

# Esophageal Eosinophilia Associated with False Positive anti-tTG

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**Abstract:** *IgA-Tissue transglutaminase (tTG) is widely used as a screening tool for celiac disease. Multiple causes of false positive results has been reported including: IBD, lymphoma or certain infections. Eosinophilic esophagitis has not been reported in association with false positive tTG elevation. A retrospective review of 3 patients seen in the division of Gastroenterology in UBC from 2011-2015. These patients presenting with high tTG (at least 4 – up to 10 x ULN), and underwent endoscopy and biopsies to rule out celiac disease. Histology revealed normal duodenal mucosa (normal mucosa, villi and no infiltrative cells including lymphocytes) but only increased eosinophils in the esophagus. In follow up, all patients had significant symptomatic improvement and decreasing tTG while on a gluten-containing diet. Their tTG levels have continued to decrease for those who had it measured, and the symptoms had significantly improved. **Conclusion:** While the number in this series is small, esophageal eosinophilia has not been previously described as a cause for a false positive tTG*

**Keywords:** EoE, anti-tTG, celiac disease, esophageal eosinophilia, endoscopy

## 1. Background

IgA-Tissue transglutaminase (tTG) is widely used as a screening tool for celiac disease. Anti-tTG is described as both sensitive and specific; some guidelines recommend that in certain situations, biopsies to confirm celiac disease may be omitted (1). Cases of false positive tTG have been described in different conditions including infectious (e.g., giardia), immune (e.g., increased IgA or lymphoma), rheumatologic, chronic liver disease, and Crohn disease (2,3). Eosinophilic esophagitis has not been reported in association with false positive tTG elevation.

## 2. Methods and Results

A retrospective review of 3 patients seen in the division of Gastroenterology in UBC from 2011-2015. These patients presenting with high tTG (at least 4 – up to 10 x ULN), and underwent endoscopy and biopsies to rule out celiac disease. Histology revealed normal duodenal mucosa (normal mucosa, villi and no infiltrative cells including lymphocytes) but only increased eosinophils in the esophagus. In follow up, all patients had significant symptomatic improvement and decreasing tTG while on a gluten-containing diet. Repeat endoscopy was not performed. their tTG levels have continued to decrease for those who had it measured, and the symptoms had significantly improved.

Patient	Age / Background	Presenting symptoms	Initial Presentation			Follow up
			Initial tTG (ULN 20 units/ml)	Endoscopic Findings	Histology	
#1	6 y.o Female Non Atopic	Vomiting daily 4 – 5 x / day For 5 months No heartburn, dysphagia,	127, 117	Linear furrows / Plaques, Normal Duodenum	Normal Duodenum 30 / 50 / 20 esophageal eosinophils / hpf Stomach showed gastritis and mild eosinophilia Duodenum showed mild eosinophilia only	Two months after endoscopy vomiting had fully resolved (no intervention), tTg was 16 on full gluten containing diet
#2	9 y.o. Male eczema	Abdominal Pain x 4 months, worse with eating wheat	194	Linear furrows  Normal Duodenum	Normal Duodenum  40 / 26 / 23 esophageal eosinophils / hpf	Four months later, abdominal pain dramatically improved (initially tried PPI for few months then stopped ) tTG 27 on full gluten (and lower when rechecked x 4)
#3	11 y.o Female eczema Father with celiac	Abdominal Pain x 1 year No vomiting, heartburn or dysphagia	90	Linear furrows / Plaques, Normal Duodenum	Normal Duodenum  32 / 42 / 27 esophageal eosinophils / hpf	Trial of OVB x 3 months – no difference. 7 months later, off meds, on gluten, no further abdo pain No repeat tTG

### 3. Discussion

This is the first case series to describe false positive tTG with findings of esophageal eosinophilia. These patients were not put on PPI nor were the symptoms classic and were not subsequently labeled as Eosinophilic Esophagitis. While a relationship between active celiac disease and esophageal eosinophilia has been described in both children and adults (4,5), our 3 patients do not have histological evidence of celiac disease or coexistence of both conditions. An infectious etiology could be theorized for the above patients, given spontaneous resolution, however none had fever, infectious contacts, travel histories, diarrhea, recent antibiotic use, or an acute illness. It is unknown if gluten plays a role in the presentation of these patients, either as an inciting antigen for esophageal eosinophilia in patients with CD or it could be a cross reactivity. While the number in this series is small, esophageal eosinophilia has not been previously described as a cause for a false positive tTG.

### References

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