

## CASE REPORT

PROF-1363

**CONGENITAL ADRENAL HYPERPLASIA;****DR. SAIMA QURESHI, MBBS, FCPS**

Assistant Professor of Gynae & Obstetrics  
Independent University Hospital, Faisalabad

**DR SHAHIDA KHALIQ, MBBS, FCPS**

Senior Registrar  
Independent University Hospital, Faisalabad

**DR. MAHNAAZ ROOHI, FRCOG (ENG)**

Professor /Head of Department  
Gynaecology & Obstetrics Unit I  
Punjab Medical College, Faisalabad

**ABSTRACT...** Congenital Adrenal Hyperplasia is the most common cause of female intersex and is an autosomal recessive disorder resulting in enzyme deficiency 21-hydroxylase. The case series describes three such cases that are investigated and managed at Independent University Hospital Faisalabad.

**Key words:** Congenital Adrenal Hyperplasia, 21-Hydroxylase deficiency.

**INTRODUCTION**

Congenital Adrenal Hyperplasia(CAH) is an autosomal recessive disorder resulting in enzyme deficiency related to the biosynthesis of cortisol and aldosterone<sup>1</sup>. There is deficiency of 21-hydroxylase in 90% of cases resulting in increased levels of progesterone and 17 $\alpha$ hydroxyprogesterone which is converted into androstenedione and then to testosterone<sup>2</sup>. In 5-8 % of cases 11-hydroxylase deficiency and in very rare cases 3 $\beta$ -dehydrogenase deficiency is responsible for elevated androgens<sup>3</sup>. Its relationship to HLA type was established that had allowed the mapping of gene located on short arm of chromosome 6<sup>4</sup>.

Affected females are born with enlargement of clitoris and

excessive fusion of genital folds which obscures the vagina and urethra forming an artificial urogenital sinus which may become urethra.

Thickening and rugosity of labia majora bear some resemblance with scrotum<sup>5</sup>. The internal genitalia are always female like. The degree of masculinization is according to levels of androgens<sup>6</sup>.

In some infants, salt losing enteropathy uses may develop due to aldosterone deficiency. Detailed history, examination, measurement of 17  $\alpha$ -hydroxy progesterone in blood, serum electrolytes and karyotyping help to establish the diagnosis. Pelvic ultrasound also helps to improve diagnosis.

Correction of electrolyte imbalance and counseling of parents about the sex of child is essential. In late onset CAH, surgical correction by reduction in size of clitoris and diversion of fused labial folds is done. Simple interoitoplasty may give good results to expose vagina<sup>7</sup>.

**CASE NO. 1**

A 15 years old girl presented with amenorrhea. Detailed history and examination was done. She had short height with lot of hirsutism on her whole body. Examination of external genitalia revealed clitoral hypertrophy with fusion of labia folds but a canalized vagina was there. Her ultrasonography of pelvis and abdominal organs was done. There was small uterus with both ovaries and a mass 2x2.5 cm was suspected on right kidney. Serum hydroxy progesterone levels, CT scan and karyo type was advised . Serum hydroxy progesterone was raised and her karyo type revealed 46xx chromosomal pattern. This patient was advised to take low dose estrogen preparation for three months and after that its dose was increased. Along with low dose steroids were started. In the meantime, bleaching and threading was advised for hirsutism cosmetic purpose. She had menstruation (on withdrawal with progesterone pills. Her breast growth was small with primary mound.

Her clitoral reduction with clitoroplasty was done at Independent University Hospital Faisalabad. After about two years of regular hormonal treatment. She has regular menses and her breast growth has improved.

**CASE NO. 2**

An unmarried 19 years old girl presented at Independent University Hospital Faisalabad with history of primary amenorrhea. Detailed history and examination was done. She had taken lot of pills combination and progesterone pills for onset of menstruation but there was no response.

On clinical examination, she had ambiguous genitalia with clitoromegaly, normal length of vagina, hypoplastic breast and extended hair line and acne on her face. On ultrasonography there was hypoplastic uterus, both tubes, ovaries were present. CT scan revealed 2.1 x 1.8

x 1.5 cm adrenal growth on right side was seen.



Fig-1.



Fig-2

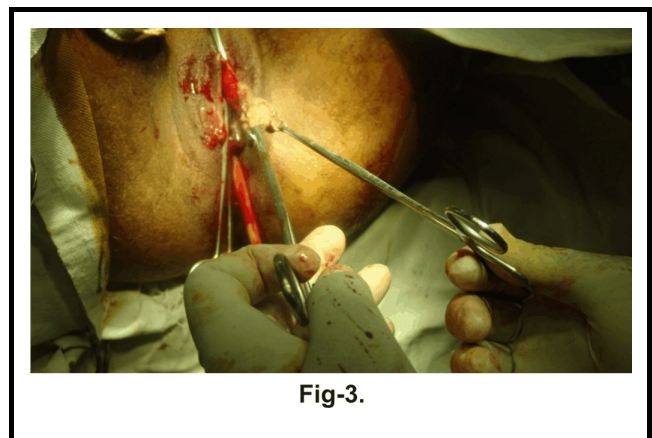


Fig-3.

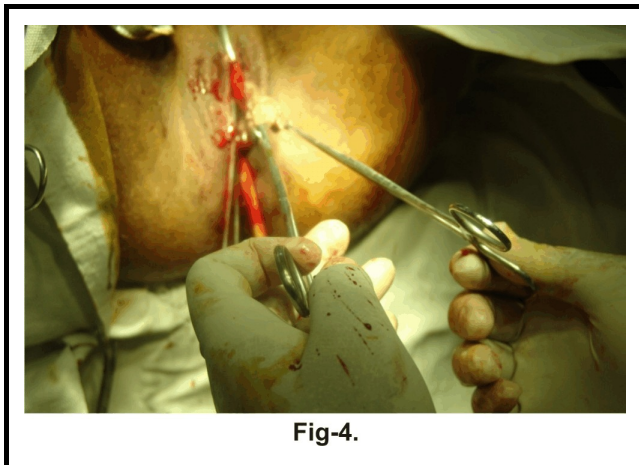


Fig-4.



