

More Than Celiac Disease - Five Gluten-induced Pathologies

Maria Lucia Sur^{1,2}, Mariana Pascal¹, Remus Gaga^{1,2,*}

¹Department of Pediatrics, Iuliu Hatieganu University of Medicine and Pharmacy Cluj-Napoca, Romania

²nd Pediatric Clinic, Emergency Clinical Hospital for Children Cluj-Napoca, Romania

*Corresponding author: remusgaga@gmail.com

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Abstract Gluten can induce several conditions. However, a lot of people and even medical practitioners only associate gluten pathology with its most severe form neglecting other pathologies. In addition to this, clinical manifestations of celiac disease are not always classic and for this reason, many cases are diagnosed late, being characterized by intricate symptoms that can be attributed to other conditions. In the present study, we try to bring a systematization of the five major gluten-induced manifestations: celiac disease, non-celiac gluten sensitivity, wheat allergy, gluten ataxia, and dermatitis herpetiformis.

Keywords: *gluten, five induced pathologies, systematization*

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1. Introduction

Bread wheat (*Triticum aestivum* L.) is an allohexaploid species originating from the Fertile Crescent thousands of years ago [1]. This wheat, originally a wild form has undergone genetic changes reaching its current-day cultivated form. Cereal gluten proteins of wheat (gliadins and glutenins), barley (hordeins) and rye (secalins) are responsible for the autoimmune reactions in our bodies. Immunopathological evidence suggests the involvement of gluten-specific CD4 T cells in the pathogenesis of the celiac disease (CD). These cells react with the intestinal epithelium leading to a malabsorption syndrome [2]. Wheat-derived proteins play an essential role in inducing these autoimmune phenomena.

Although these mechanisms are almost exclusively associated with CD, the gastroenterologist, the pediatrician and the general practitioner need to pay attention to different diseases caused by gluten.

2. Gluten-induced Pathologies

Gluten, respectively gluten peptides can induce several pathologies [3]. It is currently considered that approximately 70% of patients do not have the typical intestinal manifestations of CD. Thus, the disease can be difficult to diagnose and one who attempts to treat CD or wheat allergy in adults and in pediatric patients needs to have the big picture of the five possible etiologies.

2.1. Celiac Disease

CD is an important cause for the appearance of malabsorption syndromes and also a disease that influences stature and weight gain [4]. The symptoms of CD can appear under different masks, so the diagnosis is difficult. The autoimmune process is located in the small intestine where antibodies attack the intestinal epithelium eventually leading to malabsorption syndrome. From the point of view of clinical manifestations, there is the classic type of CD, non-classical, subclinical and potentially CD. The clinical manifestations of the classic type consist of the chronic diarrheal syndrome and deficiency syndrome. The other forms, subclinical and potentially CD are often interchangeable with the other subcategories [5].

2.2. Non-Celiac Gluten Sensitivity (NCGS)

Non-celiac gluten sensitivity (NCGS) represents a heterogeneous group characterized by different etiologies and evolution. This term describes individuals who are not affected by CD or wheat allergy, yet they have intestinal or extra-intestinal symptoms related to gluten intake [6]. An improvement of their symptoms upon withdrawing gluten from their diet has been observed. There also appears to be an overlap between NCGS and other syndromes associated with inflammation and gastrointestinal symptoms with abdominal pain and flatulence. There is a strong demand for establishing strict criteria for diagnosing NCGS.

2.3. Wheat Allergy

Wheat allergy (WA) is an immune manifestation triggered by an immunoglobulin E. At the clinical exam, there are manifestations of moderately/ severe atopic dermatitis. Other clinical manifestations can include angioedema, urticaria, respiratory obstruction and anaphylactic shock [7]. Along with dietary avoidance, nowadays oral immunotherapy has been proposed for wheat allergy with promising results.

2.4. Gluten Ataxia

Gluten ataxia (GA) is one of the most frequent neurological manifestations of gluten-related disorders. However, it is a rare and often forgotten disease. It was originally characterized as idiopathic ataxia in the presence of circulating antigliadin antibodies of IgA and/or IgG type [8]. Some clinical features of this ataxia include upper or lower limb ataxia, gait ataxia, and dysarthria. A favorable outcome has been recorded after a gluten-free diet.

2.5. Dermatitis Herpetiformis

Dermatitis herpetiformis (DH), also known as Duhring's disease, is a chronic skin condition caused by an immune reaction to gluten intake. The polymorphic lesions may be diffused or grouped and consist in: erythema, urticarial plaques, papules, vesiculae and blisters. IgA antibodies deposits found by direct immunofluorescence can be found in DH but are not specific [9]. Therefore, diagnosis is confirmed by anti-endomysium antibodies. Treatment for DH is a gluten-free diet (life-long) which resolves the clinical aspect and offers a good prognosis and outcome [10].

3. Conclusion

Gluten-induced pathologies can be a difficult challenge for the doctor. A good systematization of the disease, as well as its major five variants, can shed light on the diagnosis process and outcome of the disease.

Statements

There are no conflicts of interest to declare.

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