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BMJ Masterclass for GPs

Women's Health and Paediatrics

Using the latest evidence to make better decisions

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Next please………

- Shane has been complaining of abdominal pain for months. He's been in pain now for 3 weeks and hasn't been to school.
- His trips to A+E resulted in a diagnosis of constipation

Evidence to date

- 13% of normal children have abdo pain
- 4% of all GP paediatric visits
- 8% of all children consult the GP for pain
- Lots of children have unnecessary investigations
- IBD presents late in childhood – mainly through lack of awareness

Should I take a urine sample

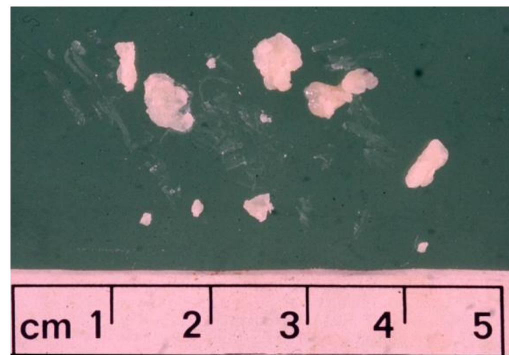
- Bottom line – NO!

JAMA®

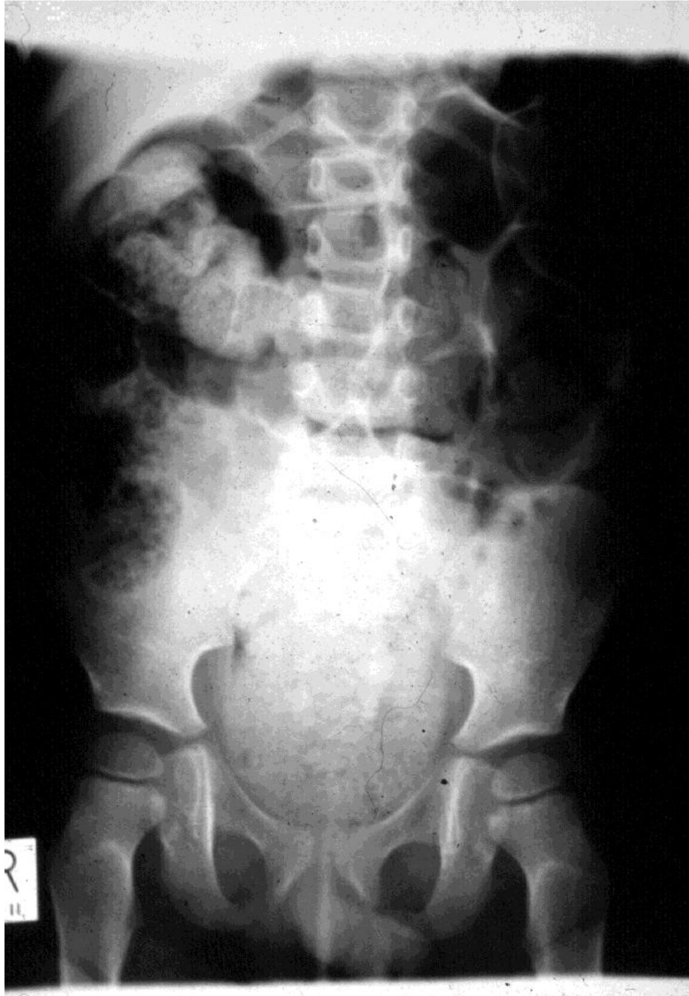
Does This Child Have a Urinary Tract Infection?

Nader Shaikh; Natalia E. Morone; John Lopez; et al.

JAMA. 2007;298(24):2895-2904 (doi:10.1001/jama.298.24.2895)



Should I consider constipation?

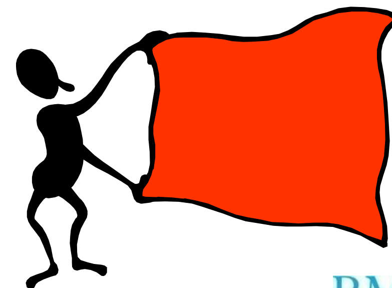


NO!

Constipation is painless
Children soil when they are impacted
Impaction is painless

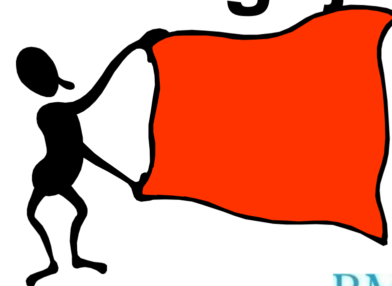
Red flags in history of RAP

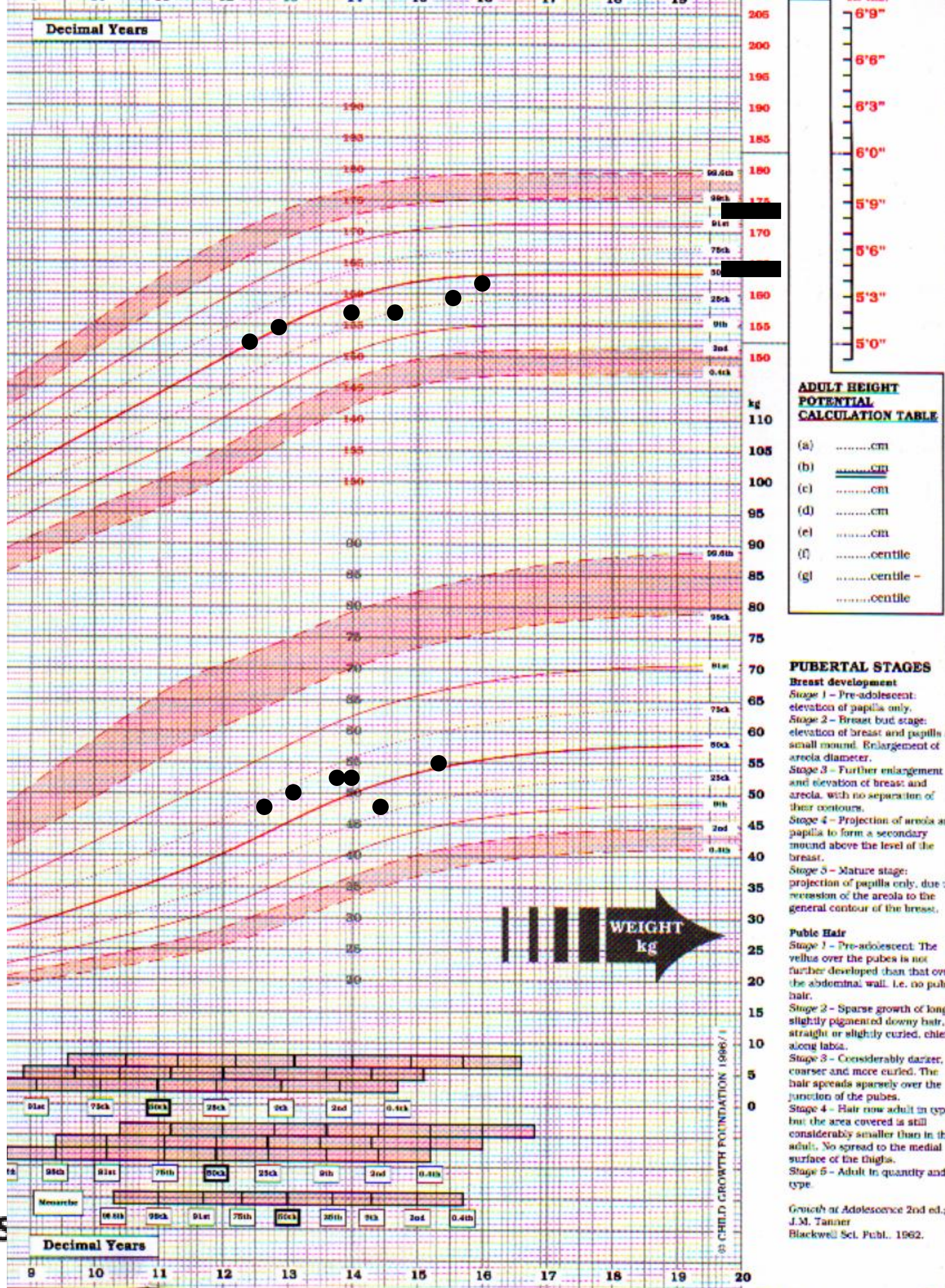
- Pain localised from umbilicus +/- radiation
- Changes in bowel habit
- Vomiting
- Awakens child at night????
- Dysuria
- Rectal bleeding
- Constitutional symptoms
- Age < 4, >15
- Relevant family history



Red flags on physical examination of RAP

- Documented weight loss
- Faltering height
- Pubertal delay
- Anal fissure & perianal fissure
- Organomegaly
- Extra intestinal manifestations e.g. joints, eyes.





