

# PAEDIATRIC GASTROENTEROLOGY

## An Overview

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# Paediatric Gastroenterology

Vomiting

Abdominal pain

Peptic ulcer

Diarrhoea

Coeliac Disease

Cow milk protein intolerance

Constipation

Inflammatory Bowel Disease



# Vomiting

- 'Benign'
- Gastroesophageal reflux
- Infection
- Intestinal obstruction
- Food intolerance
- Raised intracranial pressure



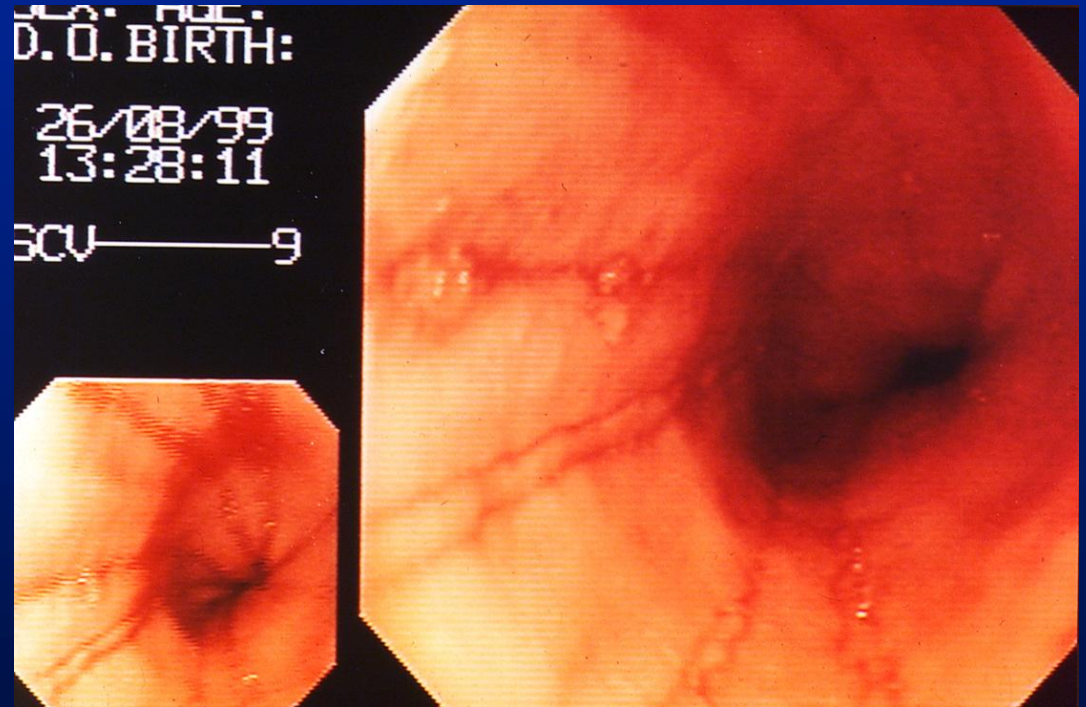
# Gastro-oesophageal reflux disease (GORD)

- Chronic vomiting
- Recurrent aspiration pneumonia
- Growth retardation
- Oesophagitis



# Gastro-oesophageal reflux disease (GORD)

- Oesophagitis
  - Dysphagia
    - Poor feeding
    - Poor sleeping
  - Fe-deficiency anaemia
  - Oesophageal stricture
  - Grimacing/neck hyperextension  
(*Sandifer's syndrome*)



# GORD: Treatment

- Non-pharmacological
  - Positioning
    - Prone/30 degree tilt (hospital only)
    - Left lateral
  - Thickened feeds
    - ‘Carobel’ 0.3-0.6 ml/100ml



# GORD: Treatment

- Pharmacological
  - Sodium alginates
    - ‘Gaviscon’
  - H2-antagonists
    - Ranitidine
  - Proton-pump inhibitors
    - Omeprazole 0.7mg/kg - 3.3 mg/kg
  - Dopamine antagonists
    - Domperidone



# Vomiting alarm bells

- Bile stained vomiting is intestinal obstruction until proved otherwise
- Growth failure
- Headache/ I.C.P.- tumour, abscess
- ? Poisoning – accidental or deliberate



