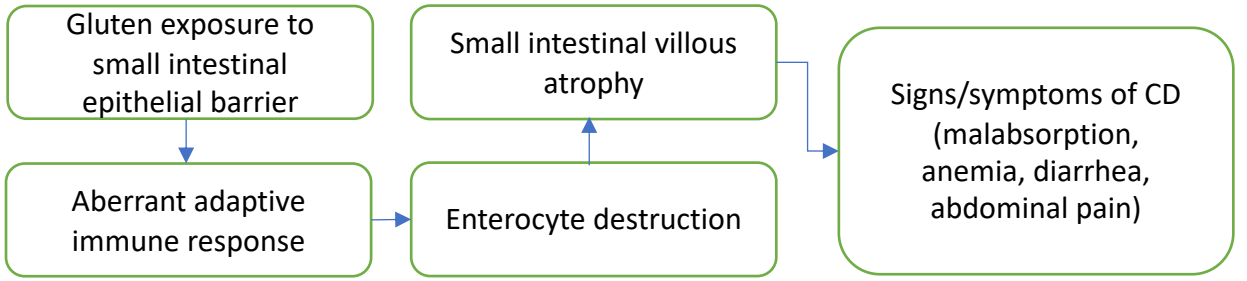
ACG Clinical Guidelines: Diagnosis and Management of Celiac Disease (with Update)

By Aaron Hein, MD

Background

- Permanent immune-related response to gluten
- Common causes of chronic malabsorption (1% of US residents)
- Conditions in which celiac disease (CD) is >2x prevalence of general population:
  - ✓ Irritable bowel syndrome
  - ✓ Dermatitis herpetiformis
  - ✓ Thyroid disease
  - ✓ Peripheral neuropathy, oral aphthous ulcers, discolored teeth/enamel loss
  - ✓ Growth failure, premature osteoporosis
  - ✓ Down's and Turner's syndrome
  - ✓ Other signs/symptoms as below

Pathogenesis of CD



Non-celiac gluten sensitivity ⇨ celiac-like symptoms from gluten trigger **without** diagnostic features of CD on objective testing

When to Test?

- ✓ Signs/symptoms of malabsorption
- ✓ Chronic diarrhea & weight loss
- ✓ Postprandial abdominal pain and bloating
- ✓ Iron deficiency anemia
- ✓ Patients with type 1 diabetes with clinical signs/symptoms
- ✓ Unexplained elevated aminotransferase levels or recurrent pancreatitis
- ✓ 1st degree relatives who show possible signs/symptoms of CD
- ✓ Consider testing asymptomatic 1st degree relatives

Serologic Tests to Consider

Diagnostic testing	Test Characteristics	Notes
Anti-tissue transglutaminase IgA (tTG-IgA)	>95% sensitivity & specificity	High NPV in patients without IgA deficiency w/ low-moderate pretest probability of CD (<5%)
Anti-endomysial Ab (EMA)	90% sensitivity, near 100% specificity	Useful adjunct to tTG-IgA to confirm CD in children and suggest likely CD in adults unwilling/unable to undergo endoscopy
tTG-IgG & Deaminated gliadin peptides (DGP) IgG	75 – 90% sensitivity, 88 – 100% specificity	Useful to test in patients with IgA deficiency
HLA genotype DQ2/DQ8	DQ2 (~95%) or DQ8 (~5%) present in almost all CD patients	**Not used for initial diagnosis**; useful to **rule out disease** in: - Patients on gluten-free diet (GFD), equivocal or discrepant testing, possible refractory disease when initial diagnosis in question, or in patients with Down's syndrome

