

CELIAC DISEASE, 2006

Peter HR Green MD
Celiac Disease Center
Columbia University
New York, NY
pg11@columbia.edu

CELIAC DISEASE

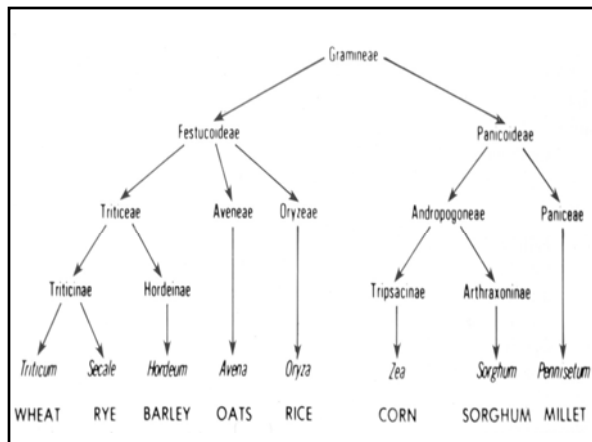
- GENETICALLY DETERMINED
Sib and twin occurrence rates
HLA 92% DQ2, 8% DQ8
- Environmental precipitant (s)
Gluten
Breast feeding
GI infections
Smoking
?

CELIAC DISEASE

- Gluten sensitive enteropathy
- Traditionally a malabsorption syndrome
- Currently resembles a multisystem disease

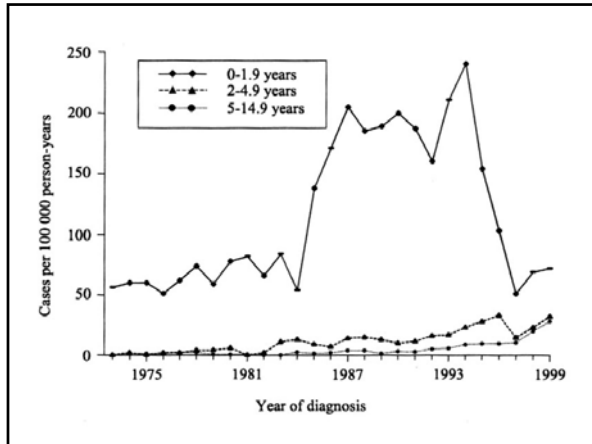
MORBIDITY & MORTALITY IN CELIAC DISEASE

- **Morbidity** - classical presentation,
 - silent CD-anemia, bone
 - chronic liver disease
- **Mortality** increased 1.9-3.8 X
 - due to malignancy (lymphoma)



CELIAC DISEASE

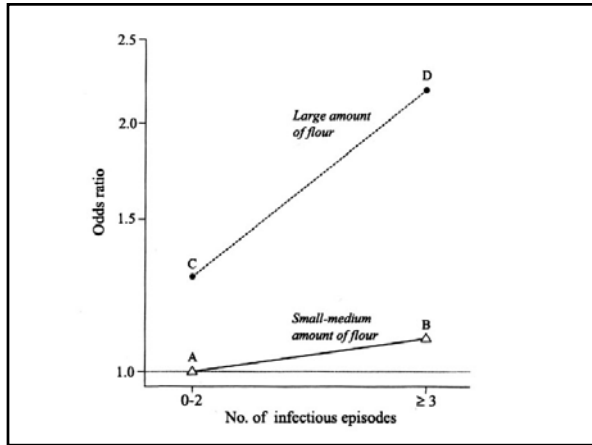
Genetic factors
HLA + ? Genes
+
Gluten
+
Other factors
breast feeding, amount and
timing of gluten introduction,
GI infections, smoking, etc



WHY IS CELIAC DISEASE UNDERDIAGNOSED IN USA?

