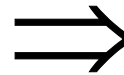


Allergic Bowel Disorders

From



B Li, MD

Professor of Pediatrics

Northwestern University's Feinberg School of Medicine

Children's Memorial Hospital, Chicago, IL



Taxonomy of food intolerance

Biochemical

Lactase deficiency

Sucrase-isomaltase
deficiency

Favism

Allergic

Allergic colitis

Allergic esophagitis

Allergic enteropathy

Eosinophilic gastroenteritis

Protein-loss + anemia

Food-induced anaphylaxis

Skin, respiratory, other

Take home messages

- *Prevalence:* 8%, fastest rising GI diagnosis
- *Risk factors:* FH atopy, IgA deficiency, gastroenteritis, early post-natal foods
- *Testing:* RAST (IgE) and IgG – *poor*, pin prick for immediate, breath H₂ for lactose
- *Big and little five foods:* cow's milk, soy, egg white, peanut, wheat...*fish, shrimp, chocolate, citrus, strawberry*

Take home messages

- *Mimics:* GERD, celiac disease, protein-losing enteropathy, lactase deficiency
- *Diagnosis:* biopsy only reliable measure – excludes peptic esophgitis, celiac, IBD...
- *Rx:* dietary – hydrolysate formula, elimination, elemental, occasionally steroids
- *Rechallenge:* (open / DB, PC) → symptoms

Formula management of FA

	<u>MW</u>	<u>#AA</u>
• Cow's milk <i>Similac, Enfamil</i>	40,000	160
• Protein hydrolysate <i>Nutramigen, Alimentum</i>	1,500	6
• Peptide <i>Peptamen Jr</i>	750	3
• Elemental = amino acid <i>Elecare, Neocate, EO-28</i>	250	1

Prevention in those at risk

- ID those at risk: + FH of atopy (to foods)
- Dietary management
 - Exclusive breast feeding for 1st 6 months
(maternal dietary milk and egg elimination)
 - Hydrolysate formula as alternative
 - Late introduction of solids > 6 months of age
 - Avoidance of cow's milk and eggs for 1st 24 months
- Prevents GI / skin > respiratory & asthma

Objectives–discuss:

- Allergic colitis
- Allergic (eosinophilic) esophagitis – GERD-like
- Cow and soy protein-induced enteropathy – allergic, celiac-like
- Cow's milk induced protein-loss & Fe^{++} -def anemia – *non-allergic*
- Food-induced anaphylactic-like reaction

Allergic colitis—*snapshot*



1-2 month old healthy infant with streaks of
bright red bleeding and mucus

Study–Dumont, Deutch, Li 1994

- *Onset:* 35 days, M:F 2:1
- *Clinical:* healthy, few vomiting & diarrhea
- *Intake:* 1/3rd each – cow's, soy, breast
- *Rx:* hydrolylate 42%, soy 17%, cow 8%, maternal dairy-elimination 72% (breast)
- *Resolves:* median 3 d, mean 11 d
- *Offset:* all tolerated protein by 1-2 years

Allergic colitis—*management*

- *Diff Dx:* anal fissure, infectious colitis
- *Testing:* confirm guaiac, stool cultures (? C diff), IgE and eosinophils not helpful
- *Treatment:* hematochezia resolves 3-11 d
 - *Switch proteins*
 - *Use protein hydrolysate...elemental formula*
 - *Eliminate dairy products from mother's diet*
 - *No meds*
- *Reassurance:* outgrow, rechallenge @ 1 yr

Allergic esophagitis—*snapshot*



Toddler or teenage boy with
GE reflux symptoms & atopy
but fails to respond to PPIs

Allergic (EE) esophagitis– *snapshot*

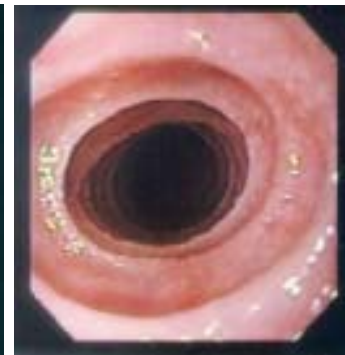
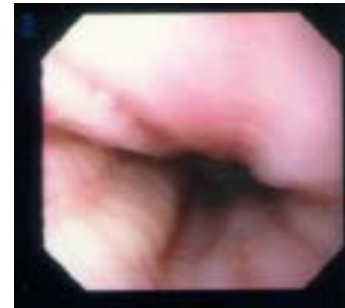
- *Ages:* toddlers & early teens, most boys
- *Clinical:* severe GERD-like, failing PPI therapy
– pH study normal
- *Symptoms:* dysphagia (food impaction),
vomiting, nausea, malaise, chronic fatigue
- *Injury:* tubular mid-esophageal stricture c.f.
distal peptic stricture

