TURNER'S SYNDROME

(A Report of 2 Cases, with a review of literature)

By

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SUMMARY

Clinical picture with Karyotyping of 2 cases of Turner's syndrome is presented, with a review of literature.

Introduction

In 1938 H.H. Turner from USA described his now famous "Turner's Syndrome" characterised by infantilism, congenital webbed neck and cubitus valgus. Since then many gynaecologists have come across these cases in clinical practice. We have seen 2 cases which are described herewith. The relevant literature is reviewed.

These cases are seen usually at Infertility Clinics with amenorrhoea or scanty irregular periods. Clinical picture as described by Turner in his original paper is as follows:

Infantilism with webbing of the neck and deformity of the elbow (cubitus valgus), occurring in the same individual is extremely rare, and to the author's knowledge, has not been previously described. This unusual phenomenon was observed exclusively in seven female patients, aged 15 to 23 years. Among the characteristic signs were retardation in growth and sexual under development. Webbing of the skin of the neck was slight to marked. Absence or fusion of the cervical vertebrai was not demonstrated, and the shortening of the neck was merely apparent, due to the webbing and not real. The posterior hair margin extended well down on the neck. Deformity of the elbow, consisting of an increase in the carrying angle of cubitus valgus, was constantly present. Facial asymmetry, dorsal scoliosis, and other deformities, mirror movement, difficulty in breathing and swallowing, shortness of breath or mental retardation were not present in this group of patients.

The original description of this syndrome, which soon came to be known an "Turner's Syndrome", encompassed, let it be noted, only its clinical manifestations, without reference to the status of the gonads. Subsequently Wilkins and Fleishman (1944) described the normal but underdeveloped uterus and tubes and streak ovaries. Histopathologic examination showed only ovarian stroma. Thus the name ovarian agenesis was born and was used interchangeably with Turner's syndrome to describe the symptom complex. We wish to present in this paper—two patients with the 45 x 0 syndrome and also wish to review the literature.

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CASE REPORTS

Case 1

Mrs. C.B., 18 years old girl presented primary amenorrhoea. Clinical features suggested a

Turner's syndrome. She was investigated as follows:

Radiology—X-ray of hand and bones—4th & 5th metacarpal shortened. Bone age around 17 yeaars. Intravenous Pyelogram—Horse shoe kidneys. Dilatation and curettage with laparoscopy. Uterus—normal. Tubes—normal. Ovaries—streak. Histopathology of endometrium revealed a proliferative endometrium with hormonal imbalance. Cytology—Buccal smear 7% positive, vaginal smear was atrophic. Karyotyping showed—a 45 x 0 pattern (Refer Fig. 1).

The progesterone challenge test was negative but bleeding was present after oestrogen administration and withdrawal.

Case 2

Mrs. T.G. was a 28 years old woman who complained of infrequent irregular periods every 3-4 months with the bleeding lasting for 3-4 days. On examination, she was short statured with square shoulders and cubitus valgus (Fig. 2).

On examination serial vaginal cytology showed a mild estrogen effect. Cervical mucous was occasionally present with ferning. The prolactin levels were normal and the F.S.H. and L.H. values 28 mIu/ml and 56 mIu/ml respectively. Karyotyping revealed 45 x 0 chromosome pattern. Laparoscopy showed the uterus and tubes to be normal. The ovaries could not be seen and were suspected to be streak. At laparotomy the streak ovaries were confirmed.

The patient was treated with clomiphene citrate 50 mgm for 5 days and a laparoscopy was repeated on the 15th day of treatment. No follicles were seen.

The following chart compares the clinical features of Turner's syndrome as noted by Pavri *et al* 1978 in the present series.

Streak gonads are usually associated with a karyotype demonstrating either a missing X chromosome, X chromosomal mosaicism or structural abnormalities of the X chromosome. The patients have female internal and external genitalia and unless diagnosed previously because of the associated abnormalities found in Turner's syndrome, they may initially present as amenorrhoea with normal female external genitalia.