- Shift to silent form (due to breast feeding?)
- Failure of physician recognition
- Diagnoses “stick” (eg IBS)
- Lack of pharmaceutical support
 - Medical research
 - Medical education

Where are they? Osteoporosis, IBS, infertility, neurology, oncology or rheumatology clinics



Evolution of Wheat

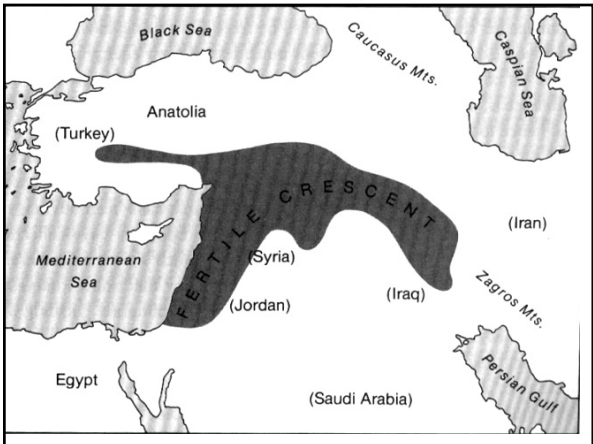
- 4,000,000,000 years BP → Origins of life
- 400,000,000 years BP → Complex organisms living in the seas invade the land (B cells and T cells already present in sharks)
- 200,000,000 years BP → Flowering plants begin to evolve
- 100,000,000 years BP → Grasses begin to evolve
- 20,000,000 years BP → Divergence of the common line that gives rise to wheat and barley
- 500,000 years BP → Early man (*Homo sapiens*)
- 10,000 years BP → Diploid wheat domesticated by man

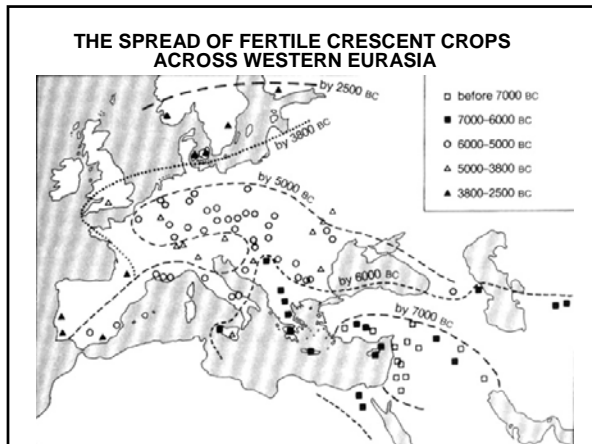
*BP = Before Present

PREVALENCE OF CELIAC DISEASE

- Common, affects ~1% of the population
- Evidence from serologic screening studies

| | |
|---|-------|
| UK adults (<i>Gut</i> , 2003) | 1/100 |
| UK children (<i>BMJ</i> , 2004) | 1/100 |
| Finland children (<i>NEJM</i> , 2003) | 1/99 |
| Turkey children (<i>J Clin Gastroenterol</i> , 2005) | 1/115 |
| Turkey adults (<i>J Clin Gastroenterol</i> , 2005) | 1/99 |
| North Africa children (<i>Lancet</i> , 1999) | 1/18 |
| USA adults & children (<i>Arch Int Med</i> , 2003) | 1/133 |





