Meridian Children's Hospital

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PEDIATRIC CLINICAL CONSULTATION NOTE

Subspecialty: **Pediatric Endocrinology & Metabolism**

Date: July 22, 2025
Note #: MCH-2025-00847
Service: Outpatient Consult

Patient Demographics

Patient Name	Oliver James Hargrove	**Date of Birth**	March 4, 2016 (Age: 9 yrs 4 mo)
MRN	MCH-096-2241	**Health Card**	4782-643-210 (ON)
Sex	Male	**Preferred Name**	Ollie
Address	22 Birchwood Crescent, Harborfield, ON M5P 1T9		
Guardian	Margaret & Daniel Hargrove (Parents)	**Phone**	(416) 555-0243
Language	English (primary)	**Interpreter**	Not required

Referring Physician

Name Dr. Sandra Wolfe, MD, CCFP
Clinic Northgate Family Health Team
Phone (416) 555-0371
Fax (416) 555-0372
Referral Date June 30, 2025
Priority **Routine — 3 weeks**

Consulting Physician

Name Dr. Priya Mehta, MD, FRCPC
Specialty Pediatric Endocrinology
Phone (416) 555-0182 x204
Pager MCH-P-2047
Fellow Dr. Lucas Chen, MD (PGY-5)
Location MCH Clinic 3, Level 2

Reason for Consultation

Referral for evaluation of **short stature and growth deceleration** in a 9-year-old male. Parents report Ollie has been consistently below the 3rd percentile for height over the past 18 months and is significantly shorter than his classmates. Growth velocity has been estimated at approximately **3.8 cm/year** over the preceding 12 months, which is below the expected 5–6 cm/year for his age. No pubertal changes noted. Referral also includes concern regarding mild **thyroid function abnormalities** on routine screening bloodwork (TSH mildly elevated at 5.2 mIU/L, free T4 low-normal).

History of Presenting Illness

Growth History: Ollie was born at 38 weeks gestation via spontaneous vaginal delivery. Birth weight: 3.02 kg (25th percentile). Birth length: 49 cm (25th percentile). Head circumference: 34.5 cm (50th percentile). NICU stay was not required. He tracked along the 25th percentile through infancy. A progressive decline in growth velocity was first documented at age 7 (April 2023), at which time he crossed below the 10th percentile. By his 8-year annual check-up (March 2024), he had fallen below the 3rd percentile for height.

Associated Symptoms:

- Mild fatigue, particularly noted in afternoons; parents initially attributed this to a demanding school schedule.
- Increased sensitivity to cold temperatures over the past 6 months.
- Mild constipation (bowel movements every 2–3 days); no blood per rectum.
- Slight puffiness noted around the eyes in the mornings (reported by mother).
- Appetite described as “picky but adequate”; no dysphagia, no vomiting.
- No polyuria, polydipsia, or headaches.
- No visual changes or neurological symptoms.

Pubertal Development: No breast/testicular enlargement. No axillary or pubic hair. No acne. Tanner Stage I assessment confirmed. Parents confirm no early pubertal signs at home. Family history of constitutional delay: father reports onset of puberty at approximately age 15.

Past Medical History

- Recurrent otitis media (ages 3–5); bilateral PE tubes inserted April 2020; extruded spontaneously 2021.
- Mild allergic rhinitis; managed with cetirizine PRN.
- Iron-deficiency anemia at age 5; resolved with supplementation.
- No prior hospitalizations beyond birth admission.
- No chronic illness previously documented.
- Immunizations up to date per provincial schedule.

Medications & Allergies

Current Medications:

- Cetirizine 5 mg PO once daily PRN (rhinitis)
- Vitamin D_3 400 IU PO once daily
- Multivitamin (pediatric formulation) once daily

Allergies / Intolerances:

⚠ Penicillin — urticaria (age 4)

⚠ No food allergies documented

Family History

- Father (Daniel, 42): **Constitutional delay of growth and puberty** (CDGP); final adult height 170 cm.
- Mother (Margaret, 40): Hashimoto's thyroiditis, on levothyroxine.
- Maternal grandmother: Type 2 diabetes mellitus.
- Paternal uncle: Celiac disease.
- No family history of Turner syndrome, growth hormone deficiency, or pituitary tumours.

Social History

- Lives with both parents and one younger sibling (age 6, F, healthy).
- Father works as a civil engineer; mother is a registered nurse.
- Attends Grade 4 at Maplewood Public School; above-average academic performance.
- Active in soccer and swimming.
- Diet: generally balanced; consumes dairy; no gluten restriction.
- No tobacco, alcohol, or substance exposure in the home.
- No recent international travel.

