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The Correlation between Endoscopy Manifestations and Pathology Outcome for Diagnosis of Celiac Disease

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Abstract *Background*: Celiac disease (CD) is one of the most common genetically based disease. Histological confirmation of the characteristic small bowel changes is currently considered the gold standard to establish diagnosis of CD in patients with positive antibody testing. The aim of this study is to determine the correlation between endoscopy manifestations and pathology outcome for diagnosis of CD. *Materials & Methods*: A total of 295 consecutive patients who were referred to our endoscopy section from March 2015 through March 2016 were enrolled into the study. All patients were underwent endoscopy, 4 biopsies were taken and their results were compared with pathology features. The relationship between age, sex, and pathology features and endoscopy manifestations were evaluated. *Results*: The mean age of the subjects was 46.7±15.5 years of which 147(49.8%) were female, and 148(50.2%) were male. No statistically significant correlation was showed between the age and gender with pathology features and endoscopy manifestations ($p<0.05$). Most patients with Marsh 1 and 2 had a normal endoscopy. CD was confirmed by serology in 3 cases (1%) with Marsh III. We did not observe significant correlation between endoscopy results and pathology features (P=0.674). *Conclusions*: Our data showed that endoscopy results are not specific for CD diagnosis, and biopsy should be collected in patients with suggested symptoms associated with the disease and regardless to endoscopic features.

Keywords: *pathology, endoscopy, Celiac disease*

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1. Introduction

Celiac disease (CD) is a lifelong digestive autoimmune disorder against dietary gluten protein in genetically predisposed people with increasing prevalence of 0.5-2% in the general population around the world [1,2].

The disease is characterized by infiltration of intra epithelial lymphocytes, crypt hyperplasia result in villous atrophy. Various gastrointestinal (GI) symptoms such as diarrhea, bloating, dyspepsia, nausea and vomiting and extra-GI manifestations including weight loss, headache, edema and osteoporosis are presented in CD patients but atypical symptoms are more prevalent [2,3,4,5,6]. The only approved current treatment is lifelong gluten-free diet.

CD diagnosis is based on serologic tests endoscopic findings, and pathologic features and histological results according to the Marsh classification are essentials for the diagnosis of the CD in adults [7,8,9,10]. Although in the preliminary surveys, endoscopic findings was considered as predictors of CD but there are still no confidences about the value of endoscopic features [9].

In this study, we aimed to find a correlation between endoscopy and histology features in the Iranian race in order to reach the most high-accurate and cost effective diagnosis of CD.

2. Materials and Methods

This study was carried out on 295 patients who were referred to the Taleghani hospital upper endoscopy unit during the period of March 2015 to March 2016.

All the patients were underwent upper gastrointestinal (GI) endoscopy. Endoscopy manifestations consists of normal mocusa, total villous atrophy, partial villous atrophy, visible sub mucosal vessels, reduction or absence of mucosal folds, scalloping folds, mucosal nodularity, and mucosal fissures was collected.

Four biopsies were taken from the second portion of the duodenum, oriented on filter paper, fixed overnight in

buffered formalin, embedded in paraffin, cut to 3-µm thickness, and stained with hematoxylin-eosin for routine histological evaluation. The H&E slides were reviewed by expert pathologists according to the Marsh classification; Marsh I: increased number of IELs with normal mucosa architecture; Marsh II: proliferation of the crypts and increased number of IELs; Marsh III: destructive lesion include partial or complete villous atrophy and crypt hypertrophy with increased number of IELs. Those with pathology feature evaluated by serological test (anti-tTG IgA and total IgA) for CD confirmation.

2.1. Statistical Analysis

Data were analyzed using SPSS version 18.0 (SPSS Incorp. Chicago, IL). To assess the correlations between investigated variables, chi-square tests was used. Also descriptive analysis was performed for each variable. The p-value< 0.050 is considered significant.

3. Results

295 patients with mean age of 46.7±15.5 years including 147(49.8%) female, and 148(50.2%) male were investigated. No statistically significant correlation was showed between the age and gender with pathology features and endoscopy manifestations (p>0.05).