Celiac Disease

Traditionally a pediatric disease

Originally Dickie described the association with wheat ingestion after WW II

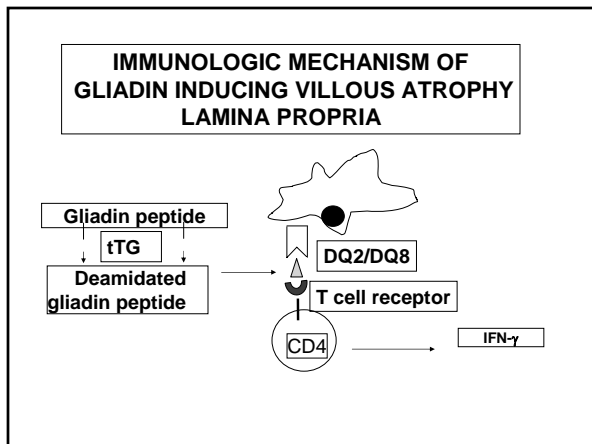
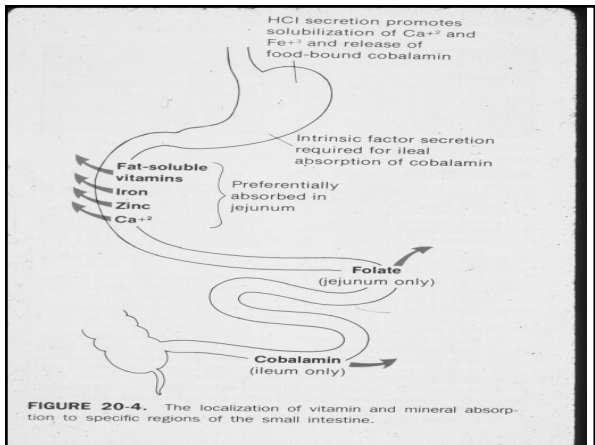
Classical presentation is with steatorrhea, malabsorption and weight loss

PATHOPHYSIOLOGY OF CELIAC DISEASE

Gluten has toxic epitopes

Gluten is poorly digested by gastric, duodenal and pancreatic secretions leaving toxic epitopes, especially a 33 mer

Gliadin (somehow) enters the mucosa

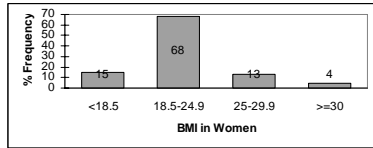


CLINICAL PRESENTATION OF CELIAC DISEASE

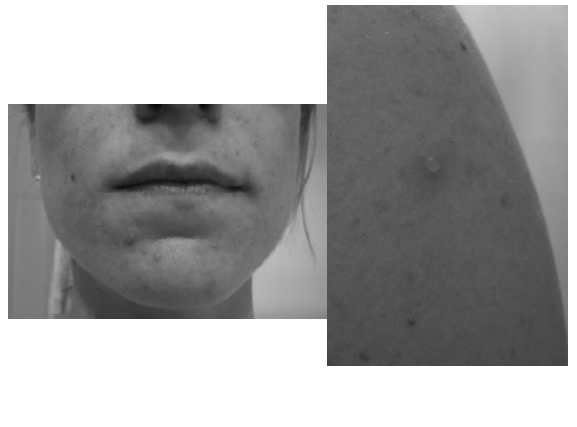
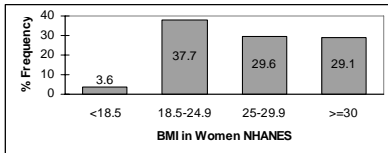
- **CLASSICAL** diarrhea predominant +/- malabsorption may be severe
- **SILENT** atypical complications associated diseases asymptomatic

