or secondary amenorrhea.[4] In this lady, deletion was present. Autosomal translocations can occur in the regions betweenXq13andXq27.Women who were FMR 1 gene mutation carriers can also present as POF .They have a family history of intellectual

disability and women with fragile X syndrome can have mental retardation and developmental delay and no such history was present in this lady. FSH and LH receptor gene mutations are also associated with hyper gonadotropic ovarian failure and gene 2p21 is defective in these women. They have a streak or hypoplastic ovaries with primordial or primary follicular dysfunction. The molecular defect is that of Guanine neucleotide regulatory protein (G protein) of Adenylate cyclase and pseudo hypopituitarism or hypothyroidism may be clinically present along with POF.[5] Autoimmune disorders are also associated with genetic disorders and these include Addison's disease and autoimmune ovarian oophoritis, antiphospholipid antibody syndrome, and so forth. Ovarian biopsy is advised in some cases when ovarian autoimmunity is suspected to be the cause of POF. Approximately 4% to 30% of women with POF may have autoimmune etiology.

Preganacy can occur in idiopathic ovarian failure and also sometimes in Turner mosaics. Spontaneous pregnancy in a woman with stressinduced POF who was on hormone replacement therapy was reported by Firoozeh Akbari Asbagh and colleagues.[7] Another case of POF who conceived while being on HRT recently is on record.]The treatment options for POF include HRT, DHEAS, ICSI with donor oocyte, orthotopic ovarian tissue transplantation, and stem cell therapy. A recent systematic review (2008–2018) on pregnancy following a diagnosis of premature ovarian insufficiency found that the women who achieved pregnancy were very young, the mean age being 30 years..RCTs included were underpowered to reach any conclusion and the causes of POF were diverse and idiopathic or autoimmune POF was found to respond to Gonadotropins with corticosteroids with 30% ovulatory rate and pretreatment with estrogens to bring down the level of FSH was advocated.[10] To investigate the resumption of ovarian activity and spontaneous pregnancies in POF, a mixed retrospective, prospective study was undertaken in a referral reproductive endocrinology center that included 358 consecutive POF patients. Ovarian function was resumed in 24% and 4.4% achieved pregnancy in idiopathic POF.

The predictive factors for ovarian function resumption were family history of POF, secondary amenorrhea, presence of follicle in the ovary by USG, and estradiol and inhibin levels.Association with autoimmune disorders, presence of follicles at biopsy,Anti mullarian harmone levels appeared ro be predictive. FSH level of between 30 and 50 IU/L at diagnosis was a better prognostic factor than higher levels. In this study, idiopathic POF was diagnosed when there was a history of at least 4 months of amenorrhea, two FSH readings above 30 mIU/ml measured 1 month apart, and a karyotype excluding Turner's syndrome and gonadal dysgenesis without any history of chemotherapy or radiotherapy.[11] ACOG committee opinion on primary ovarian insufficiency in adolescents and young adults recommends FSH and estradiol levels to be performed twice one month a part to diagnose POF and states that the evaluation to be undertaken annually.[12]

In the current lady, hormonal evaluation was undertaken more than twice and karyotype showed deletion. A successful pregnancy with donor oocyte program was reported in a woman with Sweyers syndrome who received HRT after gonadectomy.[13] In pure gonadal dysgenesis also, IVF and ET involving donor program are the first line of choice after optimizing the uterine growth and dimensions close to that of normal.Theyhave also observed streak gonads at Caesarean section.[14] Mode of delivery is to be individualized, however, in the literature, it is reported that uterine dysfunction because of the hypoplastic uterus was anticipated and elective cesarean section resulted in better outcomes.[14,15] Finally occurrence of spontaneous pregnancy in pure gonadal dysgenesis 46XX was reported in 2010 and the baby was delivered by cesarean section.[16]

III. CONCLUSION

Women with POF are to be evaluated carefully and psychological counseling is important to decrease anxiety and achieving pregnancy. The chances of pregnancy depend on the cause as it is a complex disorder. Pregnancy can be achieved in women with pure gonadal dysgenesis with donor oocyte program

REFERENCES

[1]. Rocha VB, Guerra-Júnior G, Marques-de-Faria AP, de Mello MP, Maciel-Guerra AT. Complete gonadal dysgenesis in clinical practice: the46, XY karyotype accountsfor morethanonethird ofcases. FertilSteril 2011;96:1431-4.

[2]. Ebrahimi M, Akbari Asbagh F. Pathogenesis and causes of premature ovarian failure: an update. Int J Fertil Steril 2011;5:54-65.

[3]. Krauss CM, Turksoy RN, Atkins L, McLaughlin C, Brown LG, Page DC. Familial premature ovarian failure due to an interstitial deletion ofthe long arm of the

Xchromosome.N EnglJ Med1987;317:125-3. 4. Goswami D, Conway GS. Premature ovarian failure. Hum Reprod Update 2005;11:391-410.

[4]. Meduri G, Touraine P, Beau I, et al. Delayed puberty and primary amenorrhea associated with a novel mutation of the folliclestimulating hormone receptor; clinical, histological, molecular studies. J Clin Endocrinol Metab 2003;88:3491-8.

[5]. Conway GS, Kaltsas G, Patel A, Davies MC, Jacobs HS. Characterization of idiophatic premature ovarian failure. Fertil Steril 1996;65:337-41.

[6]. Akbari Asbagh F, Ebrahimi M. A case report of spontaneous pregnancy during hormonal replacement therapy for premature ovarian failure. Iran J Reprod Med 2011;9:47-49.

[7]. Calik-Ksepka A, Grymowicz M, Bronkiewicz W, et al. Spontaneous pregnancy in a patient with premature ovarian insufficiency − case report. Prz Menopauzalny 2018;17:139-40.

[8]. Gu Y, Xu Y. Successful spontaneous pregnancy and live birth in a woman with premature ovarian insufficiency and 10 years of amenorrhea. Front Med 2020;7:18.

[9]. Fraison E, Crawford G, Casper G, Harris V, Ledger W. Pregnancy following diagnosis of premature Ovarian insufficiency: a systematic review. Reprod Biomed Online 2019;39:467-76.

[10]. Bidet M, Bachelot A, Bissauge E, et al. Resumption of ovarian function and pregnancies in 358 patients with premature ovarian failure. J Clin Endocrinol

[11]. The American College of Obstetricians and Gynecologists, Committee on Adolescent Health Care. Committee opinion no. 605: primary ovarian insufficiency in adolescents and young women. Obstet Gynecol 2014;124:193-7.

[12]. Taneja J, Ogutu D, Ah-Moye M. Rare successful pregnancy in a patient with Swyer Syndrome. Case Rep Womens Health 2016;12:1-2.

[13]. Loto OM, Adebayo AE, Ademulegun TE, Akindojutimi AJ. Pregnancy following in vitro fertilization and embryo transfer in a patient with gonadal dysgenesis. Trop J Obstet Gynaecol 2019;36:140-3.

[14]. AzikenM,OsaikhuwuomwanJ,OsemwekaA,IribhogbeO,OrhueA. Successful triplet pregnancy in an African with pure gonadal dysgenesis: a plus for assisted reproduction. Asian Pac J Reprod 2015;4:166-8.

[15]. Kokcu A, Tosun M, Cetinkaya MB, Bildircin D, Celik H. Pure gonadal dysgenesis and spontaneous pregnancy: a case report. Gynecol