CASE REPORTS

Premature Ovarian Failure in A 24 Years Old Young Lady - A Case Report and Review of Literature

S ROUF[a], K BEGUM[b]

Summary :

Premature ovarian failure in a 24 years old young lady is reported. The patient had irregular cycles from menerche proceeded to oligomenorrhoea, secondary amenorrhoea and ultimately diagnosed as a case of premature menopause. Premature ovarian failure is not a very common feature and its occurrence in such a young patient is extremely unusual.

(J Bangladesh Coll Phys Surg 2004; 22 : 31-33)

Introduction :

Spontaneous ceseasation of menses before the age 40 is called premature menopause or premature ovarian failure[1]. Menopause is the final ceseasation of menstruation which occurs during the climacteric. Little is known about the frequency and cause of preterm ovarian failure[2-5]. Exact incidence is not known. It appears that approximately 0.9% of women in the USA may experience this early ceseasation of ovarian function[1]. As illustrated in the case below, a 24 years old young lady presented with secondary amenorrhoea and ultimately encountered as a case of premature ovarian failure. Review of the literature revealed that there had been very few case reports and studies on preterm ovarian failure. The case reported highlighting its clinical presentation and diagnosis, the aetiology and risk factors are discussed in the light of published literature.

Case report:

A 24 years old young unmarried university student coming from an upper middle class family reported to a gynaecologist with the complain of ceseasation of menstruation for one year (secondary amenorrhoea). Careful history taking suggested that she had her menerche at the age of 14 years. From the onset of menerche, she had irregular menstrual cycles occurring at an interval of two to three months. Initially the flow was average but gradually the cycles occurred at less frequent intervals. Eventually the duration of menses and amount of blood loss was also decreased gradually. She did not take these events into any consideration. Finally, for the last one year she developed amenorrhoea. She did not give any history of suffering from chronic illness (Tuberculosis), metabolic disorders, crush dieting or sudden weight loss. She was the only daughter of her parents and her mother was still menstruating and had no family history of preterm ovarian failure. She did not give any relevant drug history. On examination she was healthy looking, intelligent, cooperative with average built and nutrition. She was 150 cm tall and was weighing 55 kg. General gynaecological examination revealed no abnormality, with normal thyroid gland, well developed breasts and female distribution of hair lines. External genitalia were well developed.

Investigations revealed normal complete blood picture. Plasma glucose, fasting and two hours after breakfast were 5.39 mmol/L and 6.02 mmol/L respectively. Thyroid stimulating hormone (TSH) and prolactin levels were normal. Ultrasonogram of pelvic organs showed normal size uterus with thin endometrium. Both the ovaries were of normal size and volume but both the ovaries were quiescent without any visualized follicle.

Progesterone challenge test failed to have withdrawal bleeding. After that combined oestrogen and progesterone was given and withdrawal bleeding occurred. Subsequently serum follicle stimulating hormone (FSH), leutinizing hormone (LH), testosterone and oestradiol (E_2) levels were measured. FSH and LH levels were remarkably high and were within the menopausal level.

a. Dr. Salma Rouf, FCPS, Assistant Professor Dept of Obs & Gynae, Dhaka Medical College & Hospital, Dhaka

b. Dr. Kohinoor Begum, FCPS, FICS, Prof. of Obs & Gynae, Dhaka Medical College & Hospital, Dhaka

Address for correspondence to : Dr. Salma Rouf, Assistant Professor, Dept. of Obs. & Gynae Dhaka Medical College & Hospital, Dhaka.

Journal of Bangladesh College of Physicians and Surgeons Vol. 22, No. 1, January 2004

Testosterone level was within normal limit and oestradiol level was within the menopausal range. All the hormone levels were summarized in the table below:

Hormone	Level	Range
TSH	4.77 µiu/ml	0.47 - 5.01 µiu/ml
Prolactin	280.8 miu/L	45.6 - 621.6 miu/L.
FSH	109.9 miu/ml	3-20 miu/ml Follicular 9-26 miu/ml Midcycle 1-12 miu/ml Luteal 18-153 miu/ml Post menopausal
LH	44 miu/ml	2-15 miu/ml Follicular 22-105 miu/ml Midcycle 0.6-19 miu/ml Luteal 16-64 miu/ml Menopausal
Testosterone	0.56 nmol/L	0.35-3.3 nmol/L
Oestradiol	25 pg/ml	10-16 pgm/ml Follicular 34-400 pgm/ml Midcycle 27-246 pgmml Luteal <30 pgm/ml Menopausal

Serum FSH and LH levels were repeated on two occasions and thereafter at reasonable interval to verify the findings and all the values were found raised upto menopausal levels.

On the basis of the clinical findings and hormone levels the cause of secondary amenorrhoea was established as premature ovarian failure. The case was reviewed by senior gynaecologists and endocrinologists and the diagnosis was confirmed. Both the parents were properly counselled regarding the pathophysiology and consequences. She was advised to take hormone replacement therapy (cyclical oestrogen and medroxy progesterone withdrawal bleeding regime) along with calcium supplements and regular follow up. Karyo typing and chromosomal analysis showed normal profile (XX).

