

## A Case Report of Classic Adrenal Hyperplasia – A Rarity.

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**Abstract:** Congenital adrenal hyperplasia (CAH) is an inherited enzymatic defect of steroid synthesis that manifests with varying degrees of physical stigmata including virilizing of female patients. The females born with this disease disclose varying degrees of masculinization of their genitalia. We report a case of a twelve years old female child having ambiguous genitalia since birth. On clinical examination the patient had hirsutism on the face (upper lips) and had a masculine look. Cutaneous examination of the patient showed long multiple striae over the arms, abdomen and legs. On genital examination, the child had ambiguous genitalia with clitoral hypertrophy.

### INTRODUCTION

Congenital Adrenal Hyperplasia (CAH) consists of a group of disorders of adrenal steroidogenesis. Various forms of CAH are transmitted as autosomal recessive

trait. Males and females are equally at risk. The average incidence of classical presentation is 1 in 15000 livebirths.<sup>1</sup> A definitive diagnosis of congenital adrenal hyperplasia due to 21-hydroxylase deficiency in a newborn infant with ambiguous genitalia can be made two to three days after birth based on a 46 XX karyotype and an increased plasma concentration of 17OH-progesterone (usually >200 nmol/l; normal <10 nmol/l in a full term infant). The degree of stigmata diverges according to the underlying enzyme deficit altering cortisol in the adrenal gland and the most commonly encountered defect is of the 21-hydroxylase enzyme. Patients with simple virilizing 21-hydroxylase deficiency are usually diagnosed in female patients shortly after birth owing to genital ambiguity. Mild forms 21-hydroxylase deficiency in females are identified later in childhood because of precocious pubic hair, partial or complete fusion of the labioscrotal folds, phallus enlargement to clitoromegaly and often accompanied by accelerated growth and skeletal maturation due to excess and post natal exposure to adrenal androgens either are not untreated or are inadequately treated.<sup>2</sup> Long term exposure to high levels of sex hormones leads to premature epiphyseal fusion (predominantly an effect of extragonadal aromatization of androgens to estrogens). Pubic and axillary hair may develop early. Clitoral growth may continue in girls. Long term exposure to androgens may also activate the hypothalamic-pituitary-gonadal axis, causing centrally mediated precocious puberty.

There is general agreement that the management should aim at creating a normal female anatomy with a minimum of complications and an improvement of life quality.

### CASE REPORT

We report a case of a twelve years old female child having ambiguous genitalia since birth. The child was born out of non consanguineous marriage. The mother had never been treated with any drugs during pregnancy or encountered hormonal exposure in utero and she had no signs of androgen excess such as hirsutism, alopecia or clitoral hypertrophy (maternal virilization). There was no family history of infertility, ambiguous genitalia or unexplained neonatal death. The classic CAH due to 21-OH was strongly suspected by reason of her clinical examination and symptoms. Serum hormones study confirmed the diagnosis. On clinical examination the patient had hirsutism on the face (upper lips) and had a masculine look (Fig 1). Cutaneous examination of the patient showed long multiple striae over the arms, abdomen and legs (Fig 2). On genital examination, the child had ambiguous genitalia with clitoral hypertrophy. Lab investigations showed high levels of 17 hydroxy progesterone and low levels of plasma cortisol. The patient has been on hydrocortisone and fluricortisone acetate since birth. Her menstrual cycles had not started as yet and secondary sex characters were not developed.

Labia majora, minora and urethral orifice were normal. Perineal examination revealed enlarged clitoris of 3 cm, which increased to 4 cm on arousal (Fig 3). Abdominal and pelvic ultrasonography showed enlarged right adrenal gland, normal uterus and normal ovaries. Abdominal CT scan confirmed the findings of ultrasonography. Chromosomal analysis revealed positive barr bodies.



**Fig. 1** - A twelve years old female with hirsutism on the upper lips and a masculine look  
**Fig. 2** - Multiple striae with on the abdomen and limbs of a twelve years old female  
**Fig. 3** - Figure showing ambiguous genitalia with enlarged clitoris

### DISCUSSION

The newborn infant with ambiguous genitalia is a medical emergency and appropriate investigations must be started quickly. The problem is a distressing one for the parents and they must be given a careful explanation of what will be done to determine the sex of the infant and how long this will take. It is important to note that the commonest cause of ambiguous genitalia of the newborn is congenital adrenal hyperplasia and the commonest cause of congenital adrenal hyperplasia is 21-hydroxylase deficiency.<sup>3</sup> To confirm this diagnosis two investigations are essential: measurement of plasma 17OH-progesterone concentration and determination of a peripheral karyotype.

Other clinical parameters of control in congenital adrenal hyperplasia include measurement of growth velocity and skeletal maturation (bone age), signs of hypercortisolism (striae, weight gain, hypertension), and noting the pattern of menses in postpubertal women.<sup>4</sup> These are essential to monitor regularly but the parameters are insensitive indicators of control in the short term and are of necessity retrospective. Irregular menses and infertility in both sexes have been additional problems.<sup>5</sup>

Treatment in congenital adrenal hyperplasia should aim to ensure normal growth in infancy and childhood, the development of puberty at the appropriate age and later, the acquisition of adult reproductive potential. This goal needs to be achieved using the minimum amount of glucocorticoid required to suppress excess androgen production. There is a delicate balance to strike between the prevention of androgen induced rapid growth with advanced skeletal maturation on the one hand and the inhibition of normal growth from excessive glucocorticoid replacement on the other. Several glucocorticoid preparations have been tried as regular

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replacement treatment in congenital adrenal hyperplasia.<sup>6</sup> Continued use of hydrocortisone is recommended throughout childhood and puberty until statural growth is almost complete. When statural growth is complete, dexamethasone is an effective form of treatment to use in the long term. The longer biological half life allows medication to be administered only once, 2 or at the most, twice daily. Single daily medication should probably be given in the morning in a maximum dosage of 0-01 mg/kg/day.

