How the clinical presentation of Coeliac Disease has changed

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“If the stomach be irretentive of the food and if it pass through undigested and crude, and nothing ascends into the body, we call such persons coeliacs..... This affliction is more common in women”

The First Change

Current global production of wheat: 600 Million Tons per year

And then…

Guandalini S: Historical perspective of celiac disease, in press
In the beginning: the 50’s

- Celiac confused among the malabsorption syndromes, not yet differentiated in their various causes and grouped under the umbrella term of “celiac syndrome”:
  - Cow’s milk protein-induced enteropathy
  - Cystic Fibrosis
  - “Intractable diarrhea of infancy”
  - Protracted post-enteritic diarrhea
  - Small bowel bacterial overgrowth
  - Selective digestive-absorptive defects
    - Enteroenzyme Deficiency
    - Sucrase-Isomaltase Deficiency
    - Glucose-Galactose Malabsorption
    - Etc.

1956: the peroral duodenal biopsy appears

- Duodeno-jejunal biopsy tube: a Margot Shiner invention
- Shiner M. Duodenal biopsy. Lancet 1956; i: 17-19
- Lancet 1957; ii: 876-877

The first child ever diagnosed with a biopsy

The fabulous 60’s

- Flat mucosa accepted as typical of celiac disease
- Pathogenic role of gluten (but oats considered one of 4 toxic grains) and role of treatment with GFD universally recognized
- The sweat test rapidly identifies patients with CF
- The Pediatric Gastroenterology subspecialty begins to emerge in Europe in mid-late sixties and develops around the biochemical identification of the main congenital digestive/absorptive disorders of carbohydrates
- Widespread use of biopsy results in realization that the “flat mucosa” does not mean always celiac disease
Changing clinical patterns
and age at presentation

Shift of the age at diagnosis of coeliac disease

Changing patterns of presentation:
Symptoms are changing

Changing patterns of presentation:
Age at presentation is increasing

Changing patterns of presentation:
Classic Celiac □ Atypical Gastrointestinal □ Extra-intestinal □ Mixed

Roma E et al., Digestion 2009
Our patients, unpublished

McGowan KE et al., Pediatrics 2009
What drives the changes?

- Genetic changes? → Of course not!
- Has gluten changed? → Wheat? Perhaps; gluten? No
- Are we screening more people, hence detecting milder, "atypical" forms? → Likely
- Have other environmental factors changed?
  - Modalities of birth
  - Breast feeding patterns
  - Age and amount of gluten introduced

In 2007, the cesarean rate was the highest ever reported in the United States.

- The cesarean rate rose by 53% from 1996 to 2007, reaching 32%, the highest rate ever reported in the United States.

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CONCLUSIONS: The positive association with effective, but not emergency, cesarean delivery is consistent with the hypothesis that the bacterial flora of the newborn plays a role in the development of celiac disease.
Breast feeding influences celiac disease presentations.

Symptoms at diagnosis

In conclusion: Celiac Disease is changing
- Prevalence is changing (increasing)
- Diagnosis rates are changing (increasing)
- Clinical presentations are changing
  - Shift toward later age, less GI
- Diagnostic practices are changing
- New Therapeutic options appear

You need to stay constantly updated!