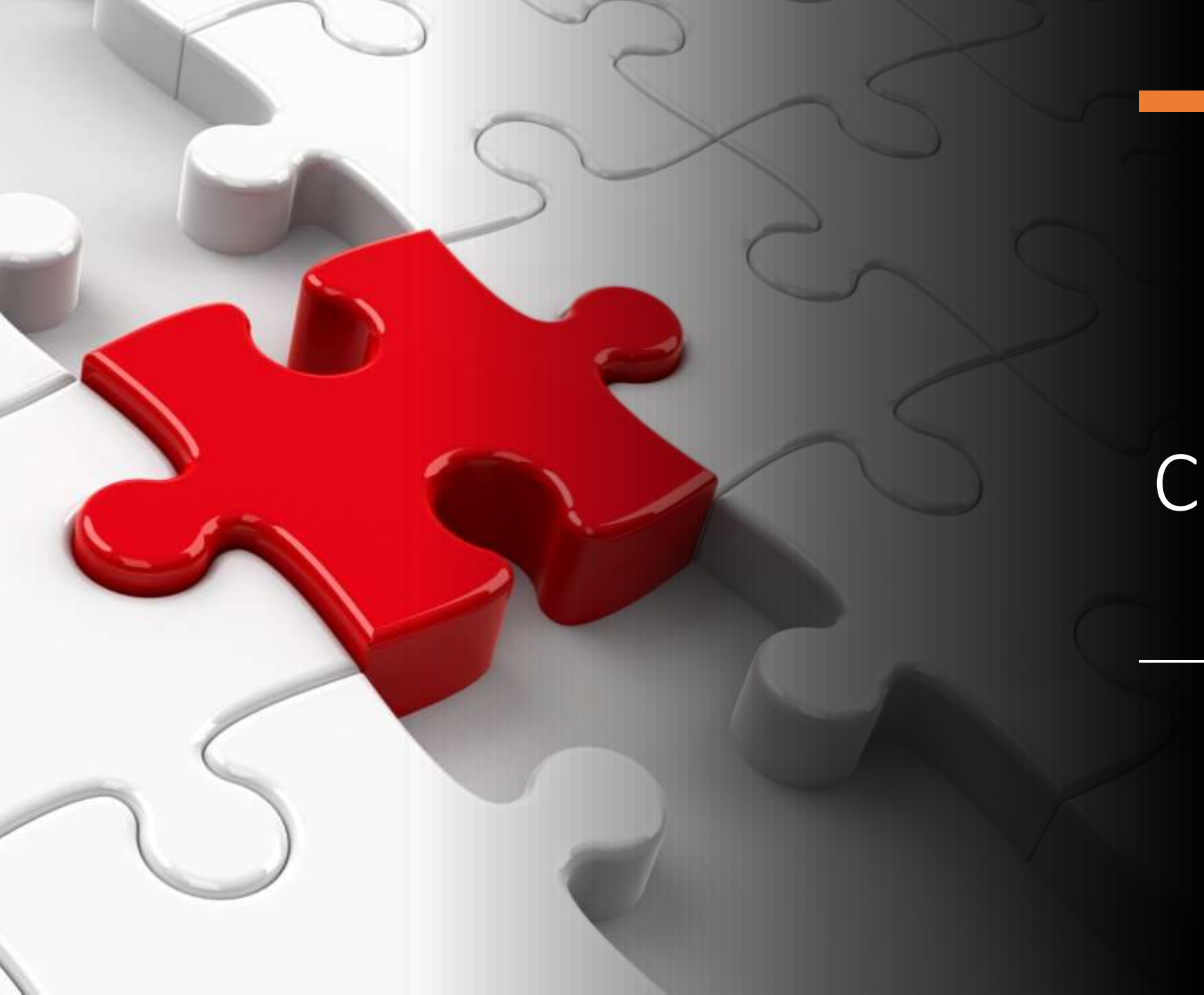
Paediatric case for review

Dr Keong Liew Mok

Paediatrician

Objective

- Case Overview
- Discussion around the case
- Ways of thinking…



Case Overview

Child A

12 year old Indian boy:

Presenting complaint

- Concern about “poor eating habits”
- Poor weight gain

Background history

- Alpha Thalassemia traits

History of Presenting Complaint

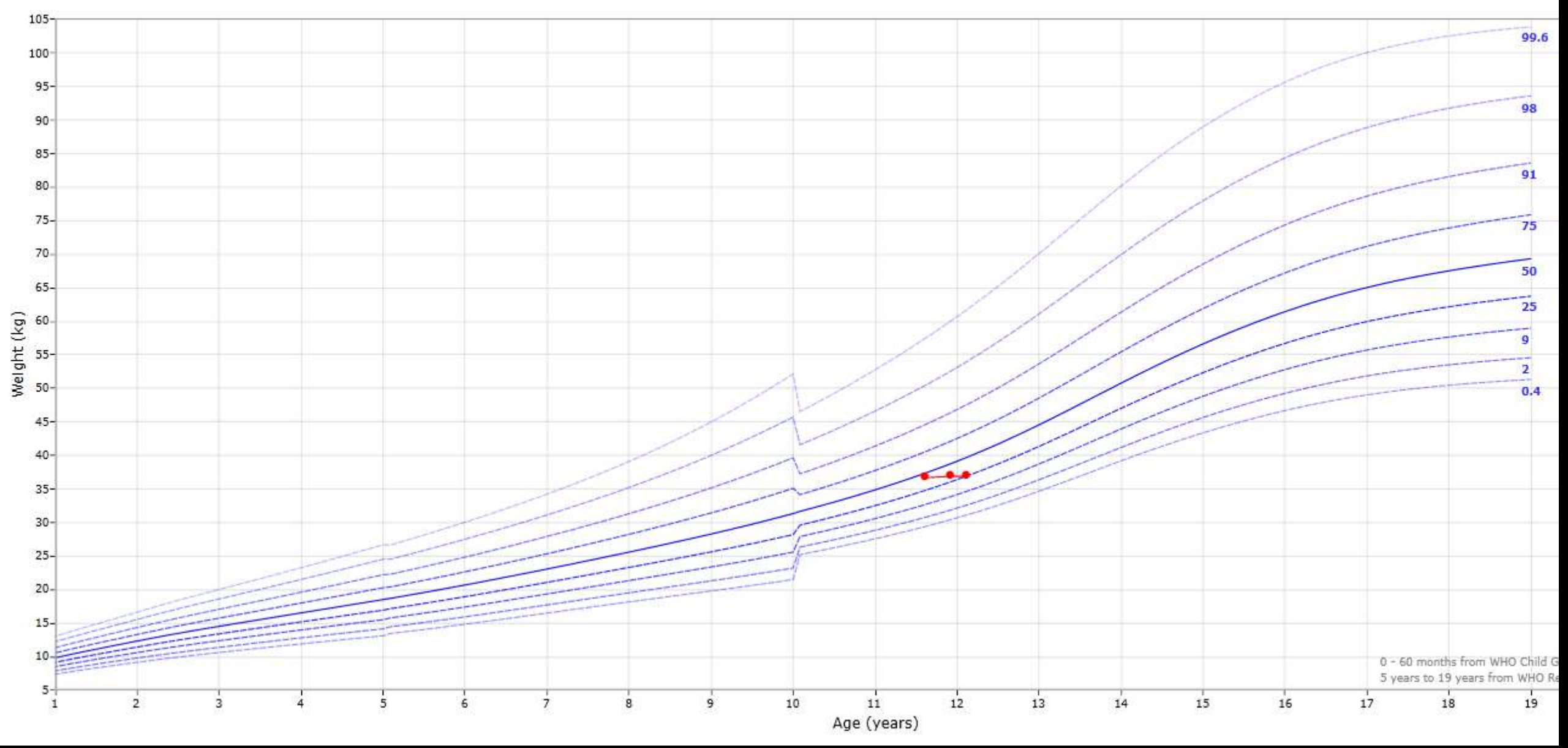
Poor eating habits

- Past few months takes 1-2 hour to eat his meals.
- Eats good amount/taking variety/can be selective
- No history of tummy pain, vomiting, choking or food stuck in throat.
- Bowel motion is normal with no blood or mucus.
- Child A reply “I don’t know”
- Out of routine (Holidays)