Rubio-Tapia A, Hill ID, Kelly CP, Calderwood AH, Murray JA; American College of Gastroenterology. ACG clinical guidelines: diagnosis and management of celiac disease. Am J Gastroenterol. 2013 May;108(5):656-76; quiz 677. doi: 10.1038/ajg.2013.79. Epub 2013 Apr 23. PMID: 23609613; PMCID: PMC3706994.
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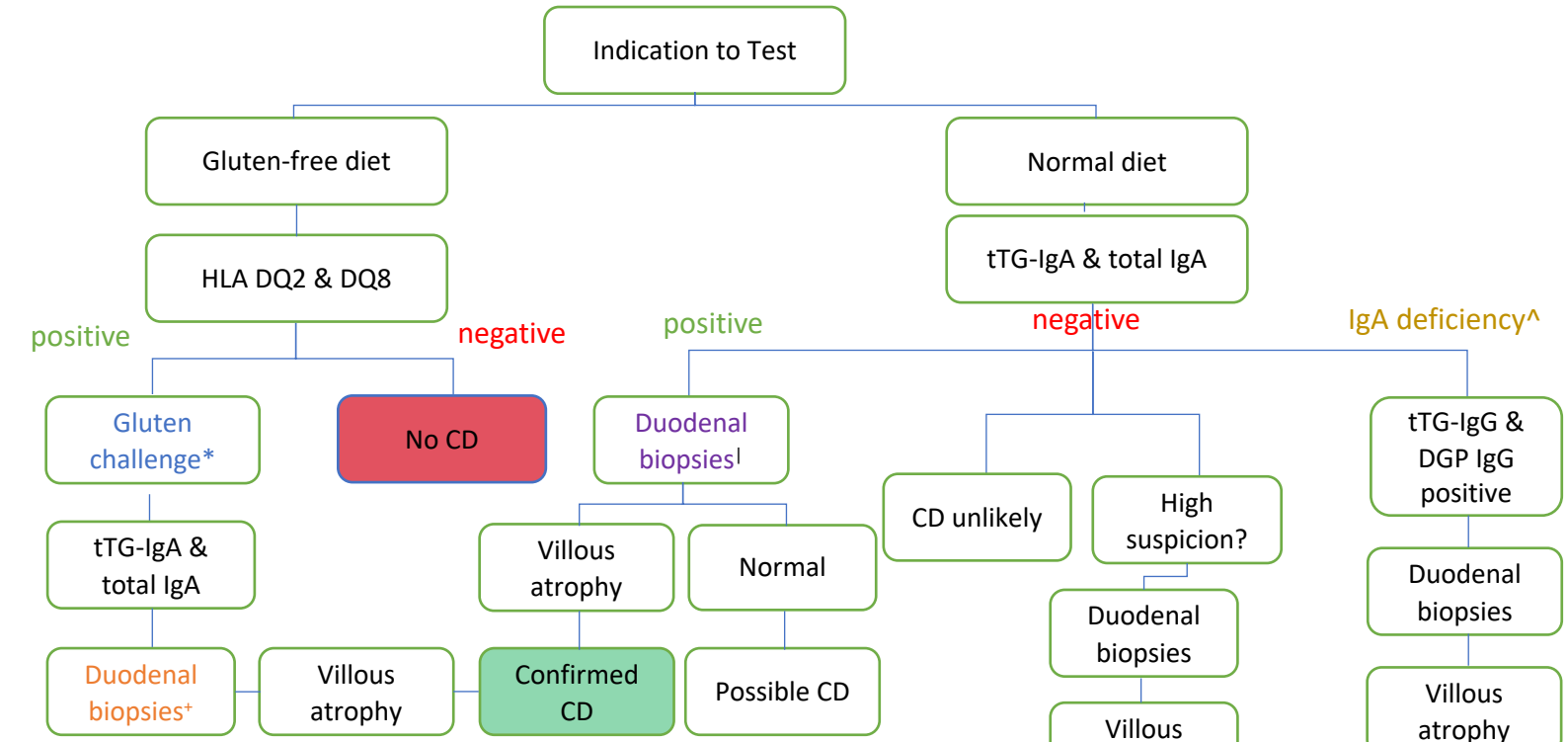
General Diagnostic Algorithm



*Gluten challenge ⇨ ≥3 grams of gluten daily for 8 weeks if tolerated

+Obtain 2 biopsies from the duodenal bulb (ideally 9 or 12 o clock) and 4 biopsies from the post-bulbar duodenum (up to 96% sensitivity)

|If EMA positive in 2nd blood sample, can confirm in children and make likely CD diagnosis in adults unwilling/unable to undergo endoscopy

^IgA deficiency in 2 – 3% of patients with CD (<0.25% base rate)

Diagnostics to Avoid

- Anti-gliadin antibodies (AGA)
- Capsule endoscopy (unless patient unwilling to undergo upper endoscopy)
- Intestinal permeability tests
- D-xylose, stool or salivary tests
- Small bowel follow-through

Histology Findings

- Diagnosed based on:
  - ⇧ intraepithelial lymphocytes (IELs)
  - Intestinal crypt hyperplasia
  - Degree of villous atrophy
- **Lymphocytic duodenosis (≥25 IELs/100 epithelial cells) without villous atrophy ≠ CD** ⇨ consider other causes!

