AN INTERESTING CASE OF RARE VARIANT OF TURNER'S SYNDROME

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Abstract: In 1938 Henry Turner described TURNER'S SYNDROME. Turner syndrome also referred as ULLRICH TURNER'S SYNDROME is a genetic disorder in which an X-chromosome is missing or structurally abnormal and is not caused by growth hormone deficiency. Second most common form of sex chromosome aneuploidy, with an incidence of 1:2500. Most common form of hypergonadotrophic hypogonadism in females. 50 classical form (45X0 karyotype), 25 (mosaic form), 25 (structural abnormality), incidence of 45X047XXX Mosaicism. We are reporting a case of TURNER'S SYNDROME with features of short stature, short neck, shield chest, otitis media, primary amenorrhoea, thyroiditis, absent secondary sexual character (absent pubic axillary hair, this mosaicism of 45X047xxx, rare variant of Turner's syndrome clinical features rarely reported with this syndrome

Keyword: Turner's syndrome, mosaicism, primary amenorrhoea, thyroiditis, otitis media

Case Report: 25 years old female admitted with c/o headache, vomiting, giddiness - 2 days duration
H/O left ear discharge - 1 year
H/O giddiness
H/O tinnitus
NO H/O fever
NO H/O seizure
NO H/O altered sensorium
NO H/O motor weakness, Bowel & bladder disturbance
MENSTRUAL H/O: she not attained menarche till date
No similar illness run in families

GENERAL EXAMINATION:
short stature (expected height - 170 cms, patient height - 147 cms)
short neck without webbing
High arched palate
syndactyly
Breast atrophy and widely spaced nipples
Absent secondary sexual character
Thyroid swelling

ANTHROPMETRY:
Height: 147 cms
Weight: 45 Kgs
Height/Neck ratio: 14.5
PR: 76/min
BP: 120/80 mmHg in Right upper limb, 116/80 mmHg in left upper limb
BP: 116/80 mmHg in Right lower limb, 116/80 mmHg in left lower limb
RR: 14/min

EAR NOSE THROAT EXAMINATION:
Right EAR: Tympanic membrane perforation in anterior inferior quadrant/ No ear discharge
Left EAR: Tympanic membrane perforation in posterior superior quadrant/ Mucopurulent discharge.
No nystagmus, Fistula & Romberg's sign - negative, Facial nerve intact on both sides.
NOSE & THROAT-NORMAL
OTHER SYSTEM EXAMINATION: Normal
INVESTIGATION:
urine-albumin-nil, sugar-nil, deposits0-1puscells
CBC:Hb-10.4GMS%
TC-9800cells/cu.mm
DC-4.2MILLIONS CELLS/CUMM
PLATELETS-1.2LAKHSCELLS/CUMM
RBS-144mgs% Bl.urea-38mgs% sr.creatinine-0.8mgs%
sr.electrolytes sr.sodium-136mql/l,sr.potassium-3.8meq/l
THYROID FUNCTION TEST: T3-0.8ng/dl,T4-7.9mcg/dl,
TSH-11.4microIU/L(Imp:Hypothyroidism)
LIPID PROFILE-Normal,
LFT-Normal
PERIPHERAL SMEAR STUDY: Positive for BARR BODY
CHEST X-RAY PA VIEW Normal
USG ABDOMEN-shows Hypoplastic uterus & ovaries
USG THYROID: Both lobes of thyroid enlarged, diffusely
hypoechoic with fibrous strands and
increased vascularity (IMPRESSION:THYROIDITIS)
ECG, ECHO-Normal
HORMONAL ANALYSIS:
Sr.FSH- 54.71mIU/ml
Sr.LH-16.92mIU/ml
Sr.Estradiol-22.44 pg/ml
TARGET VALUE:FSH-67.8(55-80.8),OBTAINED
VALUE:69.0
LH-74.0(62.1-85.0),OBTAINED VALUE:73.2
E2-508(418-598), OBTAINED VALUE:498
IMPRESSION: HYPOESTROGENISM WITH PRIMARY
AMENORRHOEA

INTERPRETATION: Chromosomal analysis(GT-G-Banding
with 500 band resolution) revealed mosaic pattern of
monosomy X and trisomy X i.e mosaic47,XXX(37)/45,X(13)
in the metaphases analysed.
This chromosomal complement confirms variant of
Turner syndrome. Genetic counseling is recommended.
Test methods: Blood lympho culture-cell culture. Genetic
TREATMENT GIVEN:
ANTIBIOTICS Tab.Eltroxin 100mcg 10d,Tab.ethinyl
estradiol 0.05mg 10d given for 21days counselling.

