THREE CASES WITH FAMILIAL SHORT STATURE: LERI-WEILL SYNDROME

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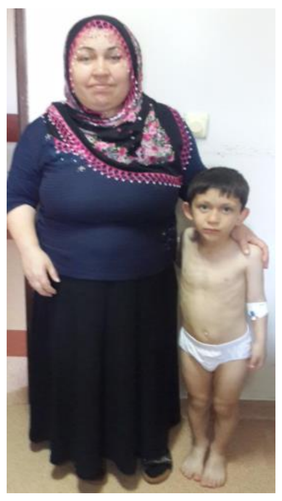
Introduction

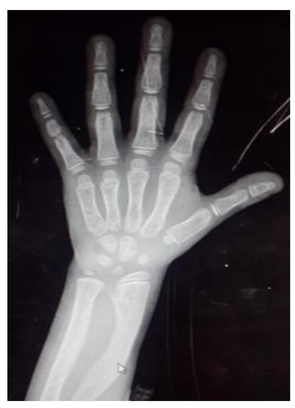
- *SHOX* gene is located in pseudoautosomal regions of chromosomes Xp22.33 and Yp11.32
- Loss of both SHOX alleles is defined as Langer's mesomelic dysplasia (severe type)
- Loss of one SHOX allele is defined as Leri-Weil syndrome (moderate type)
- Heterozygous missense mutations in SHOX allele cause idiopathic short stature (mild type)
- rhGH treatment is safe and effective in improving final height in children with SHOX deficiency.

In this report, we present clinical features and responses to rhGH treatment of three cases with Leri-Weil syndrome who were being followed-up for familial short stature.

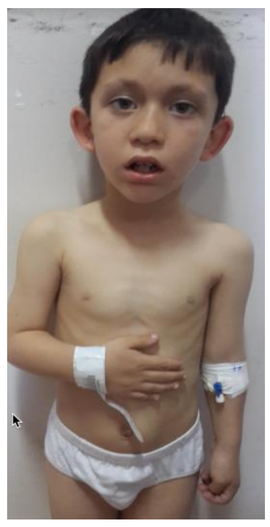
Cases

Clinical and laboratory features of three cases with Leri-Weil syndrome are summarized in **Table 1**.





Madelung Deformity



Tablo 1. Clinical and laboratory features of three cases diagnosed with Leri-Weill syndrome

	CASE-1	CASE-2	CASE-3
Age	6.2	3.6	1.6
Sex	Male	Male	Female
Complaints	Short stature	Short stature	Short stature
Medical history	No Characteristics	Asthma	No Characteristics
Family history	Mother's height: :143 cm Father's height: 165 cm Target height: 160.5 cm (-2.2 SDS) SHOX deletion in mother	Mother's height: 150.8 cm Father's height: 151.6 cm Target height: 157.7 cm (-2.5 SDS) SHOX deletion in father	Mother's height: 150.8 cm Father's height: 151.6 cm Target height: 144.7 cm (-2.8 SDS) SHOX deletion in father and brother
Height (SDS)	101 cm (-3.4)	89.3 cm (-2.85)	75 cm (-2.4)
Weight (SDS)	16.4 kg (-2.02)	16 kg (-0.03)	9.3 kg (-1.33)
BMI SDS	0.4	2.7	0.01
Sitting Height/Height **(Percentile)** **Mesomelia** **Madelung deformity**	0.59 (>95 p) None Yes	0.61 (>95 p) None Yes	0.58 (>95 p) None None
Bone Age (SDS)	4 years 6 months (-2.08)	2 years (-2.3)	14 months (-1.2)
IGF-1 (ug/L)	198 (22-208)	79.4 (<15-129)	83.9 (18.2-172)
Growth velocity before treatment	4.4 cm/year	4.68 cm/year	4.96 cm/year
Peak GH response (ng/ml)	6.33	8.7	5.69
rhGH dose **rhGH period**	50 mcg/kg/day 2 years 10 months	25 mcg/kg/day 3 years 5 months	35 mcg/kg/day 11 months
First Year Growth velocity after treatment	9.19 cm/year	10.9 cm/year	9.9 cm/year
Genetic analysis	Deletion of 266 Kb with 2 OMIMs in Xp22.33 region	SHOX deletion at locus Yp11.3	CNV gain with 15 OMIM genes of 1.4MB on the X chromosome

Result

Most cases with SHOX haploinsufficiency are misdiagnosed as idiopathic or familial short stature. In these cases, body disproportion and wrist radiography should be investigated carefully. SHOX deficiency should be considered especially if limb shortness and madelung deformity are present. rHGH treatment is a safe and effective option for improving final height in children with SHOX deficiency.