10.5005/jp-journals-10006-1513

CASE REPORT

Late-onset Congenital Adrenal Hyperplasia or Early-onset Polycystic Ovarian Syndrome: A Clinical Dilemma

[1]Preksha Jain, [2]Anuja V Bhalerao, [3]Sakshi Aggarwal

ABSTRACT

Aim: To differentiate nonclassical congenital adrenal hyperplasia (NCAH) from polycystic ovarian syndrome (PCOS) in a 13-year-old girl.

Background: Hirsutism and virilization are effects of hyperandrogenism by ovaries and adrenal glands. It has a marked psychological and social impact affecting the quality of life; 75% of premenarchal girl have hyperandrogenism, which is due to PCOS but late-onset congenital adrenal hyperplasia cannot be ruled out, and this leaves the clinician in quandary regarding the diagnosis and management.

Case report: A 13½-year-old girl presented with excessive facial hair, hoarseness of voice, and darkening of elbow pits since past 2 months, which was increasing in severity. The patient had not yet attained menarche but had pubarche 1 year back. Examination revealed presence of acanthosis, underdeveloped breasts, and clitoromegaly >3 cm. Levels of 17-hydroxyprogesterone were normal but higher levels were reported poststimulation. Fasting insulin levels were also high. Appropriate treatment was started, which led to improvement in patient's symptoms.

Conclusion: There is significant overlapping between PCOS and NCAH, which warrants accurate diagnosis based on hormonal analysis to institute early and appropriate therapy.

Significance: Early therapy can prevent infertility and androgenic complications later in life.

Keywords: Clitoromegaly, Hirsutism, Hyperandrogenism, Late-onset congenital adrenal hyperplasia, Polycystic ovarian syndrome.

How to cite this article: Jain P, Bhalerao AV, Aggarwal S. Late-onset Congenital Adrenal Hyperplasia or Early-onset Polycystic Ovarian Syndrome: A Clinical Dilemma. J South Asian Feder Obst Gynae 2017;9(3):280-282.

Source of support: Nil

Conflict of interest: None

Date of received: 27 April 2017

Date of acceptance: 23 June 2017

Date of publication: August 2017

[1]Senior Resident, [2]Associate Professor, [3]Junior Resident

[1-3]Department of Obstetrics and Gynaecology, NKP Salve Institute of Medical Sciences & Research Center, Nagpur Maharashtra, India

Corresponding Author: Preksha Jain, Senior Resident Department of Obstetrics and Gynaecology, NKP Salve Institute of Medical Sciences & Research Center, Nagpur, Maharashtra India, Phone: +917104306100, e-mail: prekshaenator@gmail.com

AIM

To differentiate nonclassical congenital adrenal hyperplasia (NCAH) from polycystic ovarian syndrome (PCOS) in a 13-year-old girl.

INTRODUCTION

Hirsutism and virilization are effects of hyperandrogenism by ovaries and adrenal glands. It has a marked psychological and social impact affecting the quality of life.

About 75% of premenarchal girl have hyperandrogenism, which is due to PCOS but late-onset NCAH cannot be ruled out, and this leaves the clinician in quandary regarding the diagnosis and management.

Congenital adrenal hyperplasia is a group of autosomal recessive disorders caused by 21 hydroxylase enzyme deficiency which leads to defects in biosynthesis of steroid precursors. The degree of 21 hydroxylase deficiency affects the severity of clinical spectrum. It can be simple, virilizing, or salt-wasting type in classical NCAH (1 in 10,000 to 1 in 20,000) or manifest variable signs of androgen excess at any phase of postnatal development in nonclassical NCAH (NCAH; 1 in 1,000).[1]

Polycystic ovary syndrome is a heterogeneous condition involving various endocrine glands, with ovary being most affected. The clinical features of PCOS are also heterogeneous and vary in severity from oligomenorrhea to acanthosis nigricans. Hence, dilemma arises in diagnosis based on clinical signs and symptoms as both exhibit various features of ovulatory dysfunction and hyperandrogenism. About 40% of patients of NCAH might have polycystic ovaries; insulin resistance is a feature of PCOS, but might be present in NCAH also. Both have a strong familial preponderance; 17-hydroxy (OH) progesterone levels can help to differentiate these two entities. Although hormonal parameters are valuable in classifying the forms of 21-OHD, molecular genetic techniques are best for making a secure diagnosis, as 90 to 95% of the allelic mutations are detected by these techniques.[2,3] Baseline 17-OH progesterone levels of 6 to 300 nmol/L requires post-adrenocorticotropic hormone (ACTH) stimulation test. Levels between 31 and 300 nmol/L are classified as NCAH.[4]

CASE REPORT

A 13½-year-old girl presented with excessive facial hair, hoarseness of voice, and darkening of elbow pits since

past 2 months, which was increasing in severity. The patient had not yet attained menarche but had pubarche 1 year back.

There was no history of acne, baldness, excessive weight gain or fatigue.

There was no history of similar complaints in her family. Her parents had a nonconsanguineous marriage.

Patient had normal intelligence quotient. General physical examination revealed normal blood pressure levels, with body mass index of 14.7 kg/m^2, breasts were underdeveloped with Tanner stage 2, also there was presence of acanthosis nigricans at nape of neck and elbow folds and also excessive axillary hairs. Masculine voice was also evident. Grading of hirsutism according to Ferriman–Gallwey scoring revealed a score of 22, which suggested severe hirsutism.