History of Presenting Complaint

Poor weight gain

- Weight today was 36.7kg (25th centile)
- Loss weight around 2 kg since last year (family recall he was 38-39kg), weight was 37.5kg in April 2024.
- During the period between April to August last year he was diagnosed with gastroenteritis like illness and had abdominal pain, vomiting, and loose bowel motion.
- At one stage the pain so severe that seen in hospital for evaluation of acute abdomen/surgical cause



Growth Chart - Weight

Other history

- Otherwise well
- Stays with parents
- He is physically very active and has good energy level.
- Previously normal growth
- No history of hospital admission or recurrent infection
- Doing well at school. Top of class in terms of learning, no stressor at home or at school

Others

- Birth history was normal
- No medication
- No allergies
- Immunizations up to date
- Known Alpha Thalassemia traits
- No other significant family history was noted

Clinical examination

- Weight was 36.7 kg (tracking 25th to 50th centile)
- Height was 156 cm (75th to 91 centile)
- Well, Chatty , Nervous at times
- Her abdomen was soft non-tender with mass.
- Cardio respiratory system - 2/6 systolic murmur – did not change much on positioning. Normal apex and pulses.

(Previously noted as well)

Clinical examination

- Rest of examination
- No eyes, mouth, nails or enlarged lymph node.
- Normal skin, no rash
- Heart rate 102bpm, BP 121/74 but there was no postural drop.

Investigation

Analysis

Previous Investigation

Previous Normal abdominal ultrasound (no obvious appendicitis) – June 2023

X-ray – chest/abdomen , Normal ECG

Previous normal protein creatinine ratio < 23

Coeliac screen negative

Normal Liver and renal function

Normal Thyroid function test

	01/06/23 18:36	02/06/23 12:00	30/06/23 10:42	11/08/23 09:47
Haemoglobin	101	114	127	119
WBC	8.3	8.3	8.8	9.1
Neutrophils	2.6	4.0	4.7	4.3
Platelets	518	454	651	458

	01/06/23 18:36	02/06/23 12:00	30/06/23 10:42	11/08/23 09:47
Albumin	20	20	28	25
CRP	115	86	16	69

Discussion around the case

Impression

- Slow in consuming food ? Cause ? Behavioural
- Weight loss - improve/stable and weight tracking around 25th -50th centile
- low albumin and elevated inflammatory marker – no evidence normalized
- Cardiac murmur - ? innocent (requested ECHO and get ECG)
- Borderline elevated blood pressure – anxious for repeat
- Alpha Thalassaemia traits

Investigation

January 2024

- Normal Na and potassium, Creatinine , urea and chloride
- Normal Liver function
- Normal Vitamin D 58 and PTH
- Repeat Iron study (Ferritin 106)
- Low calcium (adjusted calcium 1.91 (corrected for low albumin) , magnesium and phosphate was normal.

	01/06/23 18:36	02/06/23 12:00	30/06/23 10:42	11/08/23 09:47	16/01/24 10:45
Haemoglobin	101	114	127	119	114
WBC	8.3	8.3	8.8	9.1	10.4
Neutrophils	2.6	4.0	4.7	4.3	5.2
Platelets	518	454	651	458	570
Albumin	20	20	28	25	20
CRP	115	86	16	69	44

- Urine no WCC, RBC 47 , no growth
- Urine protein creatinine/ratio was normal
- Repeat BP 100/60,HR 90 , ECG normal

Faecal calprotectin 1380

Updated investigations

Histologic – Active chronic ileitis with ulceration are consistent with an acute flare of Crohn disease

Others bloods

EPSTEIN BARR VIRUS
HEPATITIS A SEROLOGY
V. ZOSTER IMMUNITY
HEPATITIS B SEROLOGY
HEPATITIS C SEROLOGY
Measles Serology
Mumps Serology

Questions to everyone …

- 14 year old Caucasian boy
- Previously well
- 2 weeks of abdominal pain and 2 kg weight loss (not eating)
- Feeling fatigue and 1 X mouth ulcers past few months
- Well now, No family history
- Weight 51.8 kg (25th centile) and height 168.3 cm (50th centile)

	19/01/24	01/02/24
Calprotectin Quantitation	2290	489
CRP	*42	7
Albumin	31	30
Haemoglobin	117	
Platelets	410	

What would you do ?