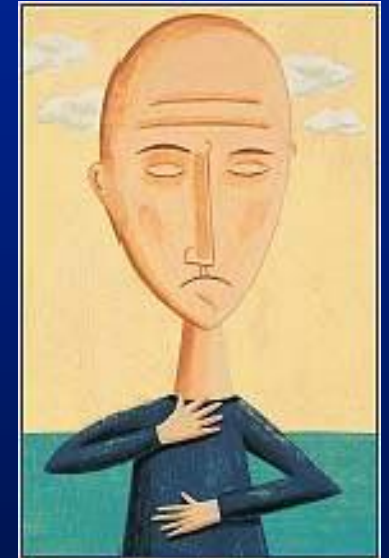
# Abdominal Pain

- Acute
  - appendicitis or peritonitis
  - intestinal obstruction
  - pancreatitis
  - UTI
  - pneumonia
  - testicular torsion



# Abdominal Pain

- **Chronic**
  - ‘COLIC’ (Cause Obscure Lengthy Infant Crying)
  - ‘Recurrent Abdominal Pain’/ IBS
  - I.B.D.
  - Gastritis / Oesophagitis
  - Constipation



# Peptic ulcer disease in children

- *Classification*

- **Primary**

- no underlying systemic disease
    - majority after infancy/early childhood

- **Secondary**

- severe systemic illness
      - shock, sepsis, respiratory failure, burns
    - ulcerogenic drugs
      - NSAID, steroids



# Peptic ulcer disease in children

- **Typical symptomatology**
  - gnawing, epigastric pain for weeks - months
  - continuous or intermittent
  - nocturnal pain >60%
  - eating may exacerbate or relieve
- **Less common symptoms**
  - haematemesis
  - vomiting
  - poor feeding
  - anaemia



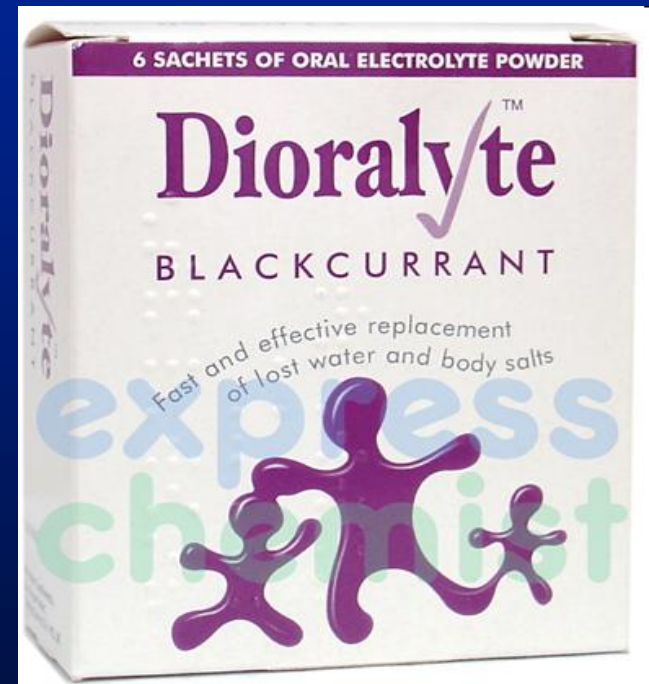
# Acute Diarrhoea :UK Epidemiology

- Very common
- 526,000 GP consults per year in under 5's
- 16% of all paediatric medical presentations to emergency departments
- 7% of paediatric admissions in under 5's
- Relatively benign in developed countries
  - cf 3 million childhood deaths per year worldwide



# Acute Diarrhoea

- Acute gastroenteritis
  - Viral (rotavirus) usually
  - Dehydration is a major risk in infants
    - Assess clinically: moderate or severe
  - Rehydration is essential management
    - Oral Rehydration Solution
    - I.V. in severe dehydration: 20ml/kg N saline stat
    - DO NOT USE LOPERAMIDE...