Systemic and per abdomen examinations were normal.

On external genital examination, excessive pubic hair (Tanner stage 4) was present, clitoromegaly of more than 3 cm was present, rest of genitalia was normal with intact hymen and normal vaginal orifice (Fig. 1).

On per rectal examination, small uterus could be made out.

Investigations revealed raised levels of serum testosterone (1.84 ng/mL), serum 17-OH progesterone levels of 2.8 ng/mL and on ACTH stimulation 31.4 ng/mL; serum dehydroepiandrosterone was normal (1.92 ng/mL). She had normal levels of serum luteinizing hormone (LH) (2.32 mIU/mL), serum follicle-stimulating hormone (FSH) (2.11 mIU/mL), serum progesterone (0.2 ng/mL), serum prolactin (18 ng/mL), serum thyroid-stimulating hormone (2.6 µIU), and normal liver function test and kidney function test. But fasting serum insulin was raised (159 mU/L) and fasting and postmeal blood sugars were also normal. Ultrasonography of abdomen revealed no abnormality. Ultrasonography pelvis revealed bilateral bulky polycystic ovaries and normal uterus with 3 mm endometrial thickness. Barr body was positive. Karyotyping report was 46 XX.

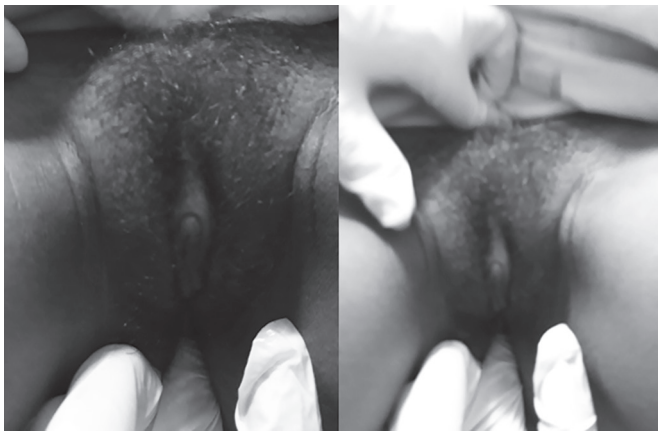

Fig. 1: Clitoromegaly

After proper counseling of the patient and her relatives, patient was prescribed tab Aldactone 25 mg three times a day, tab Bigomet SR 250 mg twice daily gradually increased to 850 mg twice daily, calcium supplements 500 mg at the hour of sleep, vitamin D3 sachet once a month, and Nervigen injection 1 mL intramuscularly once a week and was followed up for 7 months. She reported remarkable decrease in hirsutism and some improvement in voice. Laboratory levels of fasting insulin decreased to 47.3 mU/L.

DISCUSSION

This 13-year-old girl had not attained menarche but has had pubarche and thelarche 1 year back, so she cannot be diagnosed as a case of primary amenorrhea but her symptoms and signs in the form of clitoromegaly and hirsutism warrant urgent evaluation.

Considering history, examination, and investigations, a provisional diagnosis of early-onset PCOS was made but dilemma arose speculating severity of hirsutism, clitoromegaly, and raised levels of 17-OH progesterone poststimulation. Also, presence of insulin resistance falls in favor of PCOS but normal levels of LH and FSH fall against it. On enquiring about presence of ambiguous genitalia at birth, her parents reported it to be normal. Thus, taking into consideration all the above facts, final diagnosis of NCAH was made.

Even though both these entities require to be treated with antiandrogens, it is important to differentiate them from each other as NCAH also requires additional glucocorticoid supplementation, although some cases of PCOS might require steroids. Another reason to diagnose it correctly is, during their reproductive period if her partner is also a carrier of NCAH, the newborn may succumb to classical NCAH.

Development of PCOS in the setting of androgen overproduction (or persistent disturbances of the hypothalamic–pituitary–adrenal axis even after normalization of androgen levels) points to adrenal enzyme defects, but the precise interaction of gonad and adrenal cortex via serum steroids remains open.[4]

Counseling of the patient and her parents is critical as due to androgen excess many women struggle with the loss of feminine identity and later infertility, subsequently affecting their social life.

CONCLUSION

Thus, there is significant overlapping between PCOS and NCAH that warrants accurate diagnosis based on hormonal analysis to institute early and appropriate therapy.

CLINICAL SIGNIFICANCE

Early therapy can prevent infertility and androgenic complications later in life.

REFERENCES

1. New MI, Wilson RC. Steroid disorders in children: congenital adrenal hyperplasia and apparent mineralocorticoid excess. Proc Natl Acad Sci U S A 1999 Oct 26;96(22): 12790-12797.
2. New MI. Extensive clinical experience: nonclassical 21-hydroxylase deficiency. J Clin Endocrinol Metab 2006 Nov;91(11):4205-4214.
3. New MI. Nonclassical congenital adrenal hyperplasia and the polycystic ovarian syndrome. Ann N Y Acad Sci 1993 May 28;687:193-205.
4. Speiser PW, Azziz R, Baskin LS, Ghizzoni L, Hensle TW, Merke DP, Meyer-Bahlburg HF, Miller WL, Montori VM, Oberfield SE, et al. Congenital adrenal hyperplasia due to steroid 21-hydroxylase deficiency: an endocrine society clinical practice guideline. J Clin Endocrinol Metab 2010 Sep;95(9):4133-4160.