BMI (WOMEN) CELIAC DISEASE Vs US NATIONAL DATA

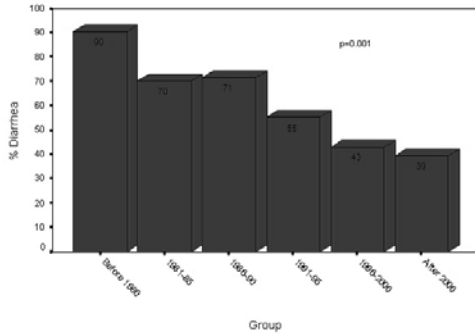
N=232



NHANES



Diarrhea as a Presenting Symptom of CD from 1952-2002



LESS COMMON PRESENTATIONS OF SILENT CELIAC DISEASE

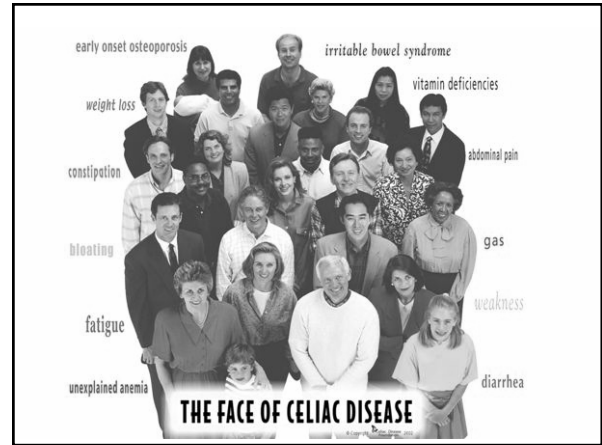
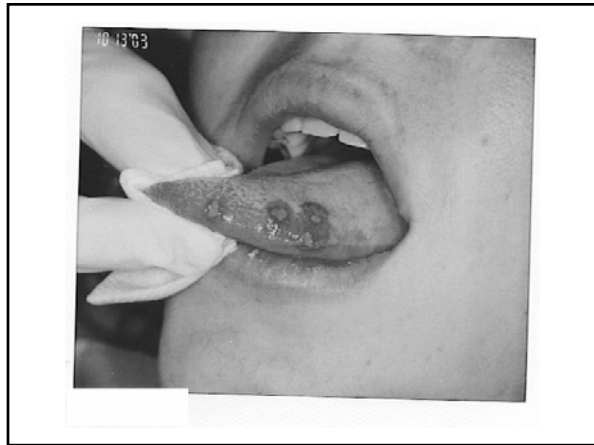
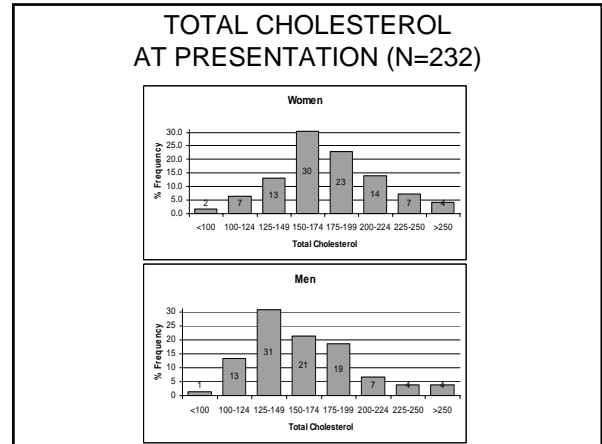
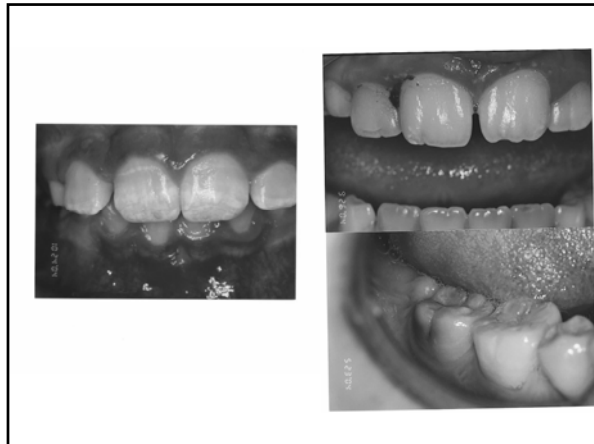
- Oral presentations
 - Dental enamel defects
 - Apthous ulceration

SILENT CELIAC DISEASE NON-DIARRHEAL PRESENTATIONS

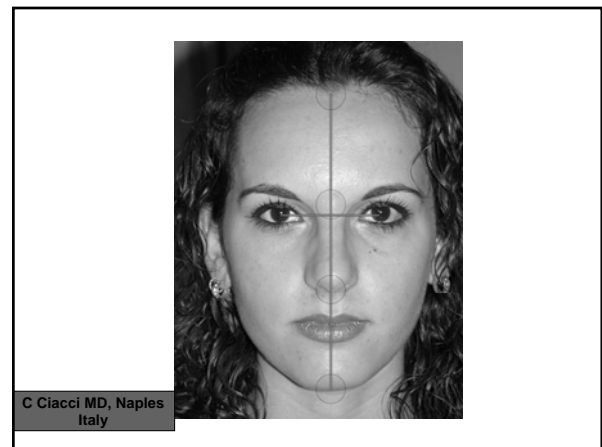
- Incidental at endoscopy
- Iron deficiency anemia
- Osteoporosis
- Screening
 1. relatives
 2. other groups (diabetics)