# Loperamide can be dangerous!



# Chronic diarrhoea:

Definition: > 3 loose stools > 14 days

- Growing normally
  - ‘Toddler diarrhoea’
    - Age onset 6 - 30 months
    - ‘Peas & Carrots’
    - No blood in stool
    - No malabsorption or enteric infection
  - IBS
- Poor growth
  - Infection
  - Postenteritic enteropathy
  - Coeliac disease
  - Food intolerance
  - IBD



# Hard Data on Soft Stools (1)

- Normal toddlers may BO  $> 3/d$
- Stool volume in healthy infants 5-10ml/kg/d
  - (cf 1-3 ml/kg/day in adults)
- Total Bowel transit time (median)
  - 23 hours (age 1-2yrs)
  - 33 hours (3-4yrs)



# Toddler Diarrhoea

- *Diagnosis of exclusion*
- Differential diagnosis:
  - Coeliac disease
  - Cystic fibrosis
  - Enteric infection
  - Postenteric enteropathy
  - Constipation
  - Food intolerance



# Toddler Diarrhoea: Management

- Explanation & Reassurance
- Dietary Advice : “The 4 F’s”
  - Fibre
  - Fluid
  - Fruit Juices
  - Fat
    - increase fat to 40% total energy intake
- Drug therapy: *not recommended*

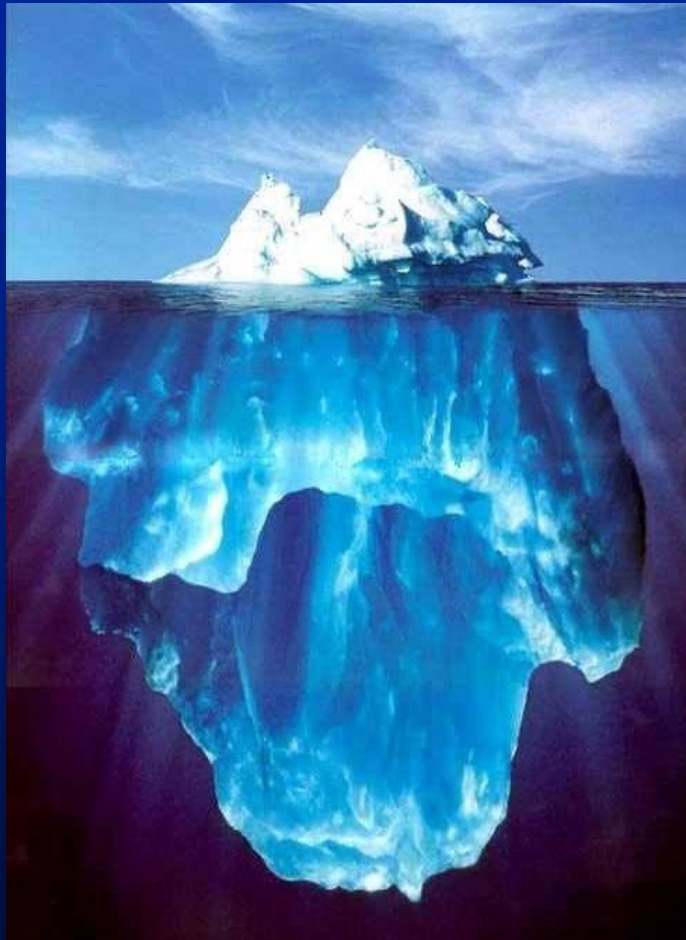


# Coeliac Disease

- Poor appetite
- Irritability
- Failure to gain weight
- Pale, bulky stools
- Abdominal distension
- Wasted arms and legs



