Profound growth failure in peripubertal adolescents presenting with severe acquired autoimmune hypothyroidism – a case series

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BACKGROUND:

- Children with severe hypothyroidism are known to present with significant growth restriction.
- Institution of treatment with thyroxine results in catch-up growth.
- Treatment commenced in pubertal period may result in loss of adult height in cases with longstanding severe hypothyroidism.

AIM:

- To evaluate the presentation, investigations and catch-up growth after initiation of treatment with thyroxine.

PATIENTS AND METHODS:

- Retrospective case series of three peripubertal girls who presented with severe growth restriction as a result of primary autoimmune hypothyroidism.
- Study performed at a single paediatric centre between September 2014 and April 2015.

RESULTS:

Patient 1: Presented at 15 years with constipation and short stature. Pubertal staging was B3P3A2M1.

Patient 2: Presented at 13 years with poor growth, constipation and cold intolerance. Pubertal staging was B3P3A2M1.

Patient 3: Presented at 14 years with dizziness and collapse; longstanding cold intolerance and dry hair. Pubertal staging was B2P2A1M0.

Table 1: Thyroid Function tests (TSH in mU/L, T4 in pmol/L)

Patient	Baseline	4 weeks after Thyroxine	8 weeks after Thyroxine
Patient 1	TSH > 100 T4 < 1	TSH – 47.25 T4 –10.9	TSH – 0.56 T4 – 20.6
Patient 2	TSH > 100 T4 < 1	TSH – 3.32 T4 – 22.7	TSH – 0.6 T4 – 15.4
Patient 3	TSH > 100 T4 < 1	TSH – 21.73 T4 – 21.7	TSH – 0.17 T4 – 22.9

Figure 1: Growth chart since initiation of thyroxine

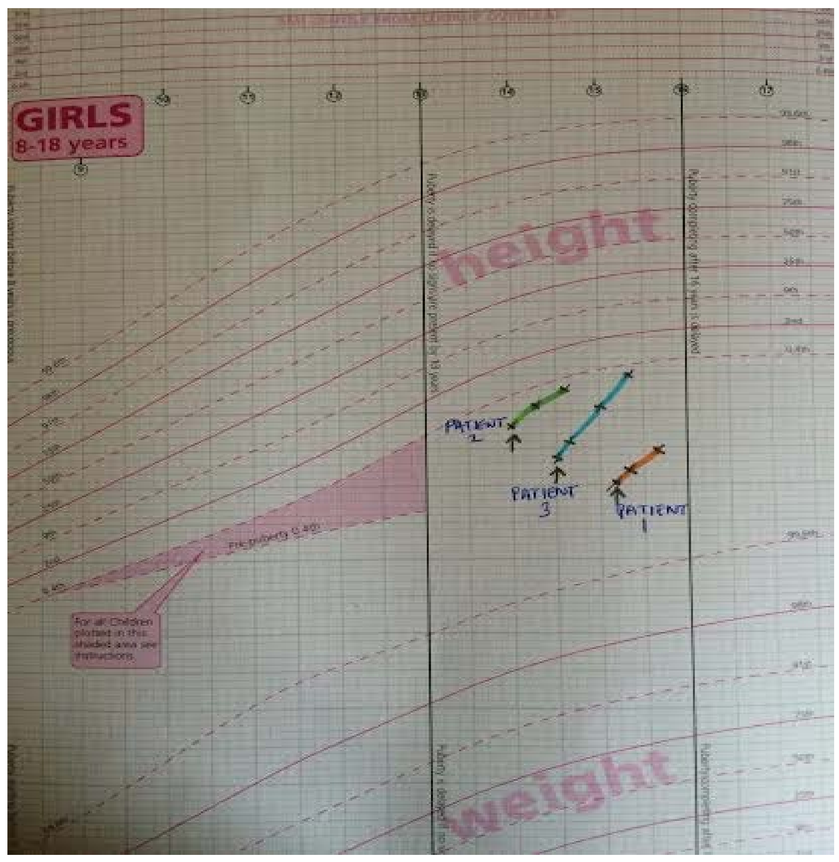

Table 2: Hormone stimulation tests

Patient	Peak Growth Hormone (micrograms/L)	LH (IU/L)	FSH (IU/L)
Patient 1	15.9	43.8	11.9
Patient 2	10.3	48.2	14.4
Patient 3	5.2	8.5	10

Table 3: Bone age

Patient	Chronological age (years)	Bone age (years)
Patient 1	15.25	10
Patient 2	13.8	11.5
Patient 3	15.5	12

THYROID SCAN:

Thyroid ultrasound scan was suggestive of thyroiditis with no nodules noted in all three girls.

CONCLUSIONS:

- Prompt recognition of hypothyroidism in early childhood is essential to initiate timely treatment, so that growth potential is realised.
- Delay in treatment of hypothyroidism, especially in peripubertal age, may lead to compromised adult height.

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