Physical Examination

Vital Signs & Anthropometrics

Parameter	Value	Percentile
Height	119.4 cm	<3rd (WHO)
Weight	21.6 kg	5th
BMI	15.2 kg/m^2	18th
Head Circ.	51.8 cm	50th
BP	95/62 mmHg	Normal
HR	74 bpm	Normal
RR	18 bpm	Normal
SpO_2	99%	—
Temperature	36.8 °C	Afebrile

Bone Age (left hand X-ray):
Estimated **7.5 years** (chronological age 9.4 yrs)

Predicted Adult Height (Bayley-Pinneau):
167 cm (5th–10th percentile)

Mid-Parental Height:
171.5 cm [Father 170 cm, Mother 164 cm]

Systemic Examination

General: Well-nourished, alert, cooperative boy. No acute distress. Dysmorphic features absent. Proportionate short stature.

HEENT: Normocephalic. Mild periorbital puffiness bilaterally. Thyroid gland mildly enlarged, non-tender, smooth texture, no nodules palpable. No cervical lymphadenopathy.

Skin: Mildly cool, dry skin texture. No jaundice, no pallor. No striae, no acanthosis. Normal hair texture.

Cardiovascular: Regular rate and rhythm. No murmurs. Peripheral pulses 2+ bilaterally.

Respiratory: Clear to auscultation bilaterally.

Abdomen: Soft, non-tender. No organomegaly. No abdominal masses.

Neurological: Cranial nerves II–XII intact. Deep tendon reflexes 2+ and symmetric. Normal gait.

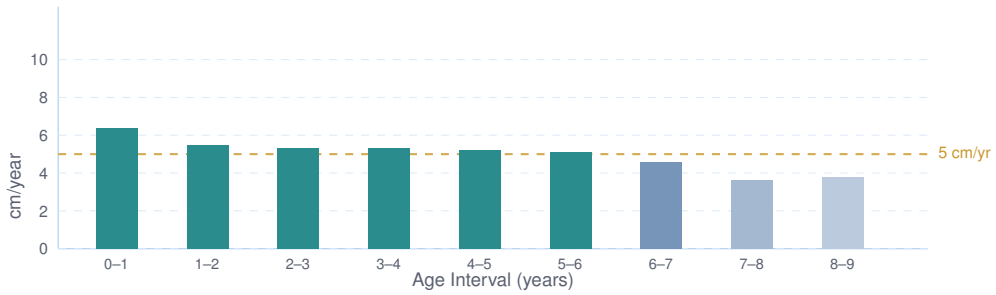
Pubertal Assessment: Tanner Stage I (genitalia, pubic hair). Testicular volume 2 mL bilaterally (Prader orchidometer).

Longitudinal Growth Record (WHO/CDC Reference)

Date	Age	Height (cm)	Ht %ile	Weight (kg)	Wt %ile
Mar 2016	Birth	49.0	25th	3.02	25th
Sep 2016	6 mo	65.8	30th	7.48	35th
Mar 2017	1 yr	74.6	28th	9.55	30th
Mar 2018	2 yr	85.3	25th	12.10	28th
Mar 2019	3 yr	93.4	22nd	14.20	22nd
Mar 2020	4 yr	100.7	20th	15.90	20th
Mar 2021	5 yr	107.4	18th	17.60	18th
Mar 2022	6 yr	113.6	14th	18.90	15th
Mar 2023	7 yr	118.2	8th	20.10	10th
Mar 2024	8 yr	**121.8**	**<3rd**	20.90	7th
Jul 2025	9 yr 4 mo	**119.4***	**<3rd**	21.60	5th

* Today's measurement. Growth velocity: 3.8 cm/year (reference ≥5.0 cm/year for age). Height standard deviation score (SDS): −2.7. Weight SDS: −1.6.

Height Velocity Trend (cm/year):



Investigations

Bloodwork — (Referring Physician — June 28, 2025):

Test	Result	Reference
TSH	**5.2 mIU/L**†	0.5–4.5
Free T4	11.8 pmol/L	10.0–20.0
Free T3	4.1 pmol/L	3.5–7.8
TPO Ab	**142 IU/mL**†	<35
Anti-Tg Ab	68 IU/mL	<40
CBC	Normal	—
Ferritin	24 µg/L	15–150
CRP	1.2 mg/L	<5
ESR	8 mm/hr	<20
HbA1c	5.1%	<5.7%

† Elevated / outside reference range.

Additional Investigations (Today / Ordered):

Test	Result	Status
IGF-1	78 ng/mL	**Low**†
IGFBP-3	2.1 mg/L	Low-normal
GH stimulation	—	Pending
LH / FSH	Prepubertal	Normal
Testosterone	<0.3 nmol/L	Prepubertal
Karyotype	46,XY	Normal
Celiac panel	Negative	Normal
25-OH Vitamin D	38 nmol/L	Insufficient
Calcium / Phos	Normal	Normal
BMP	Normal	Normal

† IGF-1 SDS: −2.1 for age/sex.

Imaging:

Left hand/wrist X-ray (July 22, 2025): Bone age 7.5 years (Greulich & Pyle atlas). Delayed by approximately 1.9 years relative to chronological age.

Thyroid ultrasound (ordered today): Pending. Will assess for echotexture changes consistent with autoimmune thyroiditis.

