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Gluten-sensitive enteropathy

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Abstract

Gluten sensitive enteropathy also known as Celiac disease, an autoimmune disorder which occurs in the presence of HLA DQ2 & HLA DQ8 gene in genetically susceptible individuals. Homoeopathy can direct the treatment constitutionally and therapeutically. Gliadin a derivative of gluten is modified by TTG which is seen as an antigen to the Antigen presenting cells. The enteropathy can also lead to failure to thrive.

Keywords: Gluten, tTG, abdominal pain, diarrhoea and homoeopathy

Introduction

An autoimmune disorder of the proximal jejunum causing inflammation. In genetically susceptible individuals' eating gluten damages the villi of small intestine causing malabsorption of food [1].

Bone metabolism is related to celiac affliction. The root causes of rickets and osteoporosis began at the early stage of life. These children have suffered from intolerance to cow's milk. In 1888, Samuel Gee, an English pediatrician first described celiac disease [2].

The disease is prevalent worldwide.

Prevalence of CD in European population higher, i.e., 1:100

In South America CD is a rare disorder but higher in African populations.

In Australia & New Zealand prevalence of HLA DQ2 gene is more as consumption of wheat is more.

In Asia, countries like Indonesia, Korea, Philippines, CD is rare because of their low wheat consumption.

In India, in Northern states frequency of CD is more than Southern states [3].

Type 1 diabetes, Down syndrome, turner syndrome and Monozygotic twins, first degree relatives, females and children are more prone to get celiac disease than males.

Gluten is found in Barley, rye, oat, and wheat [1].

Table 1: Shows intensity of celiac disease triggered by the environment [4]

Damaged intestinal villi	Symptomatic celiac disease
	Silent celiac disease
Natural intestinal villi	Latent celiac disease

Pathophysiology

After consuming gluten, enterocytes present in the basement membrane of mucosal layer of SI divide Gluten into *Glutenin* and *Gliadin*.

Glutenin form the elasticity of the dough while Gliadin form the fluffiness of the dough.

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In normal healthy individual enterocytes are tightly packed and enterocyte further breakdown gliadin into small peptide. Gliadin breakdown into amino acids and transferred through blood to the body.

In celiac disease cells in the small intestine are loosely packed and gliadin enters the LAMINA PROPRIA layer of SI where WBCs are present. Tissue transglutaminase (tTG) enzyme is present in Lamina propria which will modify the structure of Gliadin. Antigen presenting cells (macrophages and dendrites) will engulf the gliadin, as they will think it as

an antigen. T_H cells will recognize the antigen and will generate the pro-inflammatory cytokines which will cause high temperature. This happen due presence of HLA DQ2 & HLA DQ8 gene. Chemical signaling will be send by the T_H to immature B lymphocytes to bind with the antigen. B lymphocytes will become mature plasma cells and will form antigliadin antibodies which will promote inflammation [1].

Clinical manifestation

Recurrent inflammation will cause → Abdominal pain

- → Damage the mucosal lining of SI



Atrophy of villi (Decrease bowel surface will lead to)

- Lactose intolerance
- No absorption will take place [Folic acid, Iron & Calcium (FIC)] Vitamin A, C, D & K

Which will cause -

- Diarrhoea
- Steatorrhoea
- Decrease memory, understanding and intelligence (deficiency of Folic acid)
- Anemia (deficiency of iron)
- Osteoporosis (deficiency of calcium)
- Short stature
- Rickets
- Delayed puberty
- Clubbing
- Failure to thrive [1]

Investigations

Serology: TTG-IgA - IgA antibody against tissue transglutaminase

Normal value – < 15 AU/ml

TTG-IgA is increased in celiac disease.

Histology

(By biopsy) Increased intraepithelial lymphocytes [30-100 enterocytes (normal enterocytes in intestinal lining)]. Increased crypt length is seen.

Partial or total villous atrophy.

Plasma cells and lymphocytes in lamina propria [1].

Treatment

Lifelong GFD, the only effective treatment available for CD individuals.