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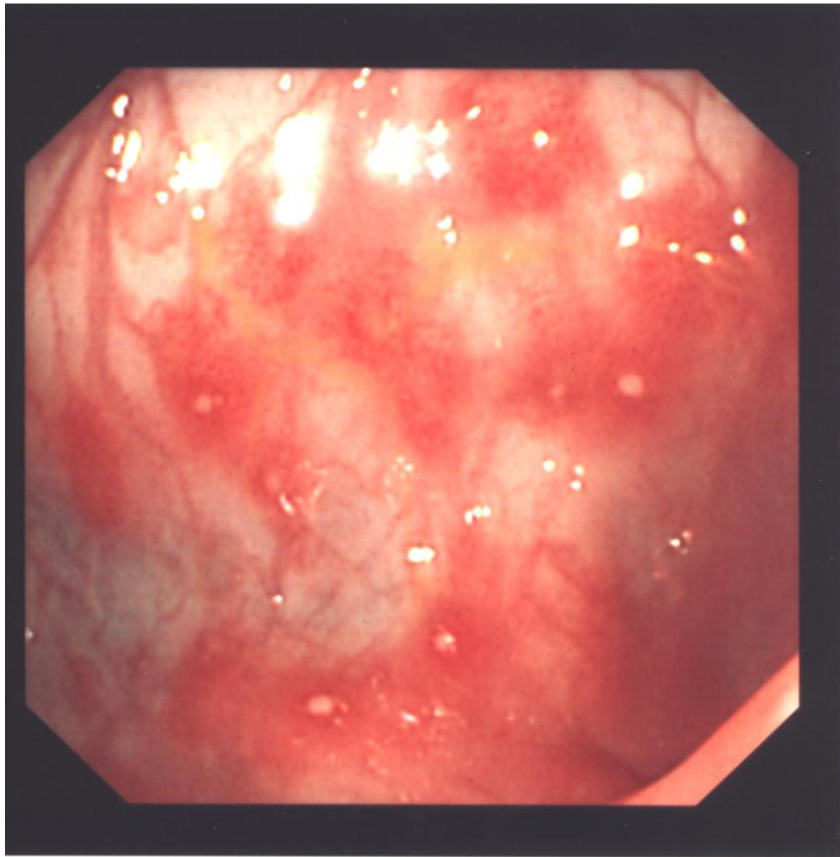

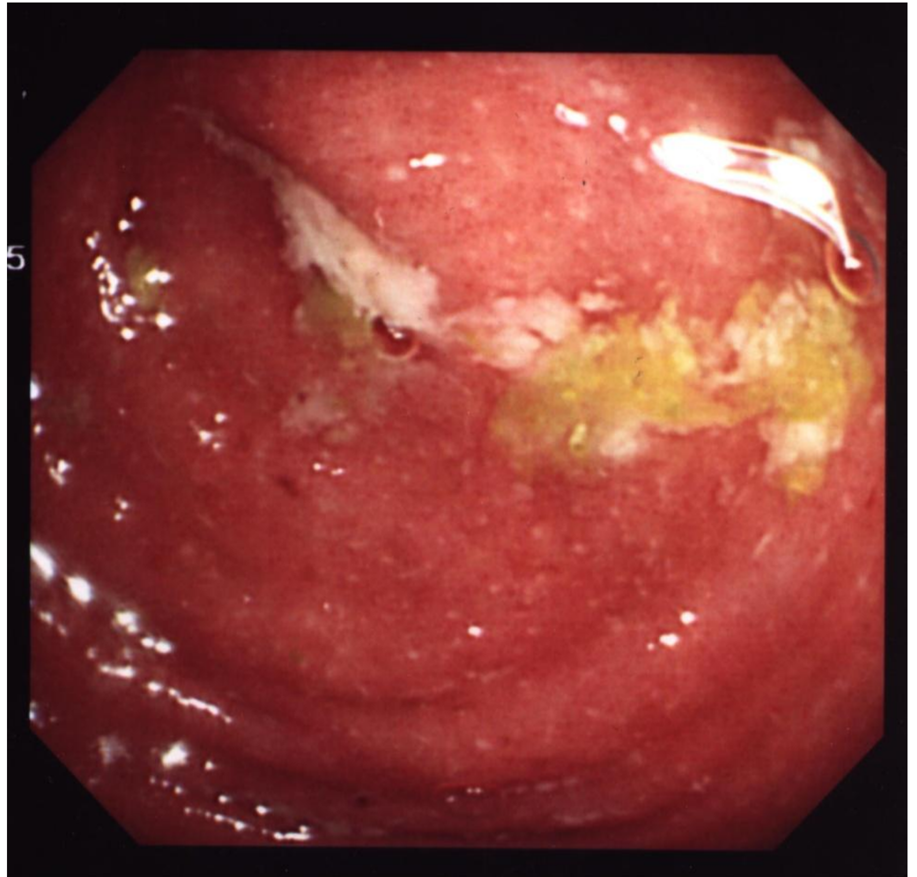

Helicobacter tests in paediatrics

- No role for them esp. for assessing abdominal pain.
- Only in combination with endoscopy
- Only the UBT has adequate accuracy
- Stool antigen – not predictive enough

Epidemiology series

Uses and abuses of screening tests

David A Grimes, Kenneth F Schulz

If no red flags, you probably have….

Functional abdominal pain

TABLE 1. *Currently Used Definitions to Describe Childhood Abdominal Pain*

Term	Definition
Recurrent abdominal pain as defined by Apley	3 or more episodes of abdominal pain, over a period of 3 or more mo, severe enough to affect activities.
RAP	A common abbreviation for recurrent abdominal pain that has been used in the literature to depict recurrent abdominal pain as defined by Apley. Many physicians incorrectly use this term to imply functional abdominal pain.
Chronic abdominal pain	Abdominal pain with a minimum duration of 3 mo. Some clinicians believe that pain that lasts more than 1–2 mo is chronic.
Rome II criteria for abdominal pain	Abdominal pain for at least 12 wk, which need not be consecutive, in the preceding 12 mo. These criteria apply to IBS, functional dyspepsia, and functional abdominal pain.
Functional abdominal pain	Abdominal pain that occurs in the absence of anatomic abnormality, inflammation, or tissue damage.
Nonorganic abdominal pain	A term that is often used interchangeably with functional abdominal pain.
Psychogenic abdominal pain	A term that is often used interchangeably with functional abdominal pain.

Journal of Pediatric Gastroenterology and Nutrition
40:249–261 © March 2005 Lippincott Williams & Wilkins, Philadelphia

Technical Report

Chronic Abdominal Pain In Children: A Technical Report of the American Academy of Pediatrics and the North American Society for Pediatric Gastroenterology, Hepatology and Nutrition

AAP Subcommittee and NASPGHAN Committee on Chronic Abdominal Pain

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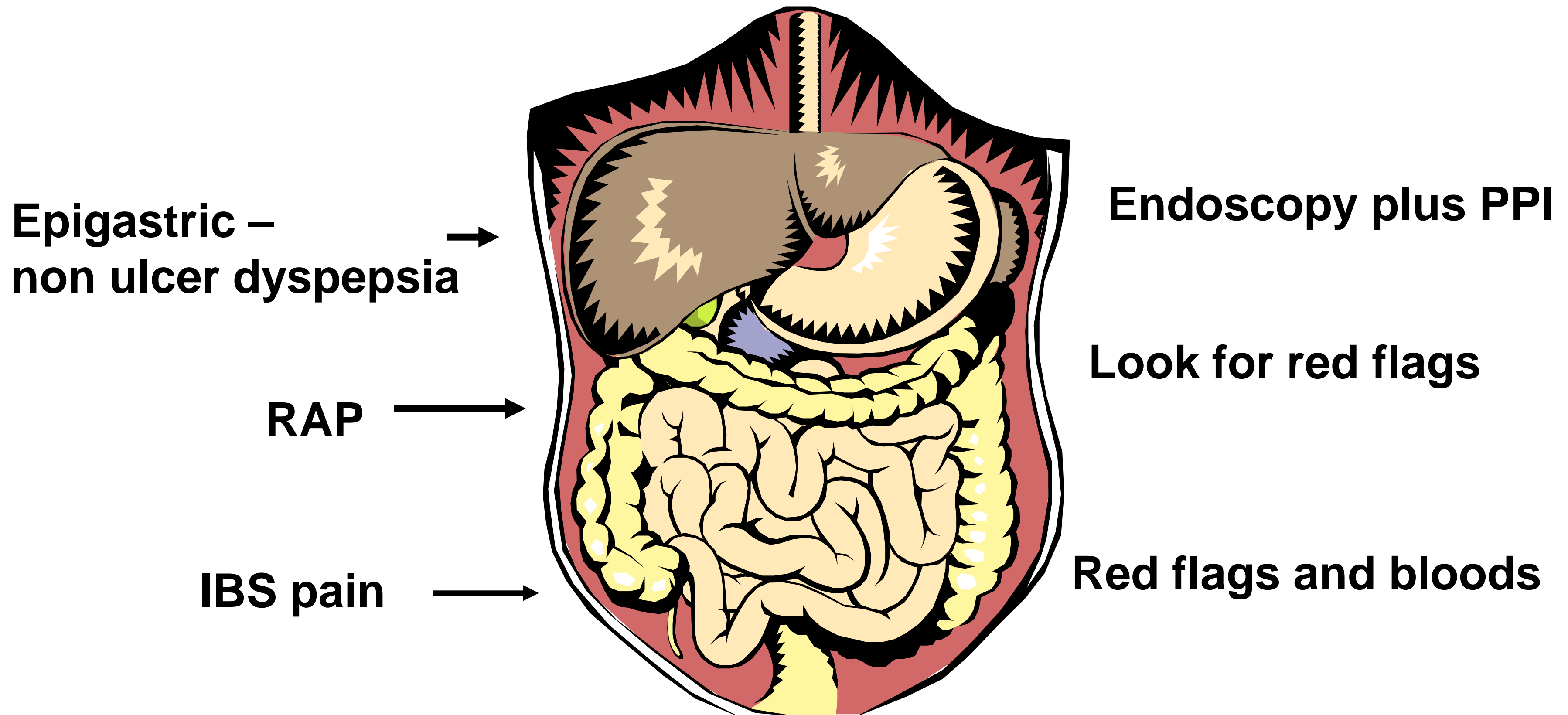
If you have functional abdo pain…

- What do we know:
  - No evidence to predict value of blood tests
  - No evidence to support use of ultrasound
  - Little evidence to support use of endscopy
  - Insufficient evidence to support pH monitoring
- Contribution of daily stressors
- These patients have more symptoms of anxiety and depression

What evidence is there to support treatments for functional pain?