Ways of thinking…

Inflammatory bowel disease (IBD) in New Zealand

- Incidence of paediatric IBD is known to be increasing throughout the world.
- New Zealand in 2015 - Incidence of paediatric (younger than 16 year old) IBD was 5.2 of 100,000 (95% CI 3.9–6.8)
- Crohn disease, ulcerative colitis, and IBD unclassified in were 5.2 (95% confidence interval 3.9-6.8), 3.5 (2.4-4.8), 1.0 (0.5-1.8), and 0.7 (0.3-1.4) per 100,000 children, respectively.
- Confirmation of diagnosis and classification by scope and MRI
- There is average delay of one year from onset of symptoms and diagnosis including all subtypes of IBD

Prospective Incidence of Paediatric Inflammatory Bowel Disease in New Zealand in 2015: Results From the Paediatric Inflammatory Bowel Disease in New Zealand (PINZ) Study. J Pediatr Gastroenterol Nutr. 2018 May
Pak J Med Sci 2017 Jul-Aug; 33(4): 793–797. Paediatric Inflammatory Bowel Disease: Clinical Presentation and Disease Location

How do we know if one is normal /or will remain normal?

Is there normal …

Presenting symptoms

- Aware of atypical presentations because 22% of children present with growth failure, anaemia, perianal disease, or other extraintestinal manifestations as the only predominant initial feature.

- Chronic abdominal pain is one of the three common pain syndromes of childhood, 10 to 15% of school children in Britain, North America found a prevalence of about 20%

	Classification of IBD, % of Patients[a]	
Presenting Symptom	Crohn Disease	Ulcerative Colitis
General		
Weight loss	55-80	31-38
Fever	38	NA
Anorexia	2-25	6
Growth retardation	3-4	0
Lethargy	13-27	2-12
Gastrointestinal tract		
Abdominal pain	67-86	43-62
Diarrhea	30-78	74-98
Rectal bleeding	22-49	83-84
Nausea/vomiting	6	<1
Constipation	1	0
Perianal disease	6-15	0
Mouth ulcers	5-28	13

JAMA Pediatr. 2015 Nov; 169(11): 1053–1060. Inflammatory Bowel Disease in Children and Adolescents

Non-acute abdominal pain in childhood (starship.org.nz)

Investigations

- May indicates chronic inflammatory bowel disease.
- Common findings at diagnosis include anaemia, thrombocytosis, hypoalbuminemia, and elevated levels of inflammatory markers.
- A normal laboratory evaluation does not exclude a diagnosis of IBD. 10% to 20% of children with IBD have normal laboratory
- Faecal calprotectin is a useful biomarker, with 98% sensitivity and 68% specificity in children with suspected IBD

Complete blood cell count (CBC) with differential

Inflammatory markers (C-reactive protein level, erythrocyte sedimentation rate)

Liver profile (levels of alanine aminotransferase, aspartate aminotransferase, alkaline phosphatase, bilirubin, and γ-glutamyl transferase)

Albumin level

Stool Examination

Salmonella, *Shigella*, *Campylobacter*, and *Yersinia* species, *Escherichia coli* O157, and *Clostridium difficile*

Ova and parasites

Occult blood

Fecal calprotectin or fecal lactoferrin

Laboratory Investigations and Mean values with Standard deviation.

Investigations	*Ulcerative Colitis*	*Crohn's Disease*	*Indeterminate Colitis*
Hemoglobin (g/dl)	8.99 ± 1.90	8.53 ± 2.21	9.90 ±2.55
Total leukocyte count (X 10E9/L)	12.35 ±6.30	13.86 ± 5.53	12.40 ± 4.44
Platelet count (X 10E9/L)	220.97 ± 94.48	372.90 ± 166.29	190.09 ± 46.62
C-reactive protein (CRP) mg/dl	2.77 ± 4.62	5.82±6.40	3.23 ± 3.74
Serum Albumin (g/dl)	3.12 ± 1.4	2.98 ± 1.73	3.52 ± 1.81
Alanine aminotransferase (ALT/SGPT) IU/L	34 ± 7.63	95.18 ±12.89	45.90 ± 7.07

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Learning point

Take Home Message

- The presentation of IBD in paediatric patients is variable.
- Be familiar with atypical presentations, unexplained poor growth especially with abnormal blood test. Faecal calprotectin useful biomarker.