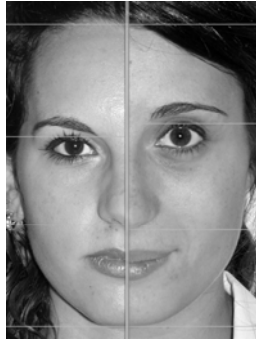
NOT ALL ARE ASYMPTOMATIC
- Others - neurological presentations



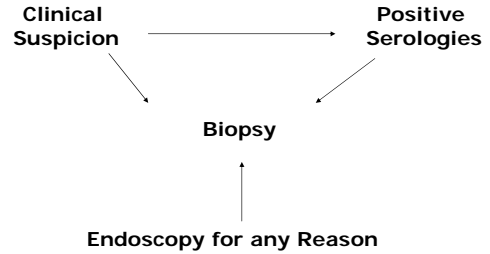


- ### LESS COMMON PRESENTATIONS OF SILENT CELIAC DISEASE
- Oral presentations
 - Dental enamel defects
 - Apthous ulceration
 - BLOOD TEST ABNORMALITIES
 - Hypocholesterolemia
 - Hyperamylasemia
 - Hypoalbuminemia
 - Hyposplenism
 - Elevated ESR





DIAGNOSIS OF CELIAC DISEASE



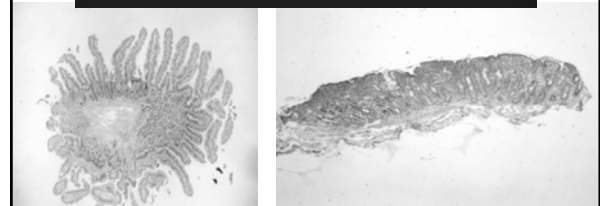
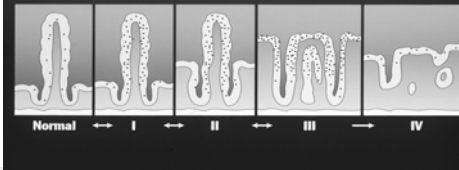
CLINICAL SPECTRUM OF CELIAC DISEASE

Asymptomatic with low cholesterol
and large forehead and spots on teeth

IBS ↓ Diarrhea

Severe autoimmune disease
Life threatening illness
Critically ill with RS, EATL

Pathological Spectrum



WHAT IS RESPONSIBLE FOR
THE VARIED CLINICAL
SPECTRUM IN CELIAC
DISEASE?

ROLE OF SEROLOGICAL TESTING IN CELIAC DISEASE

- Triage patients for biopsy
- Monitoring adherence to diet
- Screening high risk groups

**AUTO-IMMUNE DISEASES
LIVER DISEASE
MALIGNANCIES
REDUCED BONE DENSITY
INFERTILITY
NEUROLOGICAL DISEASES
CARDIOMYOPATHY**

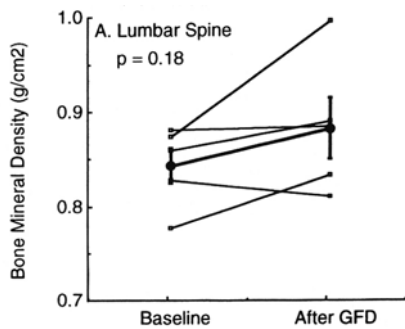
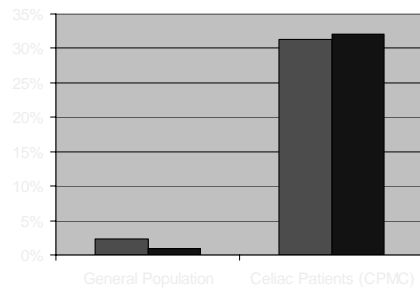
AUTOIMMUNE DISEASES

