Two separate pathologies (Coeliac disease and Central precocious puberty) associated with catch-up growth in the case of a child born small for gestational age (SGA).

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Background: Children born small for gestational age are usually closely monitored for growth with dietetic input regularly. However poor weight gain or excessive growth away from the usual growth trajectory should prompt assessment for other causes of growth disruption and no assumptions should be made regarding the causes of failure to thrive, or catch-up growth.

Case:MMW was born at 39 weeks by elective caesarian section because of placenta praevia with a birth weight of 2.32kg. Her mother recalled seeing a small 'ropey-looking' placenta. She was known to dietetics and medical services because of failure to thrive and short stature (BMI SDS -3.32, Height SDS -2.21). Routine investigations did not identify a medical cause for her poor weight gain (sweat test normal, coeliac screen negative). However she always had a small appetite and poor weight gain was attributed to this. Due to chronic upper airways obstruction, she had a tonsillectomy at aged 2.5 yrs. Following this, appetite and weight improved (BMI SDS -1.3) but new symptoms of abdominal pains prompted blood investigations which revealed positive coeliac serology (tTg >128 U/ml on two samples, strongly positive endomyseal antibodies). There was no family history of coeliac disease. Diagnosis was made by HLA typing at 6.3 years by a Paediatric gastroenterologist (positive for HLA A1, B8, DR3, DQ2). She was discharged to general follow up when growth improved on a gluten free diet at 7.3 years. Catch up growth was presumed to be in response to the gluten-free diet. However she presented in B2 puberty 3 months later at 7.5 years. Bone age advancement was noted and LHRH stimulation test confirmed a central cause for her precocious puberty (LH peak 14.72 IU/L, oestradiol 121 pmol/L). GNRH analogue was started a few weeks later (7.6 years). Current treatment is long-acting LHRH analogue initially at 12 weekly, then progressing to 10 weekly injections. Current height is on the target height centile for mid parental height.

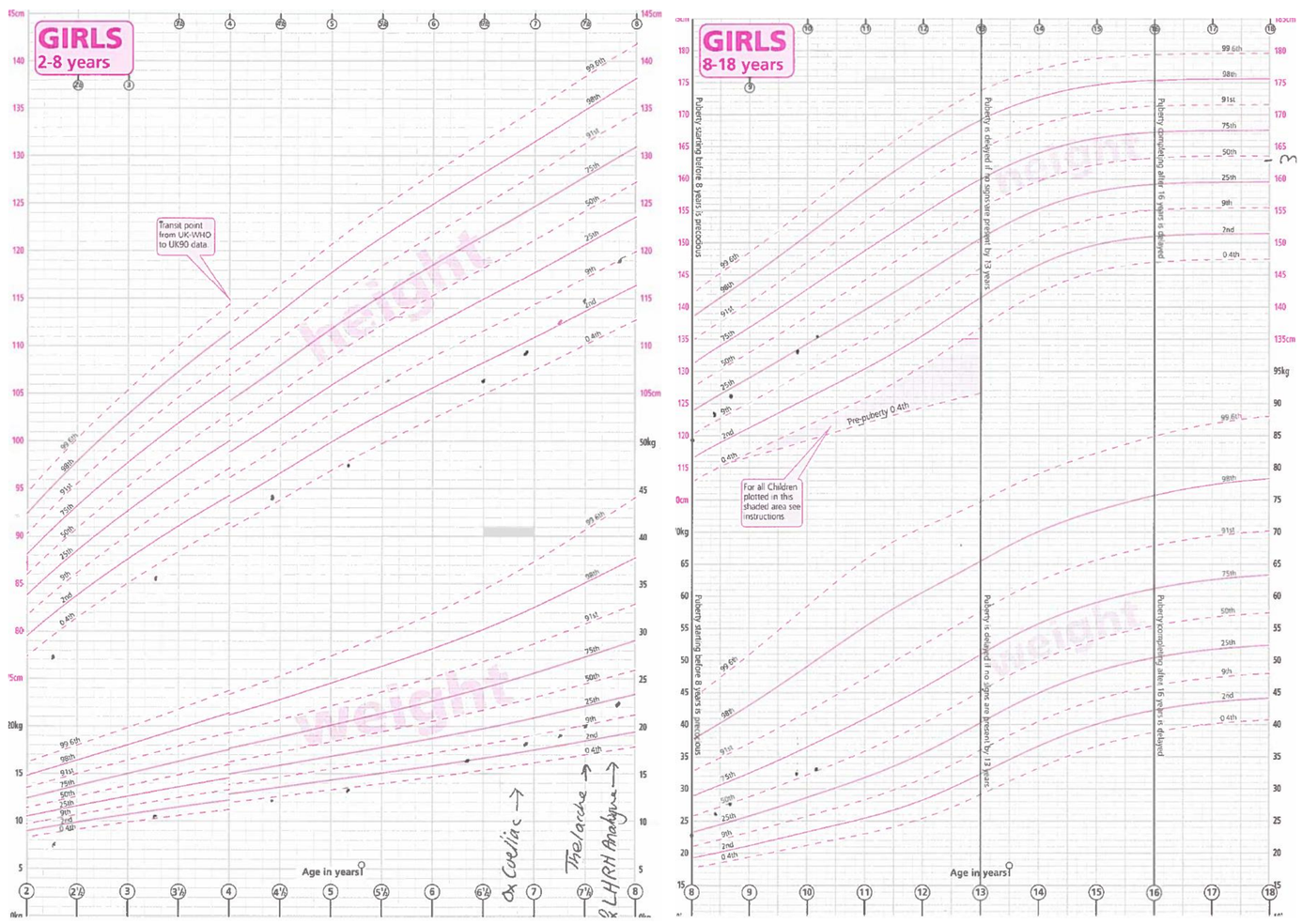
Imaging: Bone age 3 yrs (CA 5.7 yrs). Bone age 5 yrs 9 months (CA 7.5 yrs). Bone age 10 years (CA 9.1 yrs). Pituitary MRI was normal.

LHRH stimulation test

Time	0 min	20 min	60 min
LH IU/L	1.59	14.72	13.34
FSH IU/L	22.56	11.14	11.43

Auxology

Age (years)	2.2	4.4	5.7	6.3	6.8	7.3	7.5	8.7	9.5	10.2
Ht SDS	-2.21	-2.05	-2.01	-1.75	-1.76	-1.49	-1.32	-0.34	-0.47	-0.38
BMI SDS	-3.32	-1.67	-0.75	-0.66	-0.52	-0.5	-0.42	+0.49	+0.94	+0.45



Growth chart

Conclusion: Typical bone age delay is seen in this child with chronic medical problems. In this case, long-standing feeding difficulties and obstructive airways. Bone age delay is noted to advance when she presents with precocious puberty at 7.5 years. One can assume the trigger for earlier puberty here may be due to improved nutrition and BMI following improved appetite following tonsillectomy and being gluten-free after coeliac diagnosis. However the natural progression of catch-up growth in a SGA child with previous placental insufficiency may also be influencing growth patterns and bone age advancement here (foetal programming of the adrenal axis). Note that catch-up growth to reach target height centile took over 8 years from birth with both medical conditions manifesting in this child for over a year.

References

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The author has nothing to disclose