- Evidence to support treatment with peppermint oil in children with IBS
- Inconclusive evidence to support use of H_2 antagonist in dyspepsia
- Inconclusive evidence that fibre decreases attacks
- Inconclusive evidence to support lactose free diet
- Limited data for use of pizotifen in abdominal migraines

Bottom line

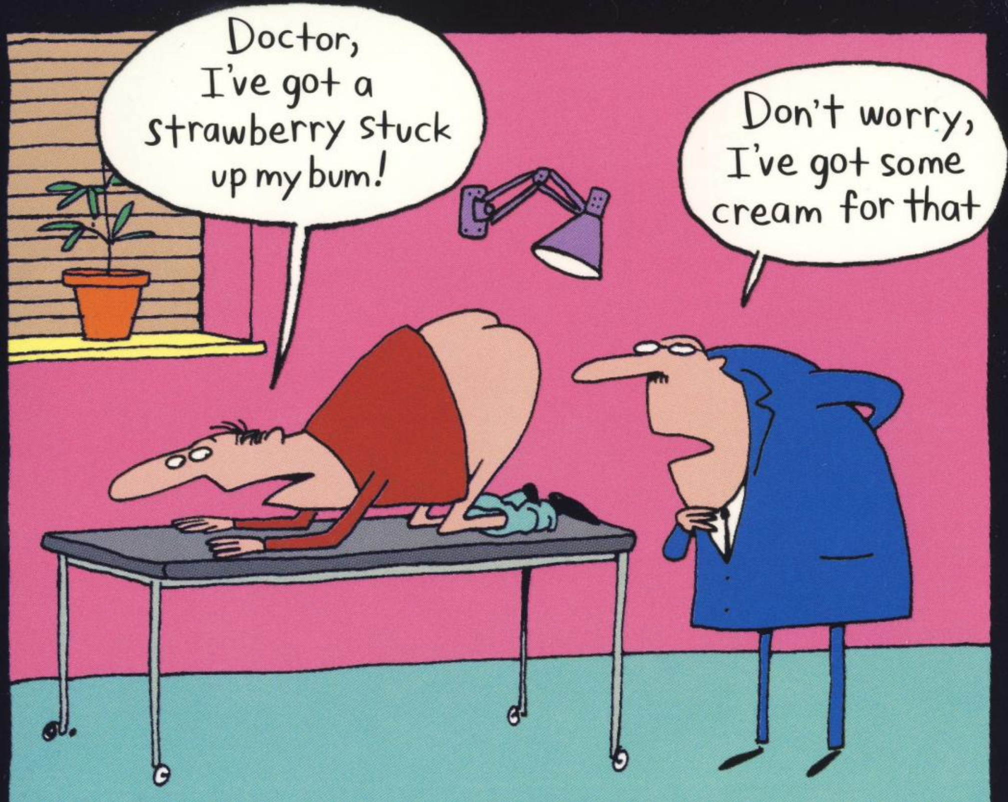


Learning points - Persistent abdominal pain

No red flags – consider functional pain

Reassess – it will become apparent

No medicines without a diagnosis



- Chloe, age 14 years old, has been soiling in her pants for 6 months. She states she is “unaware of when she needs to poo”

Patterns of constipation

- Stool retaining behaviour in younger children
- Soiling in older
- Everything else is pretty minor.......

infant

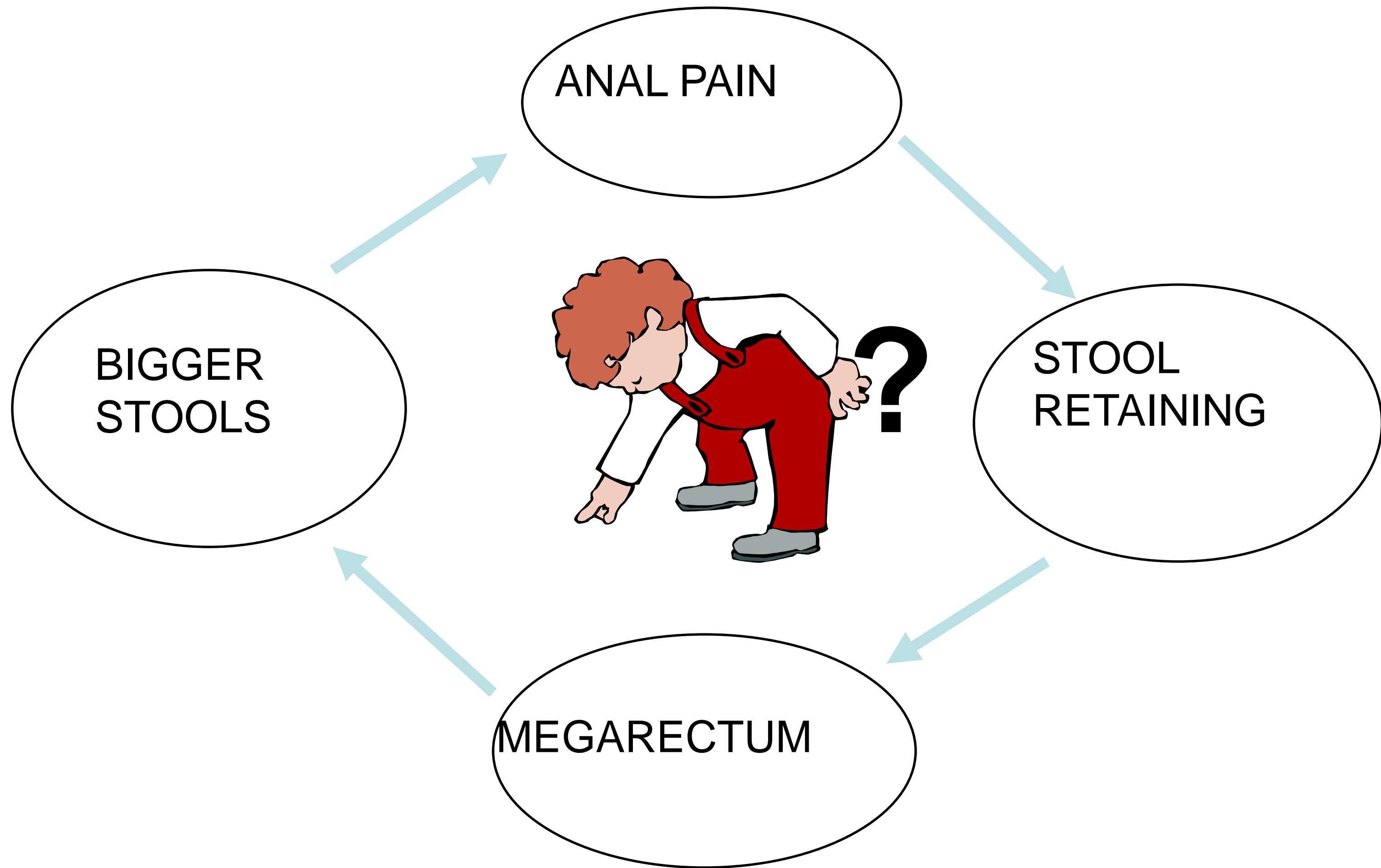
- Infrequent passing of stool
- Effect of milk

Toddler

- Delay in potty training
- Stool retaining behaviour

- Megarectum
- Oblivious soiling

The stool retaining cycle



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National Institute for
Health and Clinical Excellence

Quick reference guide

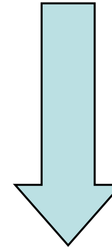
Issue date: May 2010

Constipation in children and young people

Diagnosis and management of idiopathic childhood constipation in primary and secondary care

NICE clinical guideline 99
Developed by the National Collaborating Centre for Women's and Children's Health

Assess for impaction



Don't treat constipation with maintence therapy until you have disimpacted

assessment

- Are they impacted
- Any red flags?

soften

- Lactulose
- Add senna if stool retaining behaviour

Next step

- Movicol paediatric
- Add in picosulphate

Impacted

- Then disimpact first

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Red flags according to NICE

- Symptoms since birth
- Delay in meconium
- Locomotor delay
- Abdominal distension with vomiting
- Abnormal anus – position, fissures
- Distension
- Abnormal spine findings
- Talipes
- Absent reflexes

Myths in constipation

- Value of Xrays
    - Total and segmental colonic transit time with radio-opaque markers in adolescents with functional constipation. Journal of Pediatric Gastroenterology & Nutrition. 27(2):138-42, 1998
- Plain abdominal Xray
- Biofeedback

Hirschsprung’s disease

- A retrospective review of 186 rectal biopsies from 141 children
- All of the 17 children with Hirschsprung's disease had the onset of symptoms before the age of 4 weeks.
- If the age at onset of constipation is after the neonatal period, a rectal biopsy is unnecessary.