DISCUSSION:
TURNER’ SYNDROME second most common form of sex
chromosome aneuploidy with an incidence of 1:2500..
- Most common form of hypergonadotrophic hypogonadism in
females..
- 50% classic form(45X karyotype)
- 25% mosaic forms
- 25% structural abnormalities of X chromosome
- 99% of 45X conceptions abort spontaneously.
- 7% of spontaneous abortions-45X karyotype.

TURNER'S VARIANTS:
- Isochromosome mosaic 45X/46Xi(xq)
- 46XX mosaic 45X/46XX
- 47XXX mosaic 45X/47XXX
- Complex mosaic 45X/46XX/47XXX
- Ring X mosaic 45X/46Xr(X)

CLINICAL FEATURES:
- FETUS: Increased nuchal translucency.
- EARLY INFANCY : Lymphedema, nuchal fold, low hair line,
Left sided cardiac defects.
- CHILDHOOD: Lymphedema, shield chest, web neck, low
hair line, cardiac defects and coarctation of aorta, renal and
coronal abnormalities, cubitus valgus, otitis media &
hearing loss, autoimmune thyroid disease, visuospatial
learning difficulties.
- ADULT: Pubertal failure,primary amenorrhoea, hypertension
aortic root dilatation and dissection,sensorineural hearing
loss, increased risk of cardiovascular disease,thyroid
disease,IBD, colon cancer,glucose intolerance, osteoporosis.

DISTINCT FACES:Micrognathia ,fish mouth
appearance,high arched palate with dental abnormalities,
epicanthal folds, ptosis , short neck with low hair
line,webbed neck(pterygium coll),recurrent otitis media.

SKELETAL: Short 4th metacarpal bone,Cubitus
valgus,Madelung deformity of wrist,Genu
valgum,Scoliosis ,Short stature- due to haploinsufficiency of
SHOX gene in the pseudoautosomal region of short arm of
X and Y chromosome.

CVS:Prevalence 30%,Coarctation of aorta,AS,Bicuspid
aortic valve-increased risk for dissection,Aortic aneurysm.

AUTOIMMUNE:
Hashimoto’s thyroiditis (16 fold relative risk) Grave’s
disease.

RENAI: Abnormal pelvicalyceal system, Abnormal vascular
supply,Recurrent UTI in 30% to 60%.
GIT: Intestinal telangiectasia, Hemangiomatosis-may lead to
massive GI bleeding, Increased
prevalence of IBD,CLD and colon Carcinoma.

TREATMENT:
1)HCG-0.375 mg/kg weekly, gradually increased to 0.63
mg/kg week
2)Early initiation(2 to 8 years of age) mean duration of
treatment-7yrs ,average weight gain 4 to 16 cm
Low doses of oxandrolonel ( upto 0.05mg/kg/d) in an older
child(>8yrs)
Initiated after 12-13 yrs of age

An Initiative of The Tamil Nadu Dr. M.G.R. Medical University
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Conjugated estrogen 0.3mg or less/ ethinyl estradiol 5gm orally for first 21 days of a month. Dose is gradually increased over several years to 0.6 to 1.25mg of conj. Estrogen or 10 gm of ethinyl estradiol After 1 year of estrogen therapy add Medroxyprogesterone acetate 5mg à 10 – 21st day( to ensure physiologic menses & to reduce the risk of endometrial cancer)

45X/46XY Have male karyotype in some cells (46XY). Often taller and there is an increased risk of gonadal tumour.We all possess two alleles for each gene product – one from our mother and one from our father.In most genes the end result is the combination of these two alleles (eg handedness).In some genes, especially those related to growth one allele is permanently turned off. This occurs at or soon after fertilisation and is called imprinting. Imprinting also occurs on the X chromosome. One half of the X chromosomes are randomly inactivated (ie roughly half maternal and half paternal). However in 45XO there is only one chromosome - this is usually maternal (~70%) but can be paternal (~30%) in origin. Forty percent of Turner syndrome cases are mosaic; of these, 1% are 45,X/47,XXX. Since this variant is so rare, not enough cases have been studied to be conclusive Correlating severity with the type of variant will lead to better counselling and treatment.

CONCLUSION:
Forty percent of Turner’s syndrome cases are mosaic pattern of these 1% of case has 45x/47XXX mosaicism. Genetically our patient has the rare 45X/47XXX mosaicism. Clinical features may be less severe may be the extraX chromosome in 47XXX cells may affect the negative effect of loss of X chromosome in 45 X cells.

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