Discussion :

Age at menopause varies in different countries from 45 to 55 years with an average of 51.4 years in the United States.' Menopause apparently occurs in the human female because of two phenomena. First, oocytes responsive to gonadotrophins disappear from the ovary and second, the few remaining oocytes do not respond to gonadotrophins. There does not appear to be any consistent relationship between age at menarche and age at menopause. Marriage, childbearing, height, weight and prolonged use of oral contraceptives do not appear to influence the age of menopause. Disease process, specially severe infections or tumours of the reproductive tract can occasionally damage the ovarian follicular structure so severely as to precipitate the menopause.

The menopause can also be hastened by excessive exposure to ionizing radiation, chemotherapeutic drugs and surgical procedures that impair ovarian blood supply. The associated endocrine abnormalities could also be a cause.

Spontaneous menopause at age <40 years is known as premature ovarian failure or premature menopause. Ceseasation of menstruation and the development of climacteric symptoms and complaints can occur as early as a few years after menarche. The reasons for premature ovarian failure are unknown.

A family history increases the risk of early menopause[4]. Several chromosomal abnormalities have been linked with preterm ovarian failure[6,7,8]. So genetic factors may

influence the onset of menopause. The association of environmental factors and their interactions with genetic ones are of interest to study[5].

Early age at menarche, use of oral contraceptives, nulliparity and smoking are all factors associated with age at spontaneous menopause as reported in the literature[9,10]. Whether these factors also influence in risk of premature menopause is not known and are of subject of interest.

A large epidemiological study in Italy find out the risk factors for premature ovarian failure and suggested that nulliparity and life long irregular menstrual cycles were associated with an increased risk of preterm ovarian failure[11]. The study population was 15,253 women of which 1.8% reported preterm ovarian failure. Nulliparous women were at greater risk of preterm ovarian failure[11]. A recent case control study of 100 women with preterm ovarian failure confirmed that women with premature ovarian failure had fewer pregnancies than the control group[5]. However literature suggests that this association was limited to women without a family history of preterm ovarian failure and disappeared within patients with familial preterm ovarian failure. A possible explanation is that patients with a positive familial history may pay more attention to their reproductive patterns and tend to conceive earlier as they are aware of the earlier age at menopause of their relatives. Lower parity may be an effect rather than a cause of early menopause.

The association between life long history of irregular menstrual pattern and the premature ovarian failure has been well established in the literature[5,10,11]. Explanation is that irregular menstrual cycles are an effect of impaired ovarian functions of women who subsequently develop preterm ovarian failure.

Studies have failed to find out any relationship with age at menarche, oral contraceptive use, smoking, education and risk of preterm ovarian failure[5,12]. However, another study suggests that smoking is associated with early menopause. Women who smoke are more likely to have severe menopausal symptoms than who do not and such women may be more likely to go to a menopausal clinic than nonsmokers. Moreover one study suggested that smoking, no oral contraceptive use and late age of menarche were associated with later age of menopause[5,11, 12].

As life expectancy of women has increased, women has to spend one third of their life span in the post menopausal state. The duration is more for preterm ovarian failure. Management is controversial but these women definitely need hormone replacement therapy to counter act the effect of oestrogen deficiency along with proper counselling.

References

1. Jones N L, Judd HL. Menopause and post menopause. Current Obstetric and Gynaecologic Diagnosis and Treatment 9th Edition, 1018 - 1040.
2. Coulam CB, Adamson SC, Annegers JF. Incidence of premature ovarian failure Obstet Gynaecol 1986; 67 : 604-606.
3. Vegetti W, Masozzi A, Manfredini E et al. Premature ovarian failure. Mol Cell Endocrinol 2000; 161 : 53-57.
4. Torgerson DJ, Thomas RE, Reid DM. Mothers and daughters menopausal age: is there a link? Eur J Obstet Gynaecol Reprod Biol 1997; 74 : 63-66.
5. Testa G, Chiaffarino F, Vegetti W et al. Case control study on risk factors for premature ovarian failure. Gynaecol Obstet Invest 2001; 51 : 40-43.
6. Vegetti W, Tibiletti MG. Testa G et al. Inheritance in idiopathic premature ovarian failure: analysis of 71 cases. Human Reprod 1998; 13 : 1796-1800.
7. Marozzi A, Mamfredini E, Tibiletti MG et al. Molecular definition of Xq common deleted region in patients affected by premature ovarian failure Hum Genet 2000; 107 : 304-311.
8. Marozzi A, Vegetti W, Mamfredni E et al. Association between idiopathic premature ovarian failure and fragile X premutation. Hum Reprod 2000; 15 : 197-202
9. Bromberger JT, Mathews KA, Kullar LH, et al. Prospective study of the determinants of age at menopause. Am J Epdiemiol 1997; 145 : 124-133.
10. Parazzini F, Negri E, La Vecchia C. Reproductive and general life style determinants of age at menopause. Maturitas 1992; 15 :141-149.
11. Progetto Menopausa Italia study group. Premature ovarian failure : frequency and risk factors among women attending a network of menopause clinics in Italy. B J Obstet and Gynaecol, 2003; 110 : 59-63.
12. Progetto Menopausa Italia study group. Factors associated with age of menopause in women attending menopause clinics in Italy. Take shi A, et al. editor. Atti The 9th International Menopause Society World Congress on the Menopause. Bologna: Monduzzi Editor, 1999; 45-50.