# The Coeliac Iceberg



**Classical Celiac Disease**  
**(1:4500)**

**Atypical**

**Silent**

**Latent**

**Detected by  
screening**  
**(1:250)**

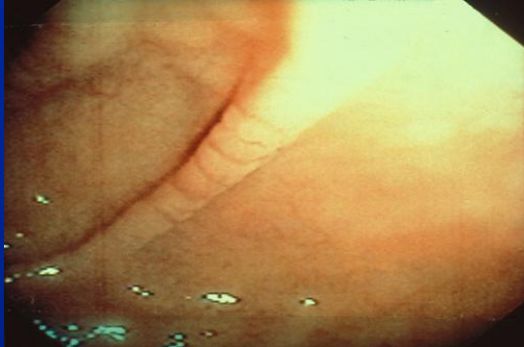


# COELIAC DISEASE

ENDOSCOPY



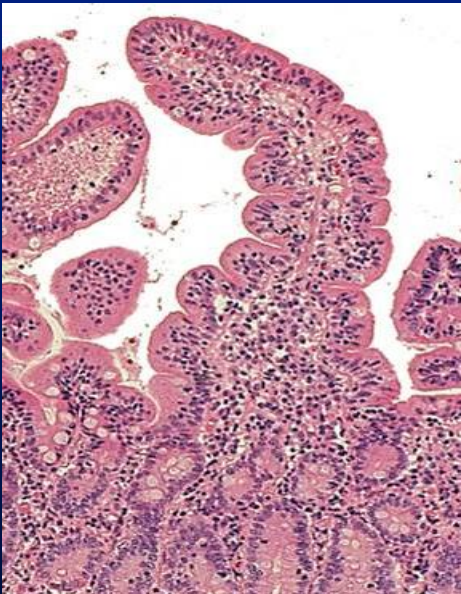
Normal



Scalloped

Gluten-free diet

HISTOLOGY



Increased IEL



Villous atrophy



Recovering

# Cows Milk Intolerance

- Prevalence 0.3 to 7.5%.
- Pathogenesis of CMP intolerance ?
- Role of different immunological mechanisms ?
- Role of the gut ?



## Cows Milk Intolerance : Clinical Features

- Loose, watery stools (occult blood)
- Abdominal distension, vomiting
- Poor weight gain
- Wheezing, coughing, rhinitis, stridor
- Perioral erythema, atopic eczema, urticaria and angioedema.
- Crying, screaming or irritability
  - (Common symptoms in infancy)



# Cows Milk Intolerance

## – HISTORY: SUGGESTIVE FEATURES:-

- A RELATIONSHIP OF SYMPTOMS TO COWS MILK FEEDS
- A FAMILY HISTORY OF THE DISORDER
- MULTIPLE ATOPIC DISORDERS AFTER SKIN CONTACT WITH COWS MILK
- THE PRESENCE OF MULTIPLE SYMPTOMS.



# Cows Milk Intolerance

- Consider other disorders:
  - lactose intolerance
  - feeding problems
  - coeliac disease
  - cystic fibrosis
  - chronic infection (eg, giardiasis)
  - urinary tract infection



## **FOOD INTOLERANCE IN CHILDHOOD: *Investigation***

- Skin tests
- In vitro tests for specific ige antibodies (eg, RAST)
- total serum IgE concentration
  - *overall, these tests are unhelpful in the management of food intolerance*



## **FOOD INTOLERANCE IN CHILDHOOD** :*Investigation*

- The double-blind placebo controlled challenge is the state of the art technique to confirm or refute histories of adverse reactions to food



# Cows Milk Intolerance

- Disorder in which symptoms:
  - disappear completely after CMP withdrawal
  - reappear after CMP is reintroduced
  - disappear completely after CMP is again withdrawn
  - remain absent if CMP avoided



## Elimination Diets: *Nutritional Hazards*

- Nutritional adequacy depends on the food being avoided
- Unsupervised diets:
  - risk of malnutrition
- Parental obsession:
  - risk of inappropriate escalation of dietary avoidance
- Chronic disease prior to diagnosis:
  - nutrient requirements may be increased
- Malabsorption or enteropathy:
  - risk of malabsorption of nutrients



## **FOOD INTOLERANCE IN CHILDHOOD: Elimination Diets**

- Choose which type of diet to try
- Dietitian ensures complete avoidance of individual foods
- Ensure that the diet is nutritionally sound
- Apply the diet for a fixed period of time (6 weeks)
- Reassess the patient after this fixed period
- Help the parents to decide whether to continue or abandon the diet
- Continue supervision if the diet is continued



## **Cows Milk Intolerance: *Prognosis***

The majority of children with food intolerance spontaneously improve but depends on:

- age of onset
- the nature of the symptoms
- the food itself



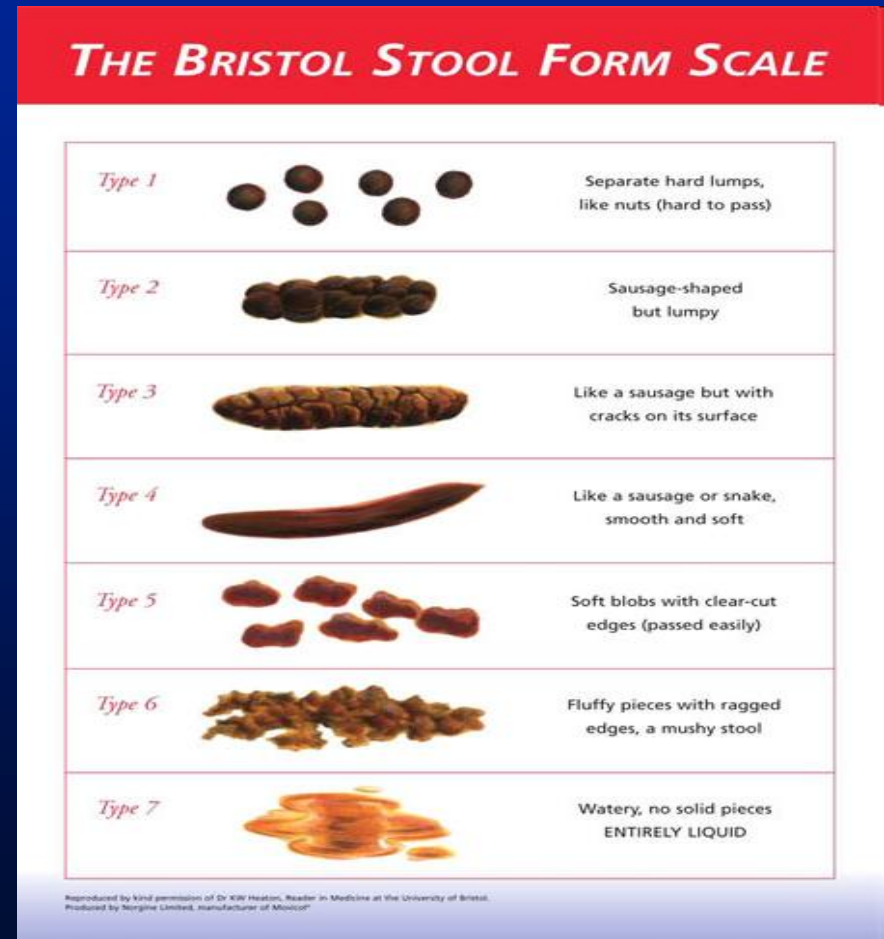
# CONSTIPATION IN CHILDHOOD

- Constipation in childhood is common
  - 3% children
  - 4% general paediatric referrals
  - 20% referrals to paediatric gi centres.
- Although common:
  - poorly understood
  - often responds poorly to treatment



# Definition Of Constipation:

- decreased frequency
  - BO every 3 to 5 days
    - in about 20% it can be once every 1 to 3 weeks.
- harder consistency
- subjective difficulty in passing a bowel movement.



# CONSTIPATION IN CHILDHOOD

- SYMPTOMS
  - stool frequency  $< 3$  x per week
  - painful defaecation
  - hard stool
  - soiling
  - abdominal discomfort
  - megastools
  - anorexia
  - urinary problems



# CONSTIPATION IN CHILDHOOD

- 95% idiopathic 'functional' constipation
- 5% organic
  - spina bifida
  - cerebral palsy
  - intestinal pseudo-obstruction
  - Hirschsprungs Disease
  - Hypothyroidism
  - Diabetes insipidus



# CONSTIPATION IN CHILDHOOD

- Hirschsprung's disease:
  - delayed passage of meconium
  - constipated from birth
    - H & E- and acetylcholinesterase-stained sections of full thickness rectal mucosa