Assessment & Differential Diagnosis

Primary Assessment:

A 9-year-4-month-old male presenting with progressive short stature (height SDS -2.7), reduced growth velocity (3.8 cm/year), and bone age delay of 1.9 years in the context of biochemical evidence of **Hashimoto's thyroiditis** with subclinical hypothyroidism. The constellation of mildly elevated TSH, positive thyroid antibodies, low-normal free T4, characteristic symptoms (fatigue, cold intolerance, constipation, periorbital puffiness, dry skin), and strong maternal family history (mother with Hashimoto's) is highly consistent with autoimmune thyroid disease as the primary aetiology of the observed growth deceleration.

1. **Subclinical/overt hypothyroidism secondary to Hashimoto's thyroiditis** [*Most likely primary diagnosis*] — Autoimmune thyroid destruction with compensated thyroid function leading to impaired GH–IGF-1 axis and resultant growth failure. TPO Ab 142 IU/mL strongly supportive.
2. **Constitutional Delay of Growth and Puberty (CDGP)** — Significant family history (father), bone age delay consistent, and Tanner Stage I at 9.4 years supports this as a contributing or co-existing diagnosis. Diagnosis of exclusion.
3. **Growth Hormone Deficiency (GHD)** — IGF-1 SDS -2.1 raises concern; however, GH secretion is often secondarily suppressed in hypothyroidism. Must exclude primary GHD after thyroid status is optimized. Stimulation testing planned.
4. **Celiac disease** — Paternal uncle affected; celiac panel negative today. Less likely but considered.
5. **Psychosocial / nutritional short stature** — Unlikely given stable home environment, normal BMI trajectory, and biochemical findings.

Management Plan

Immediate Actions:

1. **Initiate levothyroxine therapy** at a starting dose of **50 mcg PO once daily** (approximately 2.3 mcg/kg/day). Counsel family: administer on empty stomach, 30 min before breakfast; avoid iron/calcium supplements within 4 hours.
2. **Thyroid ultrasound** (booked, pending) to confirm echotexture changes of Hashimoto's thyroiditis and establish baseline.
3. **Vitamin D supplementation** increased to 1000 IU/day given insufficient level (38 nmol/L); target $\geq$75 nmol/L.
4. **Nutrition counselling** referral placed: assess dietary calcium and iodine intake.
5. **Bone age reassessment** in 12 months to monitor skeletal maturation response to thyroid hormone replacement.

Follow-up & Monitoring:

1. **Repeat TSH & free T4** in **6 weeks** to assess biochemical response and titrate levothyroxine dose.
2. **Growth monitoring** every 3 months for the first year; document height, weight, BMI, and growth velocity.
3. **GH stimulation testing** to be deferred for **6 months** pending normalization of thyroid function. Will reassess IGF-1 and IGFBP-3 at 6-month follow-up.
4. **Pubertal assessment** at each visit; expect spontaneous pubertal onset by age 13–14 given family history of CDGP.
5. **Annual thyroid antibody titres** and clinical review.
6. **Psychology referral** offered; parents declined at this time. Re-offer if school/social concerns arise.

Patient & Family Communication Summary

Discussion held with Margaret and Daniel Hargrove (both present) for approximately 45 minutes. Ollie was present and age-appropriately engaged during the visit. The following was reviewed and understood:

- ✓ Nature of Hashimoto's thyroiditis and its autoimmune basis; genetic predisposition discussed given maternal history.
- ✓ Mechanism by which subclinical hypothyroidism causes growth delay; positive prognosis with treatment initiated early.
- ✓ Proper administration of levothyroxine; importance of adherence and consistent timing.
- ✓ Signs/symptoms of over-treatment (tachycardia, irritability, heat intolerance, poor sleep) and under-treatment (persistent fatigue, constipation, weight gain).
- ✓ Growth expectation: anticipate accelerated "catch-up" growth over 12–24 months following adequate thyroid hormone normalization.
- ✓ Written patient education material (Meridian CH #EDU-TH-004) provided.
- ✓ Contact information for endocrine nurse helpline provided: (416) 555-0182 ext. 230.

Follow-up Schedule

Timepoint	Approximate Date	Agenda
6 weeks	September 2, 2025	TSH/free T4 recheck; levothyroxine dose review; symptom assessment
3 months	October 22, 2025	Growth measurement; clinical review; thyroid function; Vitamin D recheck
6 months	January 22, 2026	Full endocrine panel; IGF-1/IGFBP-3; GH stimulation decision; nutrition review
12 months	July 2026	Bone age X-ray; annual thyroid antibodies; pubertal staging; growth velocity analysis

Dictated & Electronically Signed By:

Dr. Priya Mehta, MD, FRCPC
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Date Signed: July 22, 2025 at 16:42 hrs (EST)

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Priya Mehta

Transcribed By:
Dr. Lucas Chen, MD (PGY-5 Fellow)

Reviewed & Co-signed:
Dr. Priya Mehta, MD, FRCPC

Copy to: Dr. Sandra Wolfe (Referring PCP)
MCH Patient Record: MCH-096-2241
Provincial Pediatric Registry: Submitted

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