

## Upper GI endoscopic findings in celiac disease patients at the diagnostic biopsy. A multicenter international retrospective study.

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**Background:** Upper gastroduodenal endoscopy is widely regarded as the most feasible and effective method for obtaining duodenal biopsies when celiac disease (CeD) is suspected. In recent times, diagnosis of CeD just based on the very high predictive values of the specific serology has suggested avoiding duodenal biopsy. However, the proposal has not gained widespread acceptance and is not currently recommended for adults based on concerns about potential missed concomitant lesions. There is scanty evidence that patients with positive CeD serology have an increased risk for relevant coincidental diseases. **Aims:** We investigated the prevalence of upper GI endoscopic findings in CeD patients who underwent endoscopy for diagnostic biopsies. **Methods:** This descriptive multicenter study reports endoscopic findings from adult patients who met classical histological and serologic criteria for CeD. All endoscopic findings reported were obtained at the diagnostic endoscopy from four different specialized centers. While endoscopies collected by three centers (Salerno [It], Padua [It], and Hamilton [Ca] cohorts) were consecutive new cases with a CeD diagnosis, the Buenos Aires [Arg] cohort reported data from a series of consecutive patients who underwent duodenal biopsy for symptoms suggesting CeD blind to serology results. In this last cohort, CeD patients were compared to those subjects in whom CeD was ruled out. Diagnosis of CeD was based on histological findings ( $\geq$ Marsh 2 type), positive CeD serology, and/or response to the GFD. **Results:** A total of 1404 CeD cases were enrolled (80.2% females), and 95.7% had positive CeD-specific serology (Table 1). The Salerno center enrolled the most significant number of cases (70.8%), while the Buenos Aires cohort consisted of 100 CeD patients and 637 non-CeD controls (prevalence of CeD: 13.7%) (Table 2). Endoscopies detected 178 different abnormalities in 155 CeD cases (prevalence of cases with concomitant lesions: 11.0%). The Ontario cohort detected the highest number of endoscopic lesions. The most common findings were reflux esophagitis with erosions (6.9%), gastric erosions (1.9%), and suspicion of esophageal metaplasia (1.1%). No cases of malignancies were detected in the cohorts. Patients under 51 yrs. had a significantly lower rate of endoscopic lesions compared to those older ( $p < 0.001$ ) (Table 2). In the Buenos Aires cohort, patients

with CeD had a significantly lower endoscopic findings rate than non/CeD controls (8% vs. 29.5%,  $p < 0.001$ , respectively). Non-CeD controls had a significantly higher prevalence of gastric erosions ( $p < 0.001$ ). **Conclusions:** This large multicenter study suggests that adult patients with positive CeD serology rarely have relevant concomitant upper GI lesions at diagnostic endoscopy.

**Table 1:** Demography, CeD serology, and endoscopic findings by cohorts and the overall population.

<b>Demographic data and Upper GI endoscopic findings In CeD patients</b>	<b>Salerno cohort</b>	<b>Buenos Aires cohort</b>	<b>McMaster cohort</b>	<b>Padua cohort</b>	<b>Overall CeD population</b>
Total population, n (%)	994 (81)	100 (91)	176 (73)	134 (75)	1404
Age, Median (25% IQR) yr.	35 (18-83)	34.5 (26.5-45.5)	39 (27-75)	35 (23-46)	35 (26-44)
Number of females (%)	803 (80.8)	91 (91)	132 (73)	100 (74.6)	1126 (80.2)
Patients with positive serology n (%)	959 (96.2)	100 (100)	154 (87.5)	130 (97.0)	1343 (95.7)
Patients with at least one significant endoscopic abnormality n (%)	90 (9.1)	8 (8)	53 (30)	4 (3)	155 (11.0)
Reflux esophagitis with erosions n (%)	78 (7.8)	1 (1)	18 (10.0)	0	97 (6.9)
Esophageal ulcers n (%)	3 (0.2)	0	1 (1)	0	4 (0.3)
Esophageal malignancy n (%)	0	0	0	0	0
Suspicion of esophageal metaplasia n (%)	3 (0.3)	0	14 (8)	0	17 (1.2)
Confirmed Barrett esophagus n (%)	3 (0.3)	0	2 (1.1)	0	5 (0.4)
Gastric erosions n (%)	0	7 (7.0)	16 (9.0)	4 (3.0)	27 (1.9)
Gastric ulcers n (%)	2 (0.2)	0	0	0	2 (0.1)
Gastric malignancy n (%)	0	0	0	0	0
Duodenal erosions n (%)	0	0	15 (8)	0	15 (1.1)
Duodenal ulcers n (%)	9 (0.9)	1 (1.0)	6 (3.4)	0	16 (1.1)
Duodenal malignancy n (%)	0	0	0	0	0

**Table 2:** Demography, CeD serology, and endoscopic findings of the overall population and by the age of diagnosis.

<b>Demographic data and Upper GI endoscopic findings</b>	Overall population	< 51 years	51-60 years	>61 years
N total population	1404	1201 (85.5)	120 (8.6)	83 (5.9)
Age (median and 25% IQR)	35 (26-44)	33 (24-41)	55 (53-47)	67 (63-72)
Number of female cases (%)	1343(95.7)	1012 (84.3)	78 (65)	34 (40.9)
Patients with positive serology n (%)	1343(95.7)	1151 (95.8)	113 (94.2)	74 (89.1)
Patients with at least one significant endoscopic abnormality n (%)	155 (11.0)	116 (9.7)	23 (19.2)	16 (18.8)
Reflux esophagitis with erosions n (%)	97 (6.9)	75 (6.2)	15 (12.5)	7 (8.1)
Esophageal ulcers n (%)	4 (0.3)	3 (0.2)	0	1 (1.2)
Esophageal cancer n (%)	0	0	0	0
Suspicion of metaplasia n (%)	17 (1.2)	11 (0.9)	3 (2.5)	3 (3.8)
Barrett esophagus	5 (0.4)	4 (0.3)	0	1 (1.2)
Gastric erosions n (%)	27 (1.9)	20 (1.7)	4 (3.3)	3 (3.6)
Gastric ulcers n n (%)	2 (0.1)	2 (0.2)	0	0
Gastric neoplasia n (%)	0	0	0	0
Duodenal erosions n (%)	15 (1.1)	8 (0.7)	2 (1.7)	5 (6.4)

Duodenal ulcers n (%)	16 (1.1)	10 (0.8)	4 (3.3)	2 (2.6)
Duodenal neoplasia n (%)	0	0	0	0