

## Multiple Autoimmune Diseases: Celiac Disease, Autoimmune Hypothyroidism, Diabetes Mellitus, Addison's disease in Lady 14 Years Old

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### ABSTRACT

Multiple autoimmune diseases are rare to see in a single patient. The concept of three autoimmune diseases or more in a single patient defined as multiple autoimmune syndrome (MAS). We describe a case of a young woman with a clinical diagnosis of celiac disease (CD), autoimmune hemolytic anemia, diabetes mellitus, Hashimoto's thyroiditis, Addison disease and primary ovarian failure.

**Key words:** Multiple Autoimmune Diseases, Celiac Disease, Autoimmune Hypothyroidism, Type1 Diabetes Mellitus, Addison's Disease.

### INTRODUCTION

Celiac disease (CD) is an autoimmune disorders that related to detect the other autoimmune disorders in human body and the prevalence estimated about ~1%.<sup>1</sup> In fact The prevalence of other autoimmune diseases increased up to 15% with celiac disease.<sup>2</sup> The prevalence of autoimmune thyroid disorders, and type1 diabetes mellitus (T1D) has been widely reported increased with celiac disease.<sup>3</sup> The combination of at least three autoimmune diseases in single patient has been defined as multiple autoimmune syndrome (MAS).<sup>4,5</sup> The diagnosis of autoimmune disorders usually presented with a history of another autoimmune disease in 25% of the population and the duration of the first manifestation to occur based on: genetic predisposition, shared pathogenic mechanisms, and others are of unknown nature.<sup>6,7</sup>

### CASE REPORT

A 14 year old female patients a known case of uncontrollable type1 diabetes at age of 2 year firstly discovered in Al-Azizia center for the pediatric Diabetes but she doing well under basal bolus insulin pump therapy in addition to control her diet with follow up the dietician, during the routinely investigations she diagnosed with Autoimmune hypothyroidism ended with taken thyroxin 75micro/day except on Friday\Saturday she takes 100micro/. At age of 3 year she noticed by weight loss, abdominal distention, Generalized symmetrical in both extremities no associated with itching or rash, no abdominal pain. Regarding to the results of upper endoscopy findings showed Diffuse mildly erythematous mucosa without bleeding was found in the stomach Scalloped mucosa was found in the 2<sup>nd</sup> part of the

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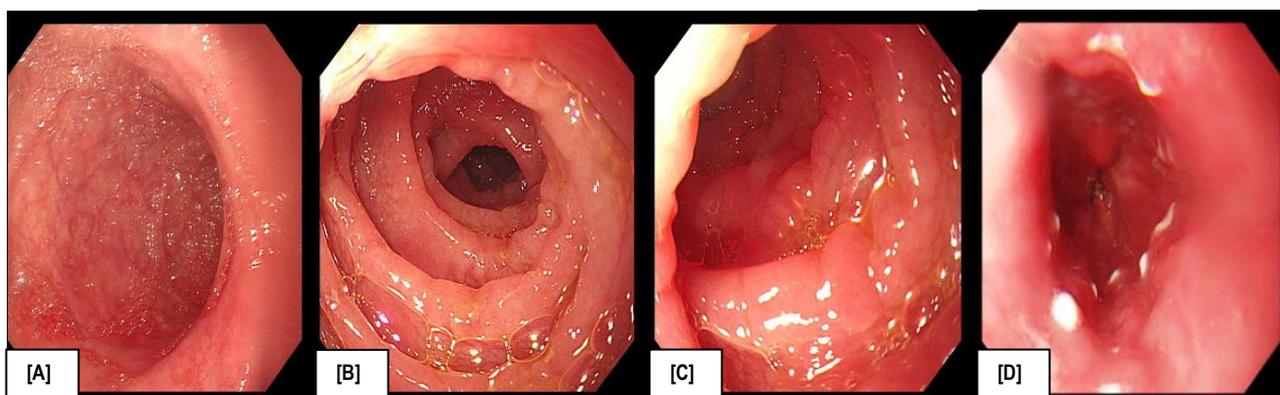
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duodenum.(figure1) Biopsies were taken with a cold forceps for histology. Finally, she diagnosed with Celiac disease and she treated these symptoms by gluten free diet with regular follow up the tissue transglutaminase, after one year later she diagnosed with autoimmune hemolytic anemia at KAUH presented as obvious skin pallor with no jaundice, lethargy and Dizziness most of the time. She was resentence to steroid treatment even with the large dose so then, transferred to take Rituximab 4 injections, IVIG and PRBCS several times with regular folic acid 5mg\daily. During the age of 8 years, her mother noticed that all the secondary sexual characters were absent. Then, she treated symptomatically as a case of primary ovarian failure with exogenous estrogen\ progesterone. Until now, the results of the last Tunner staging she developed of stage 1 in breast developing But she is on stage 0 in pubic hair growth. Addison disease. She suffered with chronic respiratory infections controlled and doing well with antibiotics Corse and being worse when the course is ended .before 5 years, she diagnosed with multiple left lung cysts once the time of admission in Emergency departments as symptoms of multiple sever life- threatening respiratory infections admitted as an elective case for left lung cyst resection. After the surgery was done the patient tolerated and improved she is on chest tube with thoracic drainage removed before the time of discharge. At presentation, patient looks well, oriented she had an SBP of 136/82 mmHg, Temp (38)C , puls rate (82) and O<sub>2</sub> saturation 98%. He had a bilateral lower zone crepitation with decrease air entry in the left lower zone. Abdomen was Soft and lax without any signs of organomegaly.