Arch Dis Child 1998;**79:**266-268)

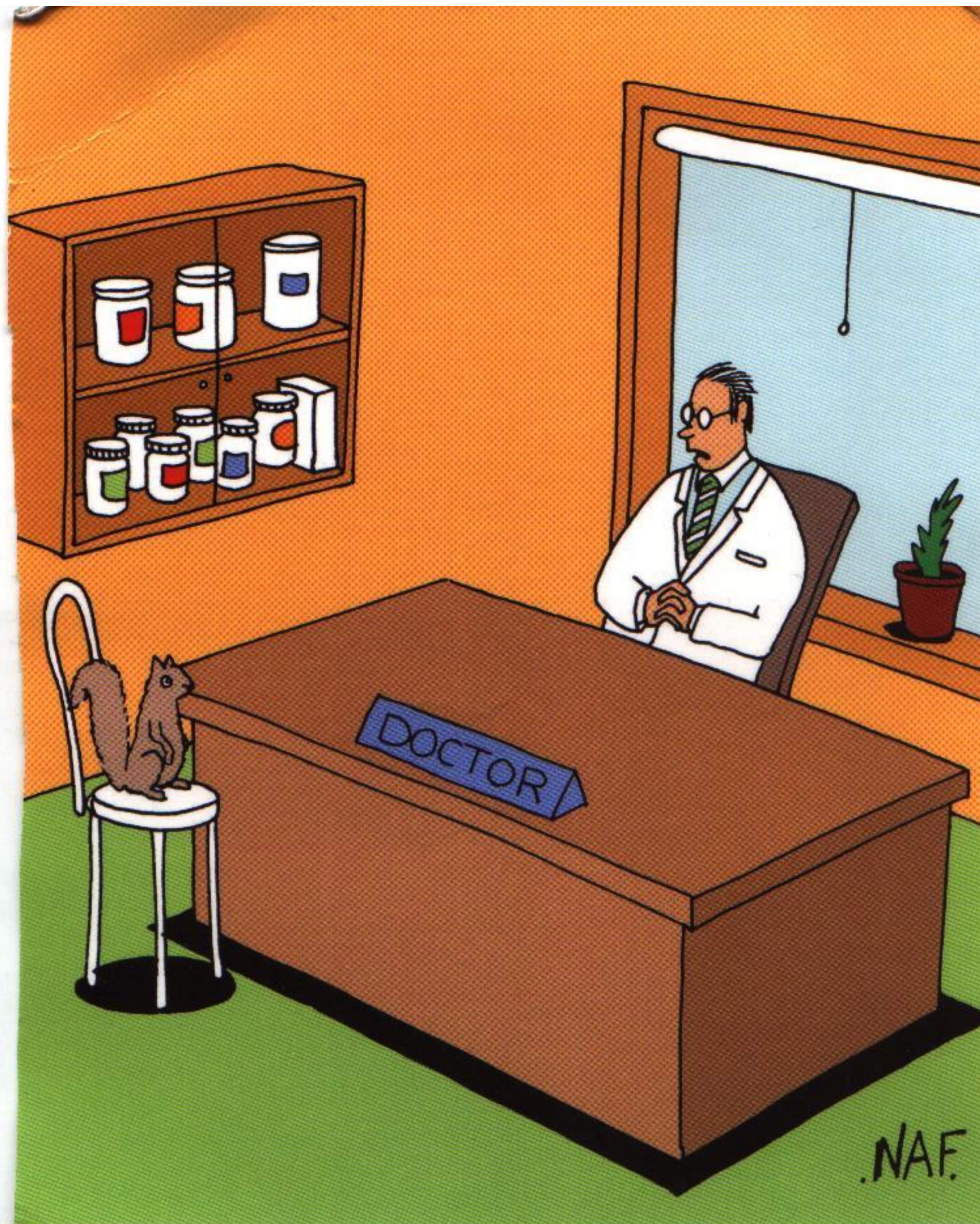
Illnesses associated with constipation

- Coeliac disease
- Intercurrent illnesses, poor fluid intake and immobility
- Cystic fibrosis
- Carcinoma of the colon
- Metabolic
  - thyroid
  - calcium, potassium

Milk intolerance

Learning points in constipation

- Stool retaining behaviour ≠ constipation
- Disimpact before you try to achieve continence
- Don't have to poo everyday
- No one died of constipation



"Bit of a bummer really,
you've got a nut allergy."

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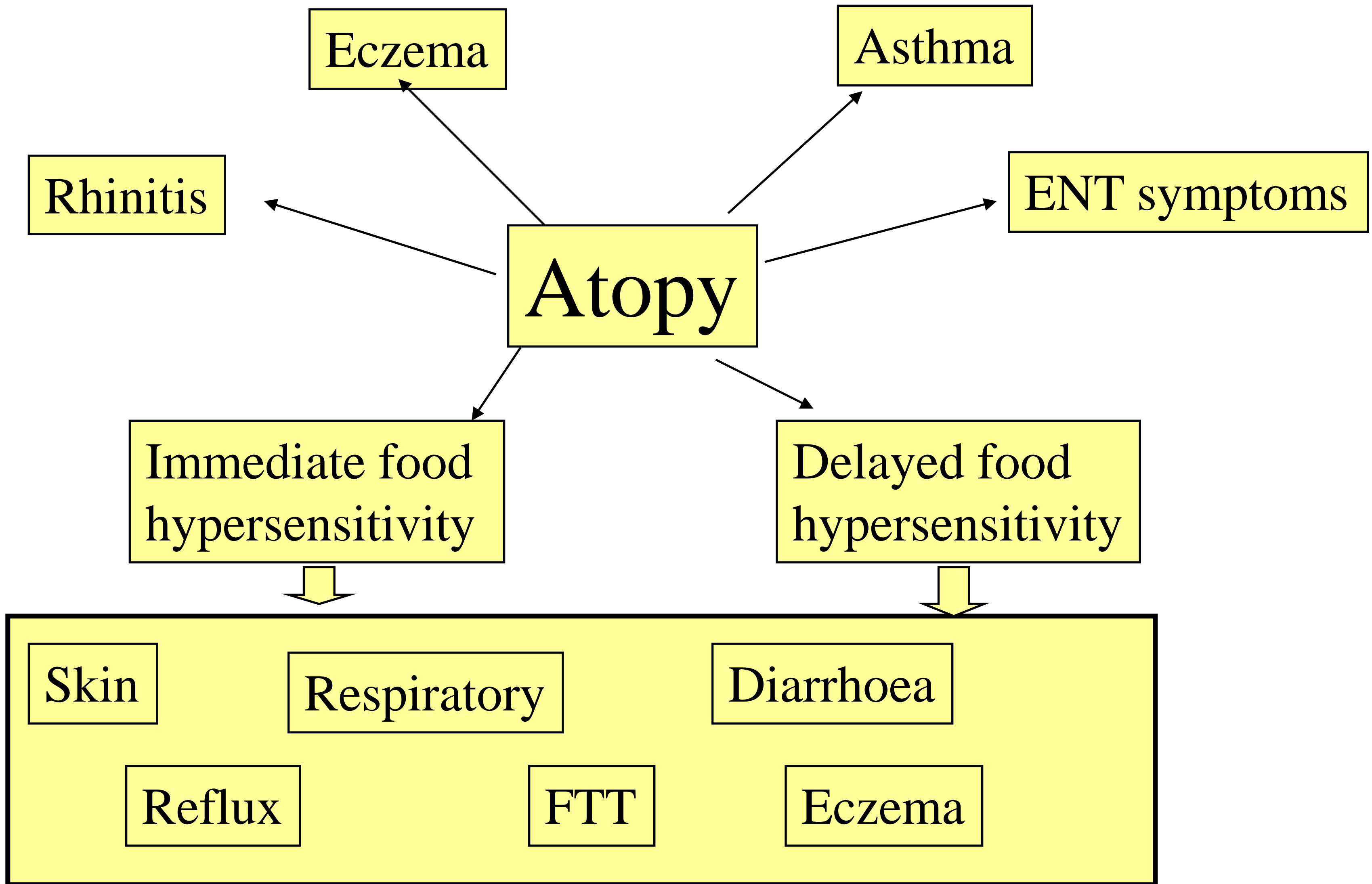
Eczema
Asthma
Rhinitis
ENT symptoms
Atopy
Immediate food hypersensitivity
Delayed food hypersensitivity
Skin
Respiratory
Diarrhoea
Reflux
FTT
Eczema