Questions to everyone …

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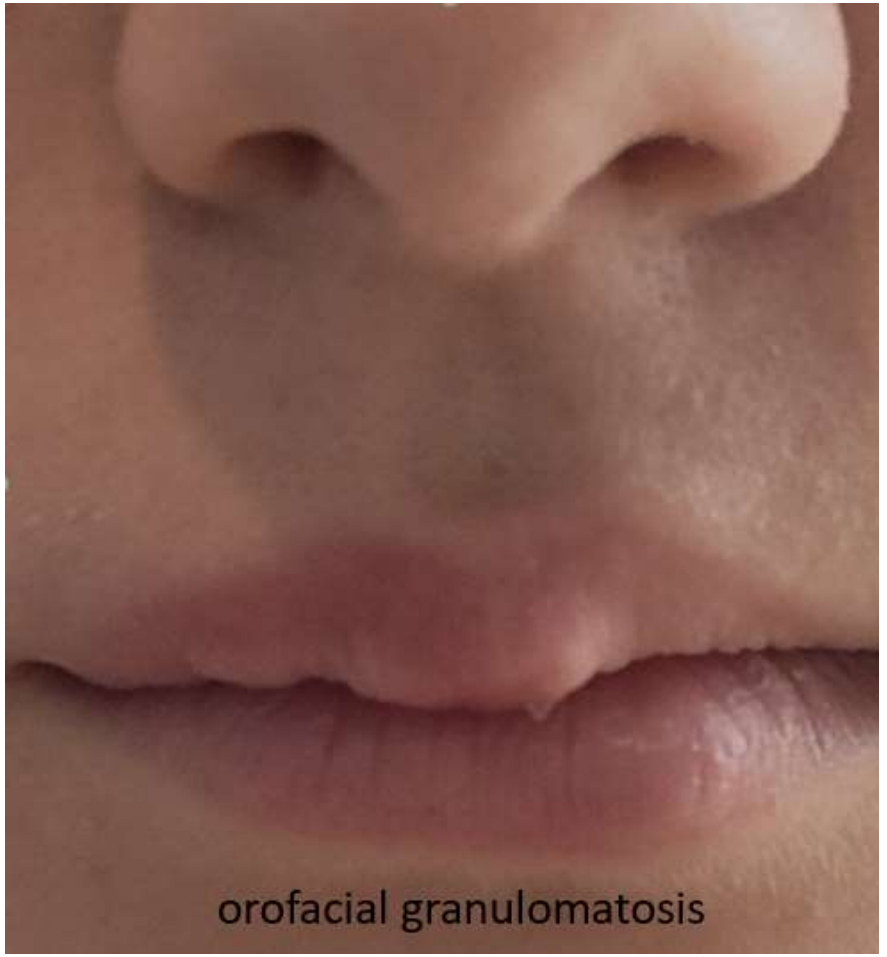
What would you do ?

- To think about it… repeat … and refer if unsure


orofacial granulomatosis


Thank you

Reference

- Non-acute abdominal pain in childhood (starship.org.nz)
- Lopez, Robert N.*; Evans, Helen M.†; Appleton, Laura*; Bishop, Jonathan†; Chin, Simon†; Mouat, Stephen†; Gearry, Richard B.‡; Day, Andrew S.*. Prospective Incidence of Paediatric Inflammatory Bowel Disease in New Zealand in 2015: Results From the Paediatric Inflammatory Bowel Disease in New Zealand (PINZ) Study. Journal of Pediatric Gastroenterology and Nutrition 66(5):p e122-e126, May 2018
- Rosen MJ, Dhawan A, Saeed SA. Inflammatory Bowel Disease in Children and Adolescents. JAMA Pediatr. 2015 Nov;169(11):1053-60.
- Aziz DA, Moin M, Majeed A, Sadiq K, Biloo AG. Paediatric Inflammatory Bowel Disease: Clinical Presentation and Disease Location. Pak J Med Sci. 2017 Jul-Aug;33(4):793-797.