[A]: Duodenal Bulb: Duodenal mucosal changes seen, diagnostic of celiac disease. Biopsied.  
 [B] & [C]: 2nd Portion of the Duodenum  
 [D]: Candidiasis Esophagitis

Figure 1: Upper endoscopy findings

Table 1: Investigations

THYROID FUNCTION TEST	Initially	Finally
TSH	11.11	0.812
Free T3	3.56	3.56
Free T4	10.93	20.00
Thyroid peroxidase Antibody	0.48	-
Thyroid thyroglobulin antibody	0.97	-
COMPLETE BLOOD COUNT		
WbC	15.63× 10 <sup>9</sup> /L	9.6× 10 <sup>9</sup> /L
Hgb	7.3	11.2
McV	60.6	64.8
Mch	19.2	19.00
Direct comb test	+ve	+ve
Hemoglobin A1c	9.2	5.8
IGA	0.26	0.26
Follicle-stimulating hormone (FSH)	4.5	0.2
Luteinizing hormone (LH)	1.04	0.2
Estriadol hormone	59.39	99
25 hydroxyvitamin D (25OHD)	20	73.16
Lactate dehydrogenase (LDH)	299	240
Albumin	31	30
Venus blood gas		
PCO2	4.21	6.1
PO2	4.87	5.24
cHco3	23.8	26.9
Tissue Transglutaminase	4.4	1
Anti-DeamidatedGliadin	123	70.5

**IMPRESSION**

- LA Grade A candidiasis esophagitis. No specimens collected.
- Erythematous mucosa in the stomach. Biopsied.
- Duodenal mucosal changes seen, diagnostic of celiac disease. Biopsied.

**FINDINGS**

- LA Grade A (one or more mucosal breaks less than 5 mm, not extending between tops of 2 mucosal folds) esophagitis with no bleeding was found. No biopsies or other specimens were collected for this exam.

- Diffuse mildly erythematous mucosa without bleeding was found in the stomach. Biopsies were taken with a cold forceps for Helicobacter pylori testing using CLOtest.
- Scalloped mucosa was found in the 2nd part of the duodenum. Biopsies were taken with a cold forceps for histology.

**DISCUSSION**

A patient with one autoimmune disease has 25 % chance to get another autoimmune disease.<sup>8</sup> The patients who already diagnosed with autoimmune thyroid disease (Grave's disease and Hashimoto's thyroiditis) have a higher rate to develop the manifestations of celiac disease by 2% to 7%<sup>9-12</sup> and easy to go to thyroid disease in compared to the normal people. Similar concept, opposite study was done and found up to 26%. Celiac disease patients have positive serological signs of autoimmune thyroid disease, up to 10% have an abnormal reading of thyroid function test susceptible to have thyroid dysfunction.<sup>9,12-15</sup> Much of studies display that the celiac diseases patients have the a risk to thyroid dysfunction is threefold higher than the control cases. The prevalence of thyroid diseases in CD patients up to 10 %.<sup>16</sup> On the other hand, patients with autoimmune thyroid disease have high risk to develop CD with a prevalence ranging from 1.2 to 9.3 %.<sup>16-18</sup> Reciprocally, the relation between Addison's disease and celiac patients is within the increase pattern, it has been assured.<sup>19</sup> Also, the association between type 1 diabetes mellitus and celiac disease has been generally recognized for several years.<sup>20</sup> The prevalence for patients who have diabetes type 1 to developed Celiac disease is increasing up to 2-8% because there is a special immunologic markers for celiac disease more specific to occur in large number of diabetic patients type 1 Regardless to the age, that why the screening for celiac disease is done usually at the time of diagnosis of diabetes.<sup>21,22</sup>

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