The atopic March

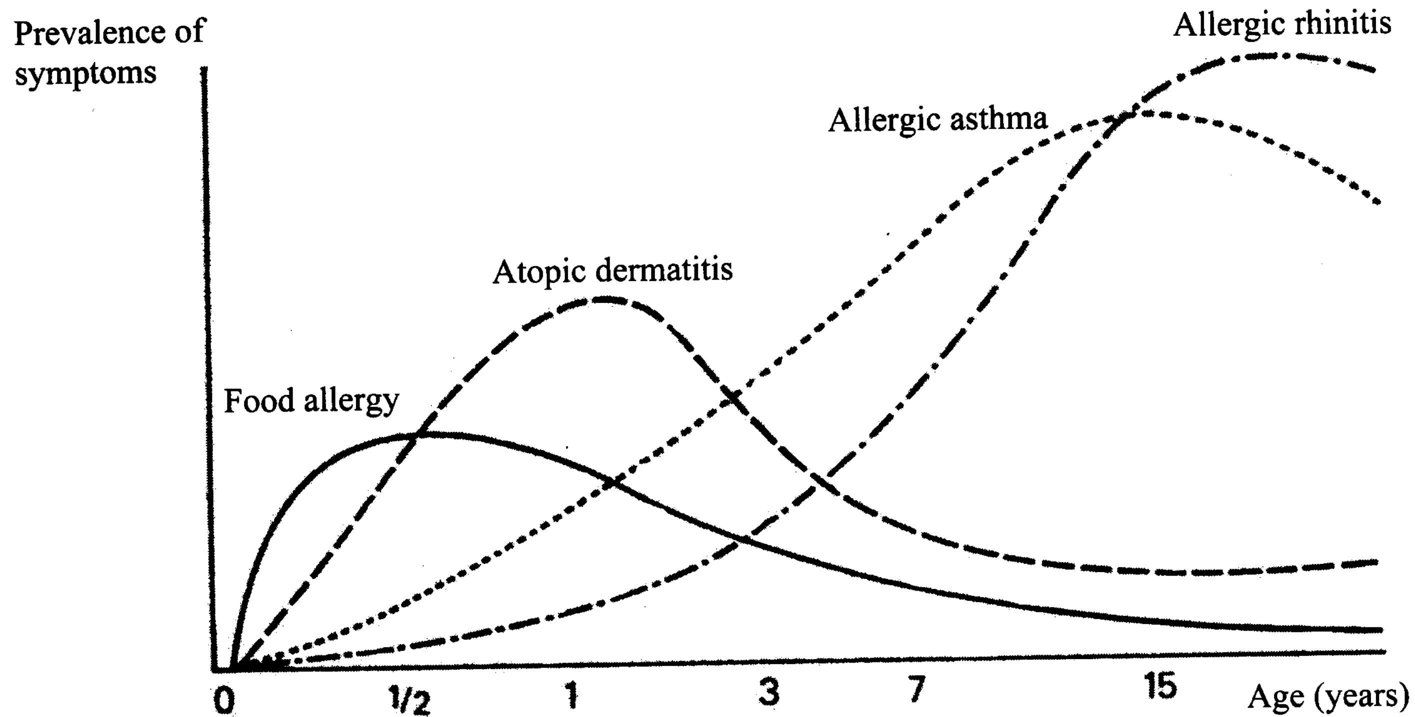

FIGURE 2: The natural course of atopic diseases in childhood (Graß and Wahn 1991)

IgE mediated immediate reaction

- Food allergy like urticaria or anaphylaxis
- Oral allergy syndrome

Non IgE mediated – delayed manifestation

- eczema
- Allergic colitis
- Infantile colic
- GORD
- Allergic dysmotility
- Enteropathy

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Guidelines for the diagnosis and management of cow's milk protein allergy in infants

Yvan Vandenplas, Martin Brueton, Christophe Dupont, David Hill, Erika Isolauri, Sibylle Koletzko, Arnold P Oranje and Annamaria Staiano

Arch. Dis. Child. 2007;92;902-908
doi:10.1136/adc.2006.110999

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BMJ articles about CMPA - 2009

- ***Box 2 Common infant presentations and cow's milk allergy***
- ***Atopic dermatitis***
- ***Infantile colic***
- ***Gastro-oesophageal reflux and cow's milk allergy***
- ***Other gastrointestinal symptoms***
  - **Cow's milk allergy should be considered in acute and chronic gastrointestinal presentations. It is associated with several gastrointestinal syndromes, including dietary protein induced proctitis (mild diarrhoea and rectal bleeding), dietary protein enteropathy and enterocolitis (vomiting, chronic diarrhoea, malabsorption, and failure to thrive with or without inflammation), and eosinophilic gastroenteropathies.**

Cows milk formulae

- Allergic
- Cheap
- tastes nice

Partially hydrolysed

- Soy not an option
- Questionable effectiveness

Whey hydrolysate

- Palatable but allergic
- e.g. Pepti

Casein hydrolysate

- First line for food allergy
- e.g. nutramigen

Elemental

- Unpalatable
- Expensive
- First line if breast feeding
  - e.g.neocate
  - Nutramigen AA

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Learning point

Food allergy is principally a pre school phenomena
IgE mediated is immediate
Non IgE mediated can be delayed
Cows milk allergy is real

IgE mediated immediate reaction

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Interventions

Likely to be beneficial:

Whey hydrolysate milk

Trade off between benefits and harms:

Anticholinergic drugs

Unknown effectiveness:

Soya substitute milk

Casein hydrolysate milk

Low lactose milk

Sucrose solution

Herbal tea

Reduction of stimulation of the infant

Unlikely to be beneficial:

Simethicone

Increased carrying

Extracts from "Clinical Evidence"

Infantile colic

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Pediatric Gastroesophageal Reflux Clinical Practice Guidelines: Joint Recommendations of the North American Society for Pediatric Gastroenterology, Hepatology, and Nutrition (NASPGHAN) and the European Society for Pediatric Gastroenterology, Hepatology, and Nutrition (ESPGHAN)

4.1. History and Physical Examination In infants and toddlers, there is no symptom or symptom complex that is diagnostic of GERD or predicts response to therapy. In older children and adolescents, as in adult patients, history and physical examination may be sufficient to diagnose GERD if the symptoms are typical.

No discriminating aspect to history

6.1.3. Infants With Unexplained Crying and/or Distressed Behavior Reflux is not a common cause of unexplained crying, irritability, or distressed behavior in otherwise healthy infants. Other causes include cow's milk protein allergy, neurologic disorders, constipation, and infection (especially of the urinary tract). Following exclusion of other causes, an empiric trial of extensively hydrolyzed protein formula or amino acid–based formula is reasonable in selected cases, although evidence from the literature in support of such a trial is limited. There is no evidence to support the empiric use of acid suppression for the treatment of irritable infants.

Screaming ≠ reflux

(206,207). Studies support the use of extensively hydrolyzed or amino acid formula in formula-fed infants with bothersome regurgitation and vomiting for trials lasting up to 4 weeks (206–208). Cow's milk protein and other proteins pass into human breast milk in small quantities. Breast-fed infants with regurgitation and vomiting may therefore benefit from a trial of withdrawal of cow's milk and eggs from the maternal diet (209,210). The symptoms of infant reflux are almost never so severe that breast-feeding should be discontinued. There are no

There is a role for change in formula
Trial of withdrawal of cows milk from mothers diet

(336). A meta-analysis of 7 RCTs of metoclopramide in developmentally healthy children 1 month to 2 years of age with symptoms of GER found that metoclopramide reduced daily symptoms and the RI but was associated with significant side effects (215). Metoclopramide com-

recent systematic review of studies on domperidone (341) identified only 4 RCTs in children, none providing "robust evidence" for efficacy of domperidone in pediatric GERD. Domperidone occasionally causes extrapyramidal central nervous system side effects (342).

Evidence does not support use of domperidone

group (46). A large double-blind study of 162 infants randomized to 4 weeks of placebo or lansoprazole showed an identical 54% response rate in each group, using an endpoint of >50% reduction of measures of feeding-related symptoms (crying, irritability, arching) and other parameters of the I-GERQ questionnaire (9). Furthermore, this study showed a small but significant increase in the numbers of infants that experienced lower respiratory symptoms during the treatment trial.

Lack of evidence for PPI in infantile agitation

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Orenstein SR, Hassall E, Furmaga-Jablonska W, et al. Multicenter, double-blind, randomized, placebo-controlled trial assessing efficacy & safety of proton pump inhibitor lansoprazole in infants with symptoms of gastroesophageal reflux disease. *J Pediatr* 2009; 154:514–20.

All available in BMJ August 27th 2010

- ***Clinical Review***
- ***From Drug and Therapeutics Bulletin***
- **Managing gastro-oesophageal reflux in infants**
- ***Drug and Therapeutics Bulletin***

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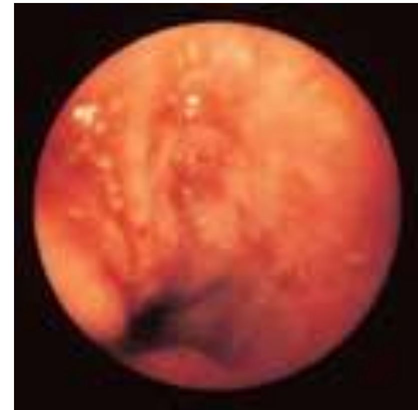
GER
CMA
DYSPHAGIA
HAEMATEMESIS
MELENA
RUMINATION
NAUSEA/BELCHING
ARCHING
BRADYCARDIA
HICCUPS
SANDIFER'S SYNDROME
ASPIRATION
LARINGITIS/STRIDOR
RESPIRATORY INFECTIONS
HOARSENESS
CRYING
IRRITABILITY
COLIC
PARENTAL ANXIETY
FEEDING REFUSAL
FAILURE TO THRIVE
VOMITING
REGURGITATION
SIDEROPENIC ANAEMIA
WHEEZING
APNEA/ALTE/SIDS
SLEEP DISTURBANCES
CONSTIPATION
DIARRHEA
BLOODY STOOLS
RHINITIS
NASAL CONGESTION
ANAPHYLAXIS
ECZEMA/DERMATITIS
ANGIOEDEMA
LIP SWELLING
URTICARIA/ITCHING