Causes of Duodenal Villous Atrophy

- Celiac disease
- Tropical sprue
- Small intestinal bacterial overgrowth
- Autoimmune enteropathy
- Hypogammaglobulinemic sprue
- Drug-associated (olmesartan)
- Whipple's disease
- Collagenous sprue
- Crohn's disease
- Eosinophilic enteritis
- Intestinal lymphoma
- Intestinal tuberculosis
- Infectious enteritis (giardiasis)
- Graft vs host disease
- Malnutrition
- AIDS enteropathy

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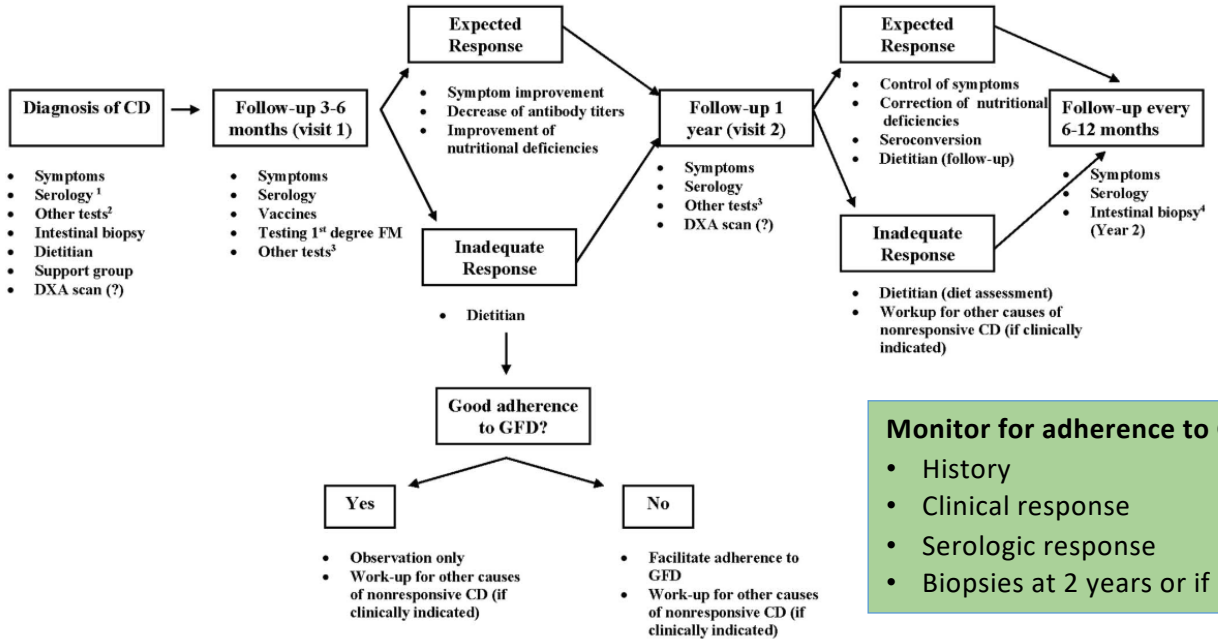
Management

- **Strict** adherence to **life-long** gluten-free diet (GFD)
  - Avoid all sources of wheat, barley, rye
  - Avoid inadvertent exposures (consider dedicated cooking utensils/vessels)
  - <10 mg daily of gluten unlikely to cause damage
- **All patients** should be offered initial **consultation with a dietician** after diagnosis for nutritional assessment and education
- **Gluten-free oats** ⇨ **generally safe**, but may require monitoring for tolerance
- Recommend **against** **gluten detection devices**, may not distinguish between significant and trivial gluten amounts
- **Probiotics** ⇨ **insufficient evidence** to recommend

Other Testing & Health Maintenance

- ✓ **Vitamins/minerals:** Iron studies, folic acid, copper, zinc, carotene, Vit A/D/E and B12 to evaluate and treat malabsorption
- ✓ Pneumococcal vaccination (PCV 20)
- ✓ DEXA to evaluate/screen for premature osteoporosis
- ✓ Routine vaccinations
- ✓ Offer testing to 1st degree relatives

Monitoring & Goals of Therapy



Monitor for adherence to GFD via:

- History
- Clinical response
- Serologic response
- Biopsies at 2 years or if lack of response

- **Endpoint of treatment** **Mucosal healing**
- Consider **intestinal biopsies ~2 years after diagnosis**, or in patients with lack of clinical response or recurrence of symptoms on a gluten-free diet
  - May see improved clinical symptoms and serologies w/i months on GFD, but up to 3 years for mucosal healing
  - ✗ mucosal healing despite negative serologies and improved symptoms in some patients
  - Lack of mucosal healing ⇨ ⇧ risk of lymphoproliferative malignancy
- If ✗ response on confirmed GFD after 6 – 12 months, work-up for **refractory celiac disease (RCD)**
  - See our separate RCD visual abstract for further details!)
  - May evaluate for enteropathy-associated T cell lymphoma

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