The most prevalent endoscopic finding of the duodenum in the study population was normal mucosa in 202 cases (68.5%) followed by duodenitis in 38 cases (12.9%), erythematous in 12 cases (4%) and scalloping of folds in 9 cases (3%) (Table 1). In the pathology survey, villous atrophy was reported in 22 cases (7.4%) and endoscopic features in these patients were including mucusal nodularity 3(13.6%), Scalloping of folds 9(41 %), Mucosal snow skin 2 (9 %), Mucosal villous atrophy 8(36.4%).

Table 1. Endoscopic feature in investigated patients

Variables	Number	percent
Atrophy	8	1.4
Congestion	8	1.4
Duodenitis	38	6.6
Erosion	5	0.9
Erythromatous	12	2.1
Normal	202	34.89
Nodularity	3	0.5
polyp	3	0.5
Scalloping	9	1.6
Ulcer	5	0.9

The duodenal pathologic features according to Marsh classification were showed Marsh I in 4(0.7%) and Marsh II in 13(2.3%), and Marsh III in 3(0.5%) cases. All patients with Marsh 1 and 2 and 2 cases with Marsh III had a normal mucosa in endoscopy. CD was confirmed in 3 patients with Marsh III by serological tests (1%). We did not observe a significant correlation between endoscopy results and pathology features (P=0.674).

4. Discussion

CD is defined as a chronic, immune-mediated enteropathy of the small intestine, caused by exposure to dietary gluten in genetically predisposed individuals [11]. Although very sensitive serological assays have been developed, small intestine biopsy is still the gold standard for CD diagnosis. In cases with clinical suspicious, serological tests are the first step in CD assessment and in subjects with a positive serological tests, duodenal biopsy is strongly recommended [12].

Many studies have revealed the importance of the duodenal mucosa endoscopy manifestation in CD diagnosis, which mostly included: (a) mosaic pattern like micronodularity; (b) visible submucosal vessels; (c) scalloping of folds; (d) reduction or absence of duodenal folds, and (e) mucosal grooves and fissures [13,14].

In the present study, although 22 cases (7.4%) were initially classified by endoscopy as villous atrophy with emphasis on visible submucosal vessels and reduction or absence of mucosal folds, the pathology reported that 202 (68.5%) of cases were with normal endoscopic appearance of the duodenal mucosa.

Rosa et al, in 2014 investigated the correlation between endoscopic and histological features in adults with suspected CD in a referral center of Minas Gerais, Brazil [15]. They reported the endoscopic aspects and histological features of 80 adult patients with CD. The result of their study showed that endoscopic features has been in correlation with the duodenal villous atrophy in 32 (40%) CD patients. In contrast to our findings the authors concluded that the endoscopic markers, had supported to collect a duodenal biopsies for possible diagnosis of CD in suspicion patients.

Oxentenko et al. [16] have presented that as endoscopic features alone has low sensitivity to diagnosis of CD in patients with atypical presentation, in patients with clinically and/or laboratorically suspicion, small bowel biopsies should be made, irrespective to endoscopic modifications [16,17]. In cases of total villous atrophy, endoscopic findings has high diagnostic accuracy and our results support this and showed that all patients with Marsh III in this study were identified as CD.

In symptomatic and/or suspicion individuals, collecting adequate number of biopsies (If possible between four to six from second and/or third part of the duodenum, and at least one from the duodenal bulb) would have the potential to confirm the histological diagnosis in cases of CD [18,19]. The correlation between clinical, serological and endoscopic data with histopathological findings is always required in the diagnosis of CD.

5. Conclusion

Our data confirmed that when there is clear marks of villous atrophy, the endoscopy feature is more effective but in cases with less intense changes, endoscopy results are not specific for CD diagnosis, and biopsy should be collected in patients with suggested symptoms associated with the disease.

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References

[1] Dewar DH, Ciclitira PJ. Clinical features and diagnosis of celiac disease. Gastroenterology. 2005; 128 (4 suppl 1): S19-S24.