Learning points in GOR and infantile colic

Is it right treating reflux when there is little evidence to support the use of anti reflux therapy in infantile colic



IgE mediated immediate reaction

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- Allergic colitis
- Infantile colic
- GORD
- Allergic dysmotility
- Enteropathy

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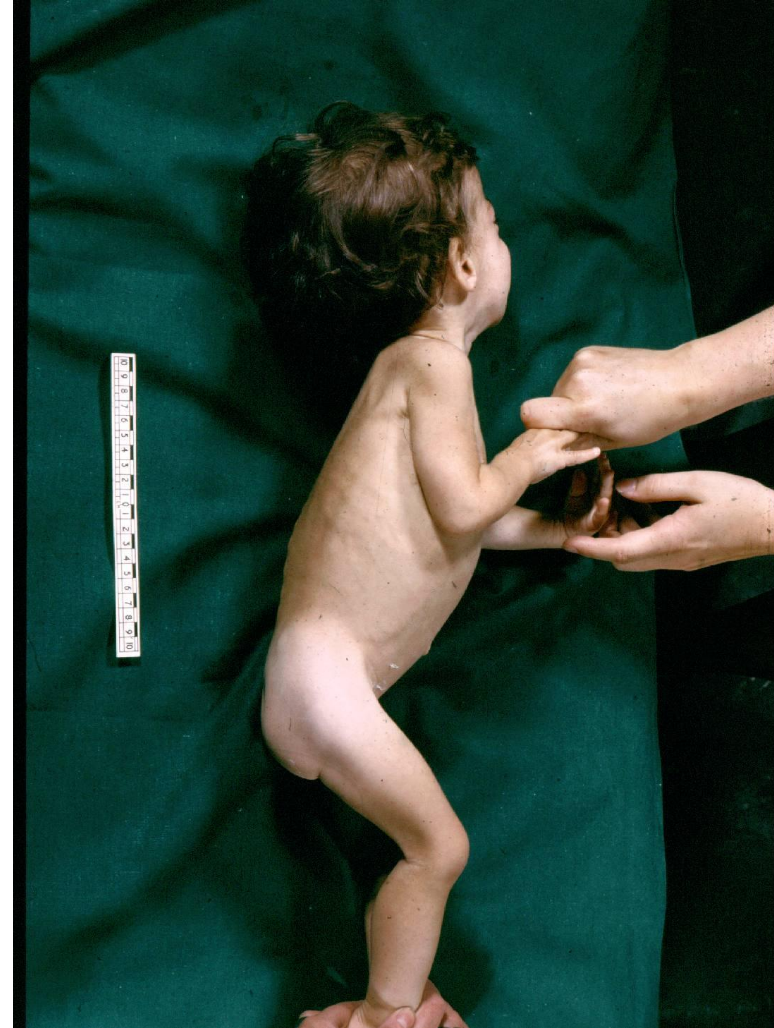
Diarrhoea – sugar or protein

- Don't use the word lactose intolerance
- There is 7g of lactose in breast and formula milk
- Mucous +blood = colitis
- Is a little inflammation good for you?
- Not always dietary protein induced proctocolitis
  - May be infection….

Dietary protein induced enteropathy

- Cows milk more likely than coeliac



Learning points in infantile diarrhoea

Lactose intolerance is exceptional rare

Consider the role of cows milk protein

Do you need to withdraw cows milk

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Next please……….

- Sophie age 6 months, has severe eczema and mother wants advice on weaning.

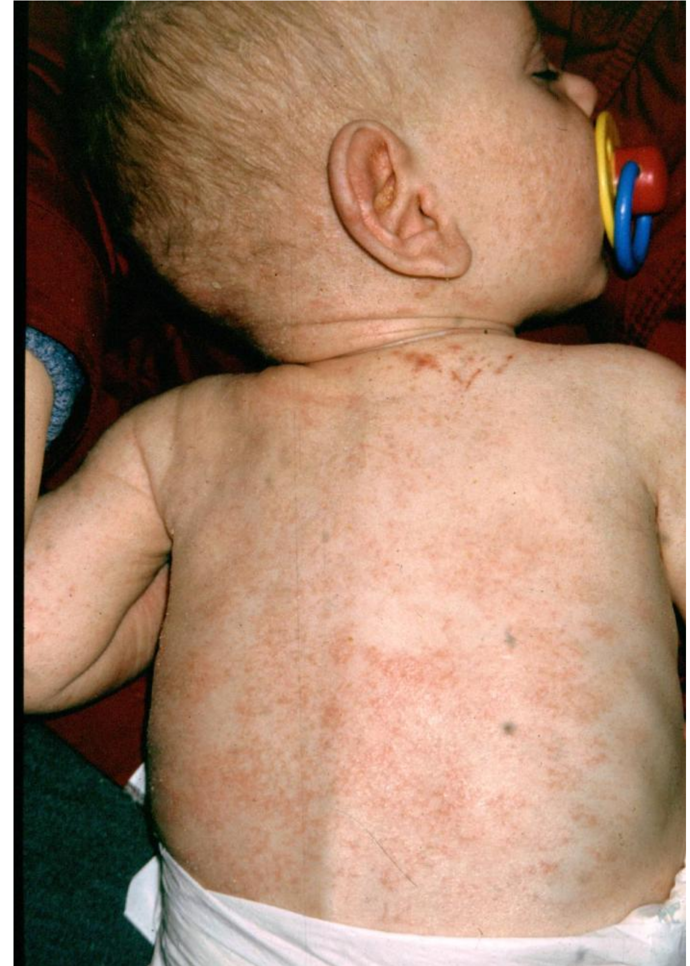

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Table 5. Frequency of IgE-mediated food allergy in infants with and without atopic dermatitis (AD)

Number of food items subjects were allergic to[a]	6 months of age						12 months of age					
	MACS AD–[b]		MACS AD+[b]		severe AD[c]		MACS AD–[b]		MACS AD+[b]		severe AD[c]	
	n	%	n	%	n	%	n	%	n	%	n	%
0	382	95	97	78	7	17	350	89	77	64	10	35
1	16	4	24	19	13	32	31	8	31	26	10	34
2	4	1	3	2	13	32	13	3	11	9	5	17
3	0		1	1	8	20	0		2	2	4	2
Total	20	5	28	22	34	83	44	11	44	37	19	65
Cases in total	402		125		41		394		121		29	

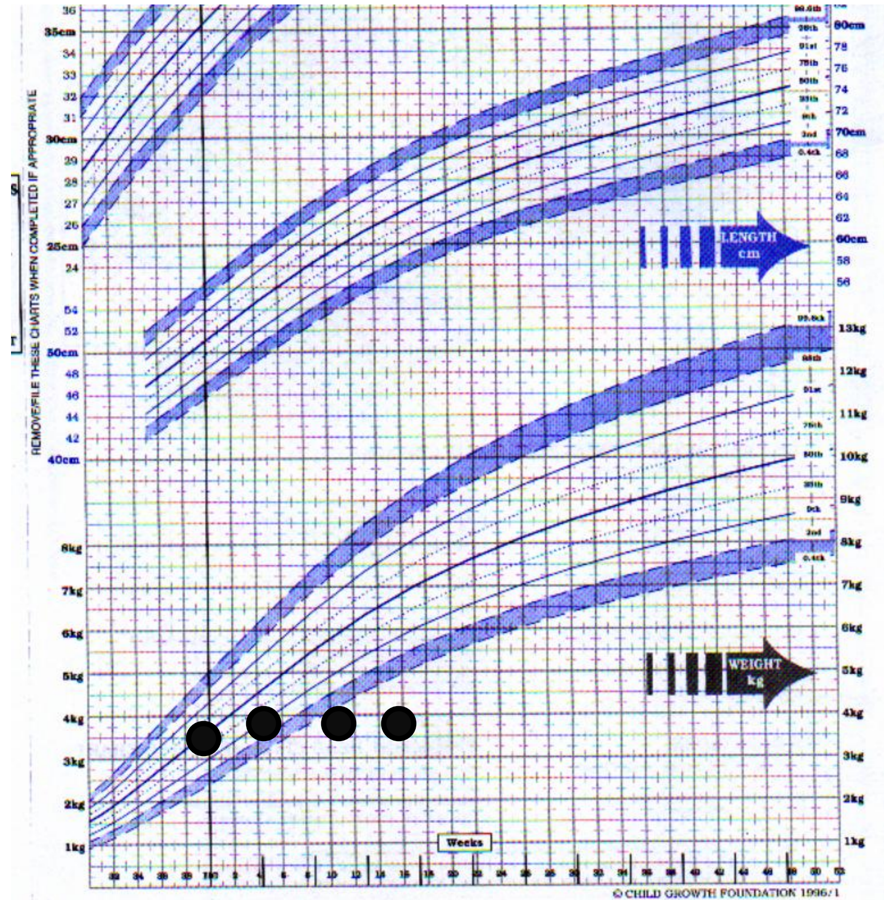
Reproduced with permission from Hill et al. [2].

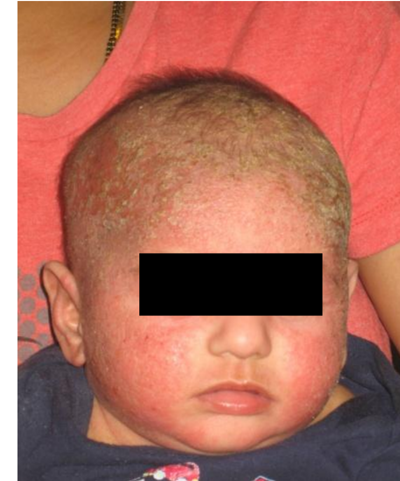
[a] IgE-mediated food allergy (SPT >3+) to 1, 2 or 3 foods.