# CONSTIPATION IN CHILDHOOD: Management

- **Evacuation of retained faeces**
- **Maintenance regime**
- **Education**



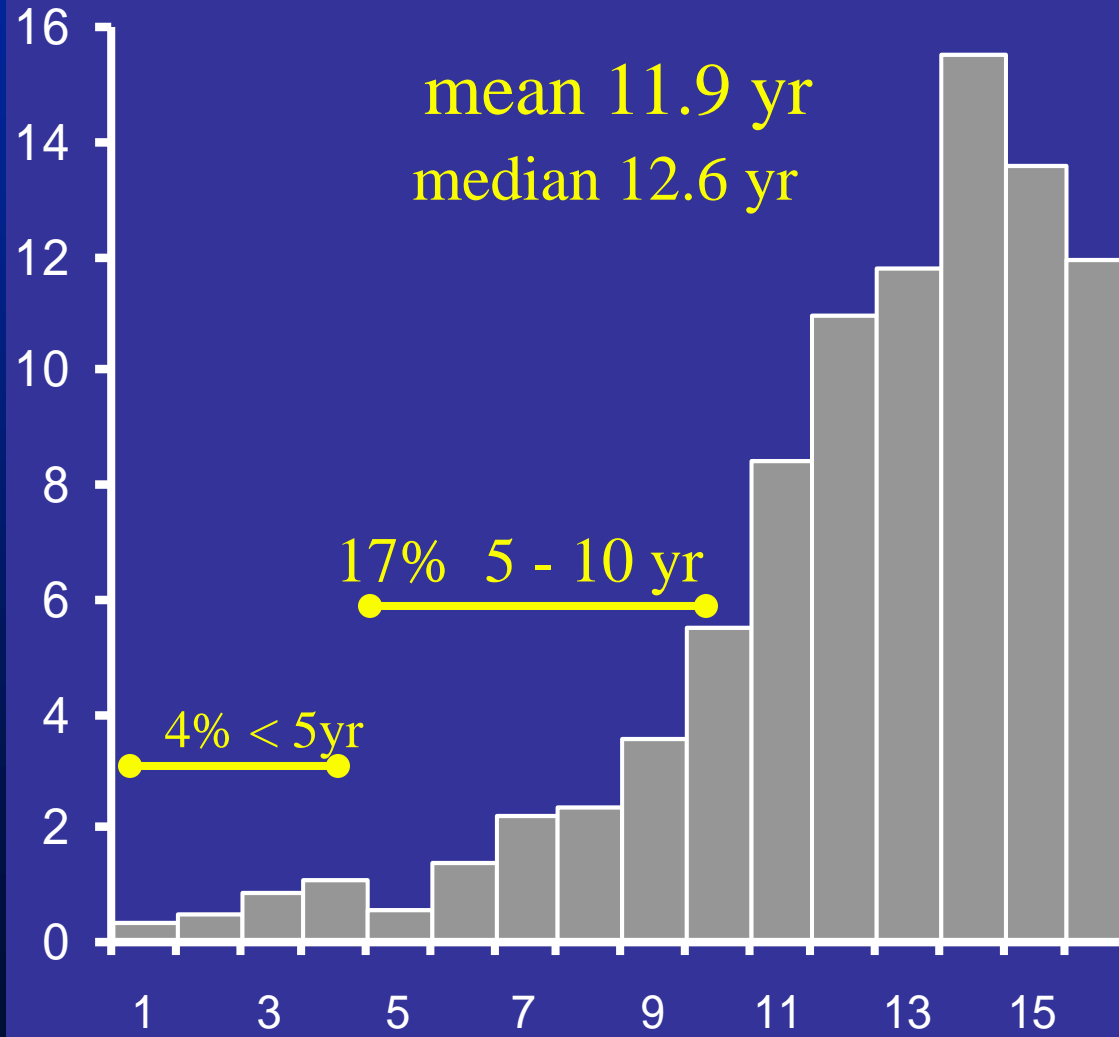
# CONSTIPATION IN CHILDHOOD

- Promote regular bowel habits
  - Maintenance laxatives
    - Senna and Lactulose
  - Toilet training - gastro-colic reflex
- Dietary advice: crucial
  - fluids and dietary fibre
- Support and reassurance of parents



# IBD: Age at diagnosis

Incidence /  $10^5$  /  
year



years

# IBD: Common Presenting Symptoms