[2] Marsh MN, Crowe PT. Morphology of the mucosal lesion in gluten sensitivity. Baillieres Clin Gastroenterol. 1995; 9: 273-293.

[3] Rostami Nejad M, Rostami K, Yamaoka Y, Mashayekhi R, Molaei M, Dabiri H, et al. Clinical and histological presentation of Helicobacter pylori and gluten related gastroenteropathy. Arch Iran Med. 2011;14(2):115-8.

[4] Rostom A, Dube C, Cranney A, Saloojee N, Sy R, Garritty C. The diagnostic accuracy of serologic tests for celiac disease: a systematic review. Gastroenterology. 2005; 128(4 suppl 1): S38-S46.

[5] Khoshbaten M, Rostami Nejad M, Farzady L, Sharifi N, Hashemi SH, Rostami K. Fertility disorder associated with celiac disease in males and females: fact or fiction? J Obstet Gynaecol Res. 2011 Oct; 37(10):1308-12.

[6] Ehsani-Ardakani MJ, Rostami Nejad M, Villanacci V, Volta U, Manenti S, Caio G, et al. Gastrointestinal and non-gastrointestinal presentation in patients with celiac disease. Arch Iran Med. 2013 Feb;16(2):78-82 .

[7] Rostami K, Malekzadeh R, Shahbazkhani B, Akbari MR, Catassi C. Coeliac disease in Middle Eastern countries: A challenge for the evolutionary history of this complex disorder? Dig Liver Dis. 2004; 36: 694-697.

[8] Akbari MR, Mohammadkhani A, Fakheri H, Javad Zahedi M, Shahbazkhani B, Nouraie M, et al. Screening of the adult population in Iran for celiac disease: Comparison of the tissue-transglutaminase antibody and anti-endomysial antibody tests. Eur J Gastroenterol Hepatol. 2006; 18: 1181-1186.

[9] Maurino E, Capizzano H, Niveloni S et al. Value of endoscopic markers in celiac disease. Dig Dis Sci 1993; 38: 2028-2033.

[10] Ferguson A, Murry D. Quantitation of intraepithelial lymphocytes in human jejunum. Gut. 1971; 12: 988-994.

[11] Ludvigsson JF, Leffler DA, Bai JC et al. The Oslo definitions for coeliac disease and related terms. Gut 2013;62:43-52.

[12] National Institutes of Health Consensus Development Conference Statement on Celiac Disease,. Gastroenterology 2005;128(4 Suppl 1): S1-9.

[13] Cammarota G, Fedeli P, Gasbarrini A. Emerging technologies in upper gastrointestinal endoscopy and celiac disease. Nat Clin Pract Gastroenterol Hepatol. 2009;6:47-56.

[14] Dickey W, McMillan SA. Increasing numbers at a specialist coeliac clinic: contribution of serological testing in primary care. Dig Liver Dis. 2005;37:928-33.

[15] Rosa RM, Ferrari Mde L, Pedrosa MS, Ribeiro GM, Brasileiro-Filho G, Cunha AS. Correlation of endoscopic and histological features in adults with suspected celiac disease in a referral center of Minas Gerais, Brazil. Arq Gastroenterol. 2014;51(4):290-6.

[16] Cammarota G, Fedeli P, Gasbarrini A. Emerging technologies in upper gastrointestinal endoscopy and celiac disease. Nat Clin Pract Gastroenterol Hepatol. 2009;6:47-56.

[17] Dickey W. Endoscopic markers for celiac disease. Nat Clin Pract Gastroenterol Hepatol. 2006;3:546-51.

[18] Cammarota G, Cesaro P, Martino A, Zuccalà G, Cianci R, Nista E, et al. High accuracy and cost-effectiveness of a biopsy-avoiding endoscopic approach in diagnosing coeliac disease. Aliment Pharmacol Ther. 2006;23:61-9.

[19] Rostami-Nejad M, Villanacci V, Hogg-Kollars S, Volta U, Manenti S, Zali MR, et al. Endoscopic and histological pitfalls in the diagnosis of celiac disease: A multicentre study assessing the current practice. Rev Esp Enferm Dig. 2013;105(6):326-33.