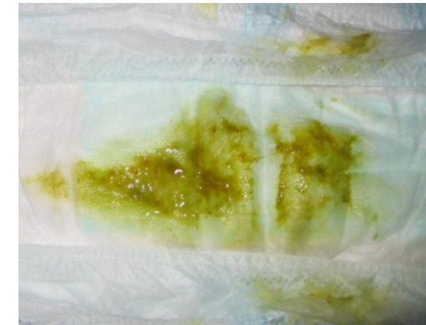
[b] MACS = Melbourne Atopy Cohort Study subjects.

[c] This represents a separate group of infants with severe atopic dermatitis treated in a tertiary referral hospital outpatient clinic.

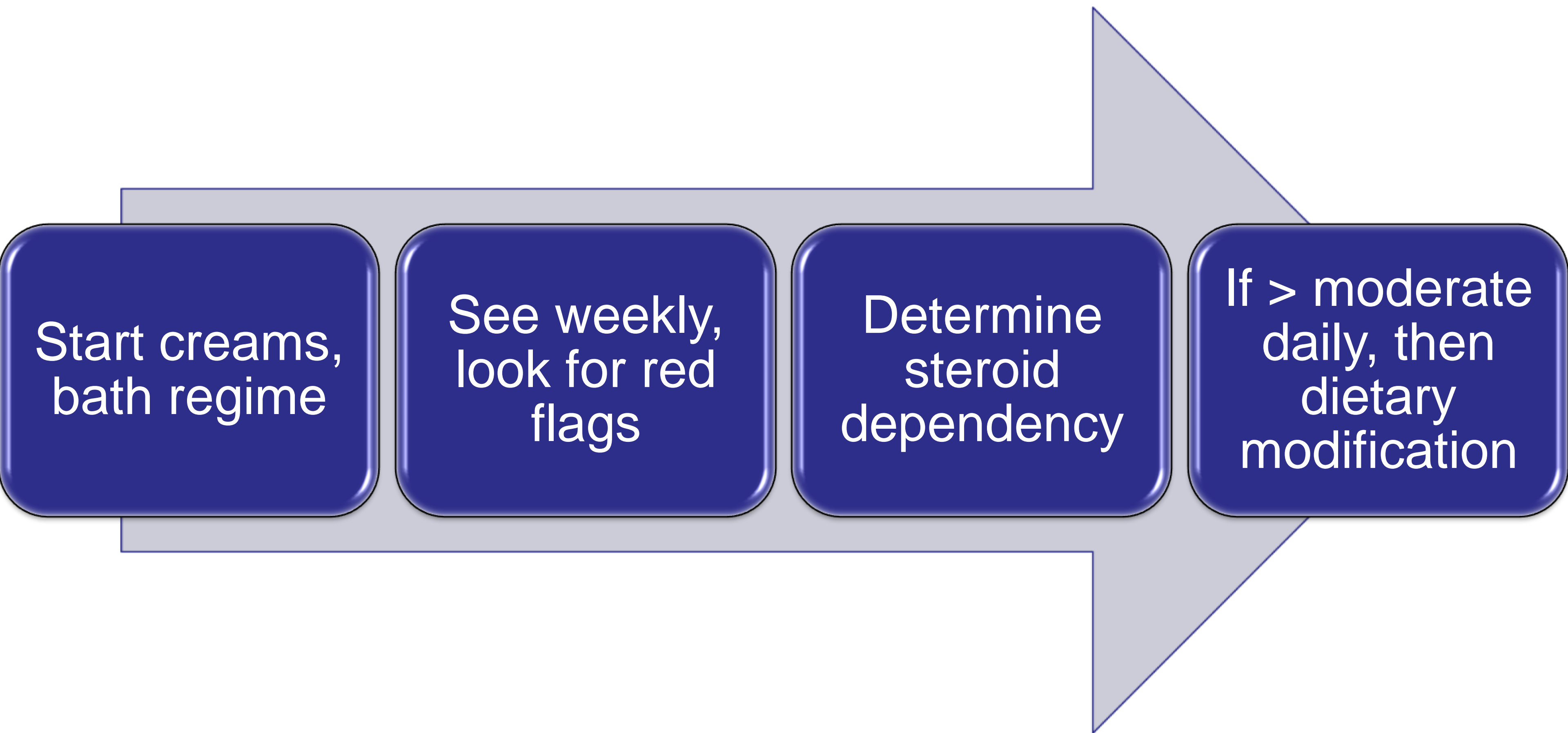
Warning signs in severe infantile eczema





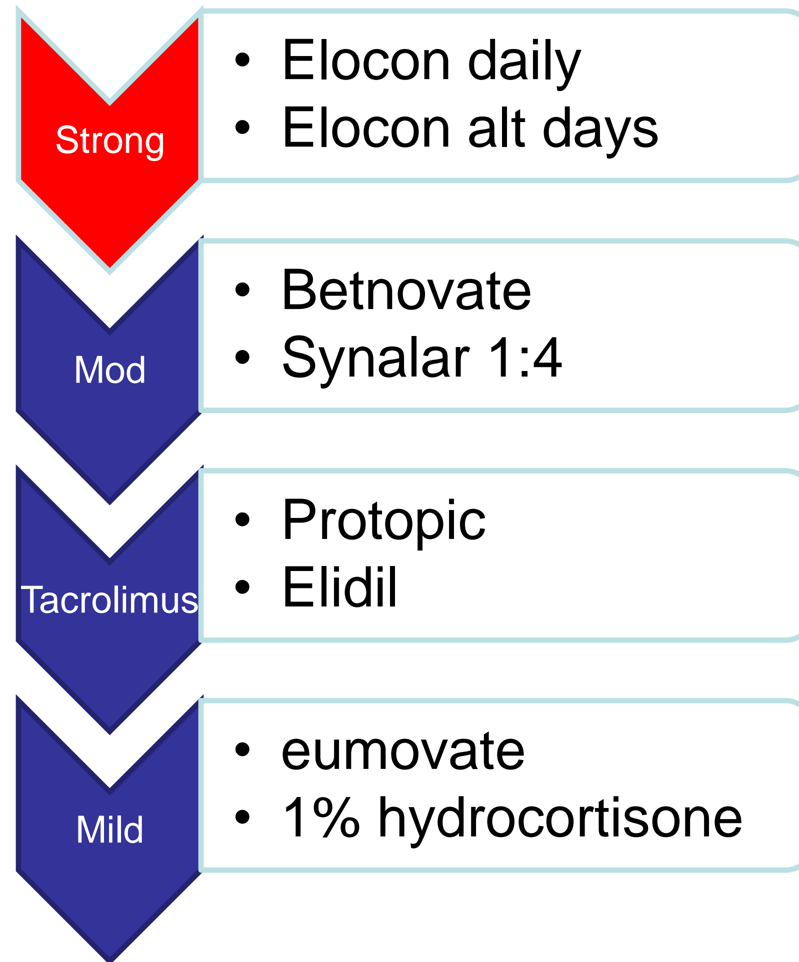


Severe eczema in child < 1 year



Steroid ladder

For dietary modification



Under 6 months

- Creams and bath regime
- Change formula

Breast feeding

- Creams and bath regime
- Think food allergy – maternal dietary modification with vit D

Over 1 year

- Creams
- Steroids and tacrolimus
- Only change diet if other symptoms

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- Cheap
- tastes nice

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- Soy not an option
- Questionable effectiveness

Whey hydrolysate

- Palatable but allergic
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Quick reference guide

