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Familial Turner syndrome: case report

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Backgrounds

Turner syndrome (TS) is a chromosomic disorder characterized by partial or complete lack of one of X chromosomes. It presents variable phenotypic spectrum. Isochromosome X, of the long arm (46X,i[Xq]) is the third most frequent karyotype, 7-15 % of the TS, and could be in mosaicism. The phenotypic manifestations are similar than girls 45X. A higher incidence of thyroid autoimmunity, diabetes mellitus and intelectual disability was reported, eventhough is currently under discussion, Congenital heart malformations and premature ovarian failure are less frequent.
One third of the girls with TS have spontaneus puberal development, ocurring more often in those with mosaicism and some structural anomalies. Spontaneous pregnancies are rare (3-5%).

Objetive

We describe a family with vertical transmission of TS carrying non-mosaic Isochromosome Xq, which involves 4 women of two generations.

Case Report

Index Case (1)

A 2.9 years old girl was referred because of horseshoe kidney and phenotypic features compatible with TS. Her height was at -1,23 SDS and has high-arqued palate, lower implanted ears, cubitus valgus and broad chest. The kariotype was non-mosaic isochromosome 46Xi[Xq] [30] with negative SRY. She has been on growth hormone treatment since she was 4.3 years old and now she is 8.7 years old and her height is at -0.41 SD (Fig 1 Growth chart). It is of note that she had an advance bone age since diagnosis. Additionally, she has mild intelectual disability (IQ 76).
The karyotype was requested to her mother because of severe short stature with height at -4.6 SDS and body disproportion. She presented cubitus valgus, Madelung deformity, and altered sitting height. She had 5 pregnancies, 3 full terms and two miscarriages. She still has regular menstrual cycles at 32 years old.
The genetic study was amplified to the other daughters, who presented the same chromosomal abnormality. The older one, who was 10.8 years at her first visit, had spontaneously puberal development, with Tanner stage B3 PH3. She is now on growth hormone treatment. Both of them have intelectual disability.
Data of the main clinical features of the patients are listed in **table 1**

Pedigree chart

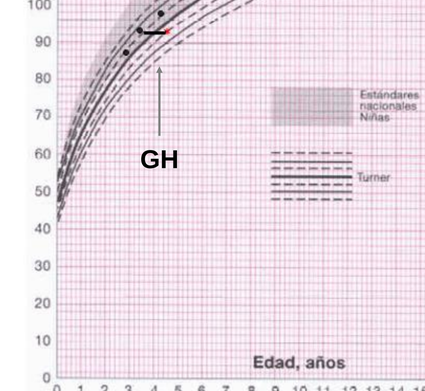


Table 1 Clinical features

Case	Age (years)	PHENOTYPE									GH
		Height (SDS)	Madelung	US/LS*	SH/H** (SDS)	Cubitus valgus	Horseshoe kidney	Thyroid autoinmunity	Intelectual disability (IQ)	Onset of puberty	
1	8.7	125(-0.1)	-	1.15	0.53 (0.5)	+	+	-	76	-	+
2	32.5	135(-4.6)	+	1.26	0.56 (>+2.5)	+	-	-	85	9	-
3	10.8	130(-1.23)	+	1.24	0.55 (>+2.5)	+	-	+	78	9	+
4	5.8	109.8(-0.45)	-	1.38	0.58 (+2.5)	+	-	-	Severe	-	-

**Upper/Lower segments ratio. Alany Y, Lachman RS- Areview of radiological assessment of skeletal dysplasias-J Clin Res Pediatr Endocrinol. 2011;3(4)163-78 **Sitting heigh/heigh ratio.* [1]

Figure 1: Case 1 Growth chart

Figure 2: Case 3 (left) and 1 (right)

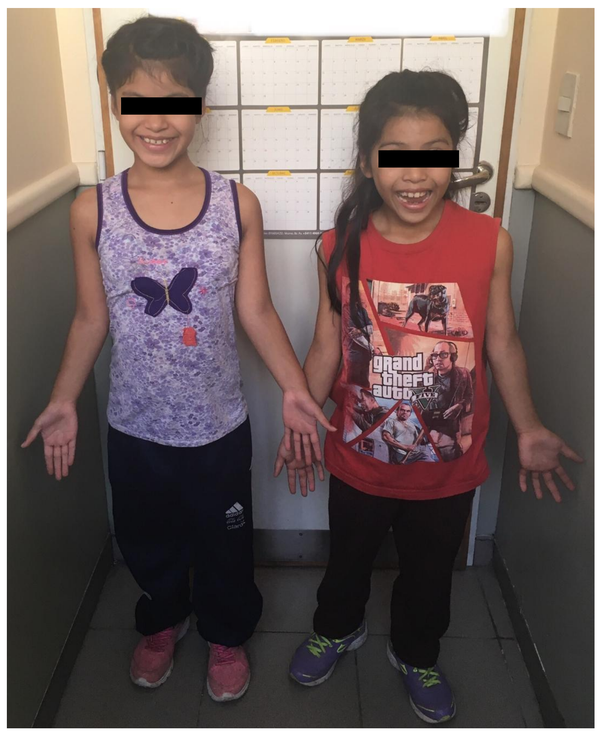


Figure 3: Madelung deformity case 3

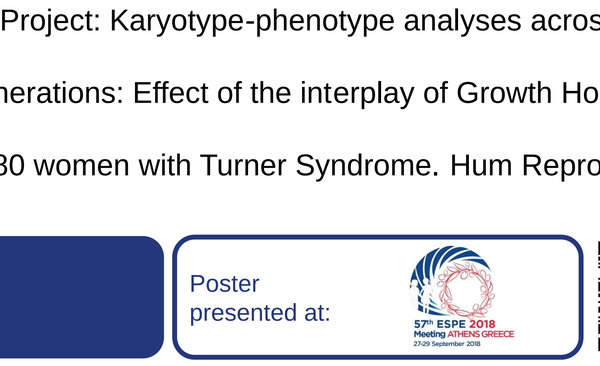
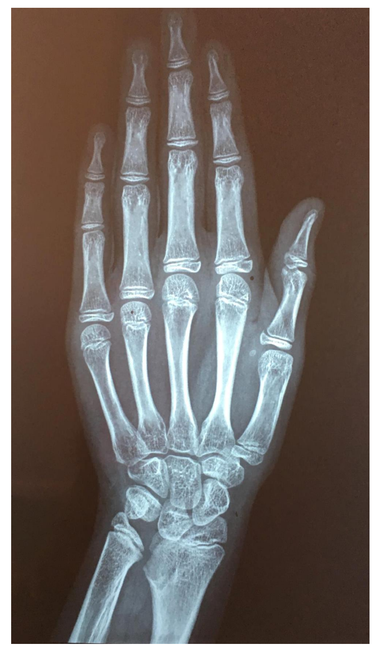


Figure 4: Madelung deformity Case 3



Conclusion

Despite the low frequency of spontaneous pregnancies in patients with TS and even more infrequent TS transmission, when ovarian function is preserved, it is possible to transmit TS to next generations. Two of the 4 exposed cases developed spontaneous puberty, and the mother had 5 pregnancies, 3 full term. The phenotypic expression was variable despite having the same karyotype. The index case is the only that does not have marked corporal disproportion and we think this could be related with growth hormone treatment. In this family, we think that it is important to have genetic counseling, as it is possible to continue with TS transmission.

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