IDDM, Sjogren's syndrome
Liver disease (PBC, CAH, autoimmune cholangitis)
Thyroid disease
Neurologic (neuropathy, epilepsy, ataxia)
IgA nephropathy, Macroamylasemia
Cardiomyopathy, Addison's disease
Alopecia, viteligo
Chronic autoimmune urticaria

MECANISM OF BONE DISEASE

- Malabsorption of calcium and vitamin D
- Secondary hyperparathyroidism
- Failure to obtain maximum bone density
- Magnesium deficiency
- Circulating cytokines
- Auto-immune
- Premature menopause
- Reduced gonadal function in men
- Primary hyperparathyroidism

PREVALENCE OF AUTOIMMUNE DISEASES (CUMC)



MANAGEMENT

GLUTEN-FREE DIET

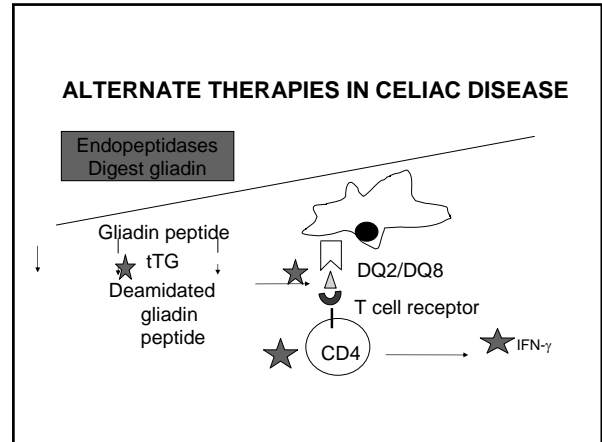
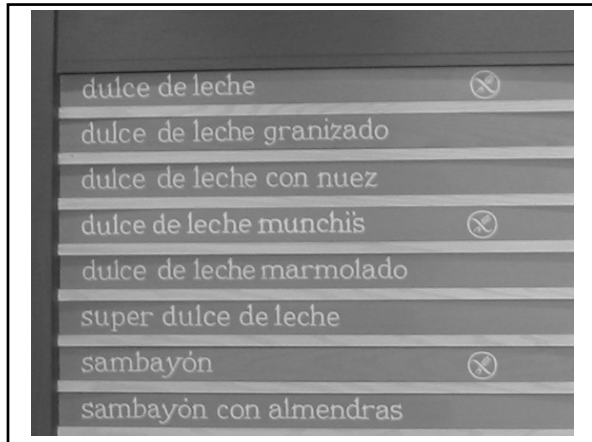
Sources Local support groups
National support groups
(CDF, GIG, CSA/USA)

Dietician

Internet

Pitfalls restaurant foods, preprepared foods,
fast foods, communion wafers,
medications

DON'T ABANDON THE PATIENT!



Desserts

| | |
|---|--------------|
| Baked cheesecake with raspberry coulis | €6.00 |
| Chocolate truffle cake | €6.00 |
| Mixed berry crumble | €6.00 |
| Skelligs handmade Irish chocolates | €4.00 |

Our beef, lamb and pork are all organic reared on our family farm in the Burren, Co.Clare. Our cheeses, oysters, seafood and handmade chocolates are all sourced locally from suppliers who share our hands on approach.

There is no service charge, except on parties of six or more, where 12.5% service will be applied.
*suitable for coeliacs. *

Some dishes may contain traces of nuts.



ALTERNATIVE THERAPIES TO A GLUTEN FREE DIET

- Why?
 - Patients want it
 - Biopsies do not normalize
 - Persistent risk of NHL
- How?
 - Genetically modify wheat
 - Induce tolerance to gluten
 - Oral peptidases
 - Block tTG
 - Block binding to the DQ groove
 - Block cytokines