Issue date: December 2007

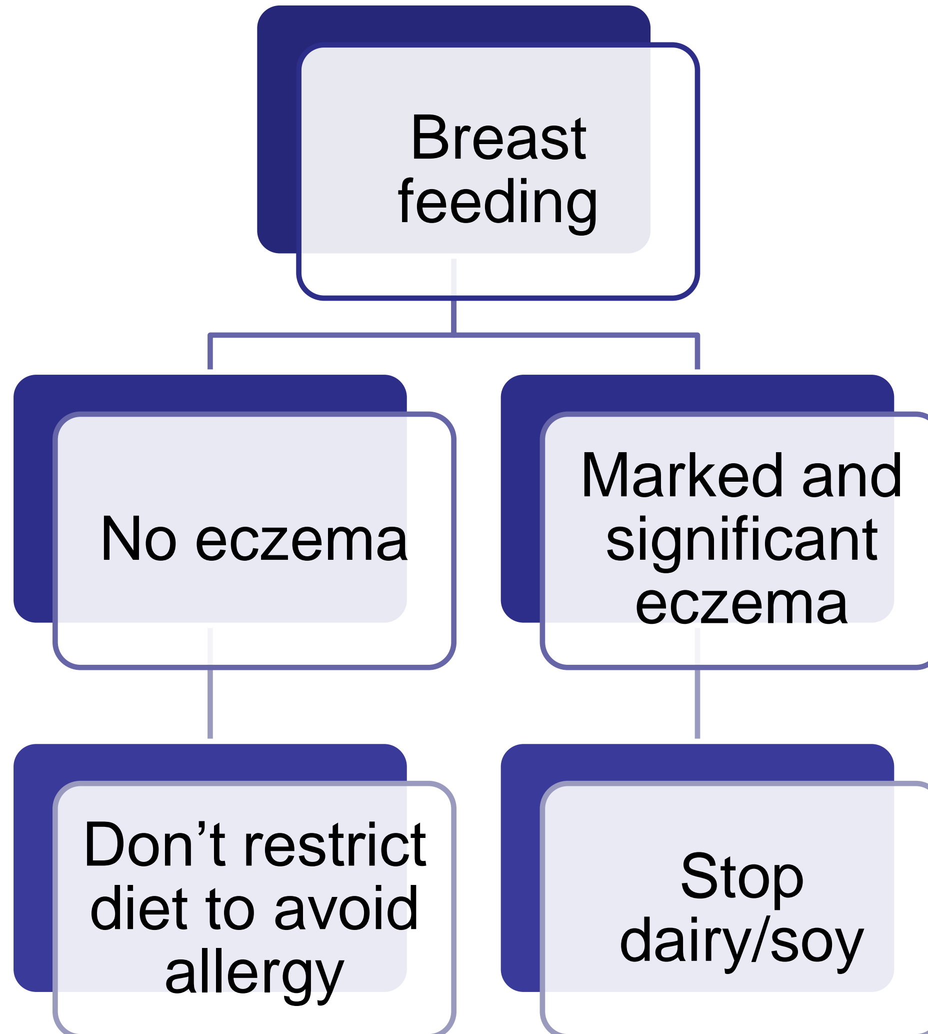
Atopic eczema in children

Management of atopic eczema in children from birth up to the age of 12 years

Diet

- Offer a 6–8 week trial of an extensively hydrolysed protein formula or amino acid formula in place of cow's milk formula for bottle-fed infants under 6 months with uncontrolled moderate or severe atopic eczema.
- Do not use diets based on unmodified proteins of other species' milk (for example, goat's or sheep's milk) or partially hydrolysed formulas for the treatment of suspected cow's milk allergy. Diets including soya protein can be offered to children over 6 months with specialist dietary advice.
- Refer for specialist dietary advice children who follow a cow's-milk-free diet for more than 8 weeks.
- Inform breastfeeding women that it is not known whether altering the mother's diet is effective in reducing the severity of the condition. Consider a trial of an allergen-specific exclusion diet under dietary supervision if you strongly suspect food allergy.

If exclusively breast feeding



- “The evidence from this study supports neither a delayed introduction of solids beyond the fourth month nor a delayed introduction of the most potentially allergenic solids beyond the sixth month of life for the prevention of eczema. However, effects under more extreme conditions cannot be ruled out”

- Solid Food Introduction in Relation to Eczema: Results from a Four-Year Prospective Birth Cohort Study.
- Journal of Pediatrics. 151(4):352-358, October 2007
- FILIPIAK, BIRGIT, ZUTAVERN, ANNE, MD, MPH, KOLETZKO, SIBYLLE, VON BERG, ANDREA, BROCKOW, INKEN, MD, MPH, GRUBL, ARMIN, BERDEL, DIETRICH, REINHARDT, DIETRICH, BAUER, CARL, WICHMANN, H.-ERICH, MD, PHD, HEINRICH, JOACHIM

Learning points – Eczema

- Don’t ignore the role of food allergy in children < 1 year but only if extensive.
- Be wary about advice to breast feeding mothers
- Steroid ladders – start on upper rungs

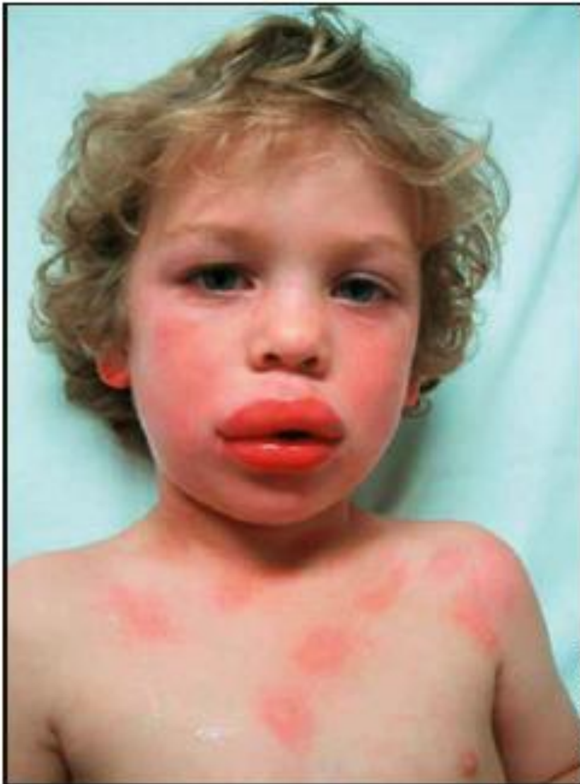


Fig 2 A young boy having a moderately severe allergic reaction, with angio-oedema, urticaria, and obvious anxiety

For and against

Are the dangers of childhood food allergy exaggerated?

The numbers of deaths from food allergy are small and not all are preventable. Allan Colver believes that the increasing prescription of emergency prophylaxis to children fuels anxiety rather than saving lives, but Jonathan Hourihane argues that there are no data to show that prescription of autoinjectors increases anxiety and their provision, as part of an integrated care plan, is justified

Foods that cause more than 90% of IgE mediated allergic reactions in children

- Milk
- Eggs
- Peanuts
- Tree nuts and seeds
- Fish
- Shellfish
- Soya
- Wheat

Will it go away Dr?

Food	Usual Age at Onset	Cross-Reactivity	Usual Age at Resolution
Hen's egg white	6–24 mo	Other avian eggs	7 yr (75% of cases resolve)*
Cow's milk	6–12 mo	Goat's milk, sheep's milk, buffalo milk	5 yr (76% of cases resolve)*
Peanuts	6–24 mo	Other legumes, peas, lentils; coreactivity with tree nuts	Persistent (20% of cases resolve by 5 yr)
Tree nuts	1–7 yr; in adults, onset occurs after cross-reactivity to birch pollen	Other tree nuts; coreactivity with peanuts	Persistent (9% of cases resolve after 5 yr)
Sesame seeds	6–36 mo	None known; coreactivity with peanuts and tree nuts	Persistent (20% of cases resolve by 7 yr)
Fish	Late childhood and adulthood	Other fish (low cross-reactivity with tuna and swordfish)	Persistent†
Shellfish	Adulthood (in 60% of patients with this allergy)	Other shellfish	Persistent
Wheat‡	6–24 mo	Other grains containing gluten	5 yr (80% of cases resolve)
Soybeans‡	6–24 mo	Other legumes	2 yr (67% of cases resolve)

Will he need an adrenaline pen?

J. Paediatr. Child Health (2003) **39**, 372–375

Viewpoint

EpiPen epidemic: Suggestions for rational prescribing in childhood food allergy

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New guidelines

Allergy

EUROPEAN JOURNAL OF ALLERGY AND CLINICAL IMMUNOLOGY

Allergy 62 (8), 857–871.

Position paper

The management of anaphylaxis in childhood: position paper of the European academy of allergology and clinical immunology

A. Muraro, G. Roberts, A. Clark, P. A. Eigenmann, S. Halken, G. Lack, A. Moneret-Vautrin, B. Niggemann, F. Rancé, AACI Task Force on Anaphylaxis in Children

- Absolute indications for prescribing self-injectable adrenaline:
- prior cardiorespiratory reactions
- exercise-induced anaphylaxis
- idiopathic anaphylaxis
- persistent asthma with food allergy.
- Relative indications include peanut or tree nut allergy, reactions to small quantities of a given food, food allergy in teenagers and living far away from a medical facility.

A managed approach to allergy care – reduction in accidental exposure

Clin Exp Allergy 2005; 35:751–756

doi:10.1111/j.1365-2222.2005.02266.x

Efficacy of a management plan based on severity assessment in longitudinal and case-controlled studies of 747 children with nut allergy: proposal for good practice

P. W. Ewan and A. T. Clark

Department of Allergy, Addenbrookes NHS Trust, University of Cambridge Clinical School, Cambridge, UK

“Testing” for allergy

IgE mediated immediate reaction

- Food … gy like urticaria or anapl … xis
- Oral a … gy syndrome

Non IgE mediated – delayed manifestation

- eczer …
- Allerg … olitis
- Infant … olic
- GOR …
- Allerg … ysmotility
- Enter … hy

Unproved diagnostic and therapeutic approaches to food allergy and intolerance

Suzanne S. Teuber[a,b] and Cristina Porch-Curren[a]

- Applied kinesology
- Pulse therapy
- Homeopathy
- Electrodermal testing
- Rotation if foods
- Bioresonance

Only food challenge will discriminate for food allergy

Don’t test before you see the child

No role for blind testing e.g. sending blood off in the post

Learning points

Food allergy is real

IgE mediated disease can be tested

Food intolerance cannot be tested

Milk allergy has many manifestations

Putting this into practice

Chronic Abdominal pain	Assess your personal practice. Does investigation at parental request yield positive results
Constipation	Disimpact first. Assess Stool retaining behaviour versus constipation
Infantile eczema	Discussing diet in younger children Not discussing diet in older children!
Food allergy	Cows milk allergy is real. Change in formula can be initiated by GP's
Epipens	Indicated with asthma and > 5 years