According to Jeffcoate (1975) one in 200 babies born alive has an autosomal or sex chromosomal abnormality. Of all zygotes with such errors at least 90% are aborted. Chromosomal defects can therefore be demonstrated in 25% of all abortuses. The commonest is trisomy of some kind but the 45 X 0 make up, accounts for 5-6 per cent. Gonadal dysgenesis with variable stigmata of Turner's syndrome is generally associated with a missing X

TABLE I

Clinical Features in Turner's Syndrome

Features	Pavri *et al*			Present series
	XO 6 cases	XX/XX 3 cases	XO/XX/XXX 1 case	XO 2 cases
Short stature (below 10th percentile, IcMR)	6	2	1	1
Cubitus valgus	4	1	1	2
Webbed neck	1	—	—	1
Shortened metacarpals and metatarsals	1	—	—	1
Underdeveloped breasts	6	2	1	1
Inverted nipples	1	—	—	—
Scanty or absent axillary and pubic hair	6	2	1	1
Menstruation (Spontaneous)	1	—	—	1

chromosome, mosaicism including a cell line in which an X chromosome is missing, or a structural abnormality of X chromosome such as long arm or short arm deletions, isochromosomes for the long or short arm, or ring chromosome X. Individuals with deletions of the short arm are usually short statured and manifest various components of the Turner's syndrome. Rare are translocations of a portion of the X chromosome to an autosome or the other X, dicentric X chromosomes, double deletions, fusions and XY translocations associated with gonadal dysgenesis and some of the Turner stigmata.

Haseltine *et al* (1982) describe ullrich Turner syndrome in patients who are monosomic for a portion of the X chromosome in at least some of their cells. Most females with the syndrome have a line of 45 X cells, but many have structural abnormalities of X or Y chromosome with or without 45 X cell line. Other interesting disorders have been associated with gonadal dysgenesis. Kennedy *et al* (1977) recently reported ovarian dysgenesis in the autosomal defects, trisomy 13 and 18. The association of ovarian abnormalities and autosomal trisomy is of considerable interest and is very poorly understood.

Investigations by Boyar *et al* (1978) showed that the gonadotropin values both of FSH and LH varied in relation to the total body fat and per cent body fat. Thus the greater the per cent body fat, the lower the LH and FSH values. The authors suggest that in the presence of increased storage of androgen or androgen precursors, as body fat increases, the hypothalamus may show an increased aromatization of androgen to estrogen, thus checking the gonadotropin rise.

Benjamm *et al* (1977) advocate, that patients with gonadal agenesis should receive adequate oestrogen therapy, with some progestational agent, for development of their secondary sexual characteristics. After adequate maturation is attained, the oestrogen dosage is reduced to minimal to prevent endometrial hyperplasia. Another study by Lucky *et al* (1979) report that very low doses of oestrogen are effective and appropriate as replacement therapy for patients with gonadal dysgenesis. Estrogen administration at high doses will advance bone age and retard bone growth. In low doses Lucky *et al* (1979) point out that oestrogen itself may have a growth promoting effect either directly or through stimulation of enhanced adrenal androgen production.

Neilsen *et al* (1979) quote from the literature a total of 9 pregnancies in 7 women with a 45 x karyotype and 56 pregnancies in 23 women, with mosaicism and a 45 x cell line, as well as a 46 x X and/or 47 xxx cell line. Fifteen of the later 56 pregnancies ended in spontaneous abortion (27 per cent), and 4 ended in the delivery of a still born child; 12 of the 37 live born infants (32 per cent) had a physical or mental abnormality, and 8 (22 per cent) had a chromosome abnormality. Three had Down's syndrome, and 5 had a 45 x cell line. Due to the relatively high (8 per cent) incidence of Down syndrome among live born infants of women with Turner's syndrome, amniocentesis for foetal karyotyping should be advised. Considering this appalling mortality and high rates of congenital abnormalities associated with Turner's syndrome, one would be tempted to counsel against pregnancies in patients of Turner's syndrome.

Both patients in the present series were intimated the poor prognosis as regards pregnancy. In the first patient, her husband refused to accept her, leading to the breakdown of her marriage and she had to return to her father's house.

In the second case, although the couple was advised adoption, they are still moving from doctor to doctor in search of treatment.

Although counselling is part of our therapy, many patients, will not accept the advice given and continue in vain, in their search for suitable treatment.

Conclusion

Turner's syndrome though rare, is occasionally seen amongst infertile patients. Typical clinical features should prompt detailed investigations, karyotyping facilities are needed to establish the diagnosis.

The outcome of few pregnancies reported has been dismal. Hence counselling of patients should form part of therapy.

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See figs on Art Paper I