EE – EGD & histopathology

Normal



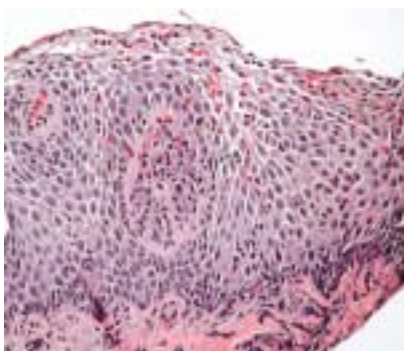
Furrows.....



White plaques

Trachealization

40-50 eos/hpf



Eosinophilic esophagitis

- EGD

- Edema, furrows, rings, adherent plaques
- Mid > distal involvement, tubular strictures

- Eosinophilia criteria

- IgE and eosinophil count \pm increased
- < 7 eos/hpf = peptic
- >20 eos/hpf = eosinophilic (? allergic)

- Treatment

- Elemental diet, progressive food reintroduction
- PO steroids, fluticasone, diNa⁺ cromoglycate



Allergic enteropathy–*snapshot*



Infant < 3 months of age with a severe bout
of hospitalized gastroenteritis develops persistent
vomiting, diarrhea, growth failure

Allergic enteropathy

- *Injury:* celiac-like – flattened jejunal villi ⇒ nutrient malabsorption, steatorrhea
- *Risk:* severe gastroenteritis with 10% dehydration, acidosis < 3 months of age
- *Clinical:* vomiting, diarrhea, growth failure
- *Rx:* dietary elimination through age 2-3 years
- *Differential:* celiac, lactase deficiency

Allergic enteropathy

- *Clinical:* 3 months old hospital for severe GE – IV for 10% dehydration, acidosis
 - Refed cow's milk ⇒ develops severe diarrhea
switched to soy ⇒ severe diarrhea
 - Required TPN X 2 weeks
 - *Consider protein hydrolysate X 1 month*
- *Challenge:* cow's milk @ 1 year, soy eggs, wheat @ 2 years, peanut, fish @ 3 years
- *Prognosis:* 80% outgrown by 3 years of age

Protein loss and anemia–*snapshot*



12-18 month old pale and edematous child
with a microcytic anemia (Hgb 6),
hypoalbuminemia (1.8) and excess milk intake

Cow's milk-induced PLE & Fe²⁺ -def

- *Clinical:*
 - Anascara 2° albumin (1.8 gut-protein loss)
 - Severe microcytic iron deficiency with Hgb 6 – but not orthstatic because chronic
- *Diet:* excessive milk intake (48 oz) to exclusion of other foods
- *Treatment:* may or may not be allergic!
 - If dose related – reduce milk < 30 oz/day
 - If allergic – completely eliminate or try steroids

Food anaphylaxis—*snapshot*



Infant who presents to ER with sudden onset vomiting, diarrhea, pallor, hypotension after food ingestion

Food-induced anaphylaxis

- *Mechanism:* IgE-mediated
- *Clinical:* within 30 minutes – vomiting, diarrhea with 3rd spacing, shock...fatality!
- *Challenge (in house!):*
 - IV running + monitor P , BP, R
 - Epinephrine, diphenhydramine, hydrocortisone
 - Challenge with mg (drop on lips)...grams ascending q. 15 m
- *Treatment:* food elimination + EpiPen Jr

Summary

- Allergic bowel disease is common and has distinct clinical presentations – *mistaken for peptic and malabsorptive disorders*
- Treatment is difficult – *elimination or elemental diets (NG), inadequate pharmacotherapy, corticosteroids, ? ketotifen, ? montelukast*
- Infants can ‘outgrow’ most allergic bowel disorders as toddlers – *ex. allergic esophagitis & anaphylaxis*