It is essential for the infant to be seen early by a surgeon experienced in the techniques required for reconstruction of the genitalia. There are basically two structural abnormalities which require surgical treatment: reduction in the size of the enlarged clitoris and division of the fused labial folds to exteriorise the vaginal opening. The parents should understand that the female internal genitalia are normally developed. Pictures from a pelvic ultrasound examination or vaginography to show the uterus and ovaries can be most reassuring. Ultrasonography by an experienced sonographer is often employed to visualize the presence of female reproductive organs. It is important to establish the exact location of the vagina in relation to the bladder. Particular attention must be made to delineate the size of the vagina and most importantly the level of the confluence of the vagina with the USG. This information is invaluable in preoperative planning as well as for counseling parents regarding the extent of surgery required for vaginoplasty.<sup>7,8</sup>

CAH poses many challenges, especially for women which include the issues of genital surgery, disclosure, informed consent, weight, and general well-being not to mention having a chronic condition that is lifethreatening. The management of patients with genital anomalies is a complex problem. The goal remains to correct the visible anatomical anomalies, creating an appearance corresponding to the gender, and a function enabling the individual to lead a normal life, including sexual function and, if possible, reproduction. Clitoral reduction,

especially in an adult, is a procedure which often leaves the glans clitoral without the capacity for tactile sensation.<sup>9</sup> Recent investigations and reports on longterm results indicate that vaginal orgasm is more of an exception than the rule, so that for women, preservation of clitoral sensitivity is essential to a satisfying sexual life. The technique of clitoroplasty should be modified according to the size of phallus.

More research is now being carried out into the psychological long-term outcomes of women with CAH. Depression and stress are often reported,

particularly to do with relationship, weight problems associated with steroid replacement. These patients are reared as females, but have depression due to clitoral hypertrophy, imagining themselves neither female nor male. Multidisciplinary one stop patients centered care with endocrinology, gynaecology, and psychology expert teams are now gradually becoming the cornerstone of care for CAH.

## CONCLUSION

Congenital adrenal hyperplasia is an uncommon chronic disorder which will present in the newborn nursery only about once every two years even in the busiest maternity unit. A high clinical index of suspicion should be maintained for all infants with abnormal genitalia

Management of virilizing CAH child with ambiguous genitalia demands multidisciplinary team approach. Various specialties such as pediatric endocrinologist, urologist, psychologist, gynecologist should work as a teamwork to achieve a normal physiologic, emotional and sexual development. The team major challenge is to use the tools available to make the least bad choice in order to select a gender able to match the individual identity, social identity, and behavioral identity. Patients well being can be achieved by team work, sustained follow-up and patient's compliance. Surgical option, performed by experienced surgeon or pediatric urologist, should be tailored, single stage surgery, at early age and executed according to the individual anatomy findings.

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## Eruptive Xanthomas – A Study of 10 Cases

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**Abstract:** Cutaneous xanthomas are a manifestation of underlying lipid abnormalities. It is marked by sudden eruption of crops of small, yellow or yellowish orange papules encircled by an erythematous halo, especially on the buttocks, posterior thighs, and elbows, and caused by high concentrations of plasma triglycerides, especially that associated with uncontrolled diabetes mellitus. We selected 10 cases of eruptive xanthomas for our study. A complete lipid profile of the patients was done including serum cholesterol, triglycerides, HDL, VLDL and LDL. All the patients were subjected to skin biopsy and it was confirmed by histopathological examination. Back was the commonest site being involved in 90% patients, arms and legs were involved in 80% patients, abdomen was involved in 40% patients and face was involved in 20% patients. Family history of hyperlipidaemia was positive in two out of ten cases. Biopsy of the patients showed a small nodular granulomatous infiltrate in upper dermis with accompanying sparse perivascular lymphocytic infiltrate. The granuloma consisted of pale stained histiocyte with abundant foamy cytoplasm.

## INTRODUCTION

Eruptive xanthomas are characterized by crops of yellow papules with an erythematous base, usually occurring over the pressure points on extensor surfaces and buttocks.<sup>1</sup> There are various types of xanthomas classified by both clinical and histopathological criteria. Eruptive

xanthomas are associated with hypertriglyceridemia and chylomicronaemia due to genetic disorder for an underlying disease process (secondary hyperlipoproteinemia), such as diabetes mellitus, hypothyroidism, nephritic syndrome and pancreatitis.<sup>2</sup> Although, eruptive xanthomas are usually associated with hyperlipoproteinemia, they can occur in normolipemic patients with local trauma.<sup>3</sup> Treatment involves dietary restrictions and medications to control the hyperlipidemia. The aim of the study was to analyse the clinical and histopathological characteristics of 10 cases of eruptive xanthomas.

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