According to United States Food and Drug Administration Iron, vitamin, calcium & Folic acid supplementation, the threshold of gluten ingestion must be lower than 50 mg/dl [3].

After initiation of GFD, all symptoms should subside, weight and height gain should present [1].

Homoeopathic remedies

Therapeutics

Silica: Pain in abdomen which is better by external heat. Diarrhea is of cadaverous order.

Worse in morning and feels better by wrapping the head.

Calcarean phosphoric: Colicky pain in abdomen on eating and burning sensation around the navel. Worse in damp or cold weather and better in summer days.

Kali carbonium: The patient has an increase desire for sweets. Food seems to be disgust. Child never wants to be left alone.

All complaints become worse at morning around 3 O'clock.

Thuja occidentalis: Flatulence and distension in the abdomen. Abdomen protrudes at different sites.

Calcarea carbonica: Child cannot bear tight clothing or belt around the waist. Cutting pain abdomen due to swollen mesenteric glands [5].

Sulphur: Tenesmus and Gripping pain in abdomen. Diarrhea in the morning which drives the patient out of bed in great hurry. Worse at 5 a.m.

Arsenic album: Mesenteric glands are indurated and swelled. Abdominal pain is always accompanied by vomiting and diarrhea. Flatulence is very putrid. Worse at midnight. Better by warm application.

Natrum sulph: Involuntary, loose, yellow, and watery stools which comes out while passing flatus and aggravate after a wet weather. Feels better in dry weather.

Pulsatilla: Abdomen is hard and distended. Evening colic and diarrhea after eating or drinking which is ameliorated on squeezing the abdomen. The patient is thirstless.

Colocynth: After anger there is violent colic and patient feels as if the intestines are squeezed between two stones and feels better by bending double.

Natrum Mur: There is abdominal colic accompanied with nausea which is ameliorated by discharge of flatulence. Sweating on face during a meal.

Byronian: After drinking milk there is cramp like pain in the abdomen with diarrhea.

Psorinum: Cutting pain in the abdomen which is ameliorated by passing of profuse offensive flatus. Diarrhea occurs four times a day and it is green in color.

Formica rufa: After taking meal there is desire of passing more and more loose stools ^[6].

Constitutional remedies

Phosphorus: Sharp and cutting pain he abdomen. Diarrhea makes the patient debilitating.

Worse when weather changes and better by eating cold food [5]

There is a melancholy temperament with violent weeping. Mental exertion makes the physical symptoms worse. Vomiting after drinking cold water.

Tuberculum: The patient has aversion to all kinds of labor. Slightest exertion makes him extreme fatigue. Very sensitive to music and do not like to be disturbed by others. Abdominal colic with great thirst. Diarrhoea with pinching and burning pains in the rectum.

Lycopodium: A mischievous person who believes in there is no eternal salvation for him. Very obstinate and cannot overbear good conduct. Bloated abdomen immediately after a light meal. Stool is hard, difficult to pass. Aggravation occurs between 4-8 p.m. Warm dinks makes him better.

Nux vomica: A peevish, hypochondriac and a person of sedentary habits whose all abdominal sufferings start at night. Always fight and scold others. Labor like pain abdomen which is worse in open air and extending to the leg with a sensation that diarrhea will appear.

China: The patient has a disposition to other people feelings and always feel that he is unfortunate. Crampy and colicky

pain in the abdomen. There is involuntary diarrhoea which is worse at night after taking meal. Discharge of mucus with faces which gives him great weakness.

Abrotanum: Very cruel child and no humanity with wasting of the lower extremities and distended abdomen. Offensive and large vomiting ^[6].

Conclusion

Gluten-sensitive enteropathy which is also known as Celiac disease which mainly affect the proximal ileum in the presence of HLA DQ2 & HLA DQ8 gene. Lifelong GFD is advised for the patient. As Homoeopathic medicines acts on gene level can heal or subside the symptoms of CD. After completing the treatment with Homoeopathy Gluten diet can also be taken and weight and height gain will be marked.

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