Fig-5

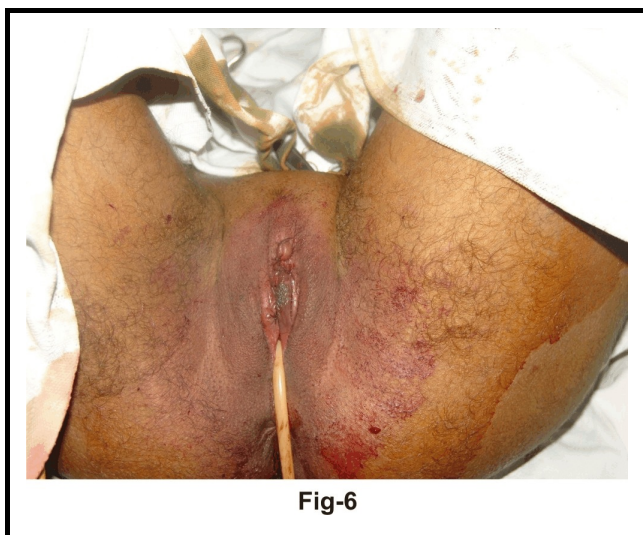


Fig-6

Serum hydroxy progesterone was advised and it was 105 ng/ml.

Normal levels are ;

Prepubertal	=	0.2 -- 0.4 ng/ml
Adults		
Follicular phase	=	0.1 – 0.8 ng/ml
Luteal phase	=	0.2 – 2.9 ng/ml

Her karyo type revealed 46 xx . Diagnosis of CAH was made and treatment with estrogen & steroid therapy was started. Her estrogen dosage was increased smoothly after every month along with continuous steroid therapy.

After about 6 months of treatment her menstruation was established on withdrawal with progesterone. Continuous regular follow up are advised.

**CASE NO. 3**

An unbooked primigravida 25 years old was admitted at 41 weeks of gestation for induction of labour. Her all investigations were normal. She delivered a baby with A/S 8/10, 10/10 having ambiguous sex. There was labial hypertrophy with clitoromegaly. Condition was explained to relative. On 3<sup>rd</sup> day, that baby had loose motions with excessive vomiting. Baby was managed in pediatric ward. Serum cortisol , electrolytes and serum hydroxy progesterone was advised, Diagnosis of early onset congenital adrenal hyperplasia was made. In spite of all measures that baby could not survive for more than 10 days. Her mother was advised to be booked in foetal medicine unit during early next pregnancy.

**CASE No. 4**

A booked patient, 25 years old, G<sub>2</sub>P<sub>1</sub>Ao with previous history of lower segment cesarean section due to failure to progress of labour; She had a male baby 2years old, healthy active and breast fed. At 38 wks, she went into spontaneous labour and baby was delivered by spontaneously (SVI) with episiotomy. The baby had

ambiguous sex, with clitoral hypertrophy and labial folds

were to form an artificial pouch like scrotum. Her serum 17-hydroxy progesterone, serum electrolytes, USG and karyotyping was advised. Baby was diagnosed as case of congenital adrenal hyperplasia.

The baby was admitted due to dehydration and electrolyte imbalance, in neonatal care unit. The baby recovered after treatment and is included for regular follow up.

### DISCUSSION

The etiology of CAH is clear and obvious. The most common cause is 21-hydroxylase deficiency. Its incidence is 1 in 5000 to 1 in 15000 pregnancies 1,8. Other rare causes are androgen secreting tumours that occurred in pregnancy, polycystic ovaries and krukemberg tumours.

Early onset CAH can be diagnosed by prenatal genetic diagnosis and mothers should be explained about the condition. Also this disorder is familial, first cousin marriage should be avoided.

It is important to diagnose CAH early in child hood, so that sex of rearing can be found out and surgical correction at much earlier age may be performed and a child of doubtful sex will not have psychological problems.

### REFERENCES

1. Edmond. K. **Normal and abnormal development of genital tract.** London 2007;(1): 337-341.
2. Edmond. K. **Sexual differentiation- normal and abnormal.** In gynaecology by Robert W. Shows 3<sup>rd</sup> ed, 2002: 191-193.
3. Zachman M. Tassinari D. **Clinical and biochemical variability of congenital adrenal hyperplasea.** Journal of clinical endocrinology and metabolism, 1983;56: 222-229.
4. Domg WF. Heny HH. **Cloning, expression and chromosomal localization to 11 P 12-13 of a LIM homeobox gene.** DNA cell biology, 1997; 16: 671-78.
5. Edmond DK. **Inter-sexuality.** In dewhuests practical pediatric and adolescent gynaecology London, 1989. Butterworts. pp 17-20.
6. **Congenital Adrenal Hyperplasia.** Medline plus; Medical encyclopedia. [www.nlm.nih.gov/medlineplus-ency/000411.htm-26k](http://www.nlm.nih.gov/medlineplus/ency/000411.htm-26k).
7. **Congenital adrenal hyperplasia.** Article by Thomas A Wilson. [www.emedicine.com](http://www.emedicine.com) Nov 17 2006.
8. Donohoue PA, Van DOPL. **Congenital adrenal hyperplasia. Molecular mechanisms resulting in 21-hydroxylase deficiency.** Acta endocrinol 1986. 279; 315-20.