The Royal College of Pathologists
Pathology: the science behind the cure

Coeliac Disease:
Symptoms, Testing, Diagnosis, Treatment

It is estimated that coeliac disease, or gluten sensitive enteropathy, occurs in around 1 in 150 people in the UK, many of whom remain undiagnosed.

What is Coeliac Disease?

Wheat is the second most common cereal grain grown in the world and all wheat contains a protein called gluten that can react with cells in the body called T cells. These T cells start an immune reaction in the gut wall that gradually flattens the finger-like projections (*villi*) lining the gut surface that absorb *nutrients?* from food. Coeliac disease is a chronic autoimmune disease of the gut. An autoimmune disease is one in which a patient's own immune system attacks a part of their own body.

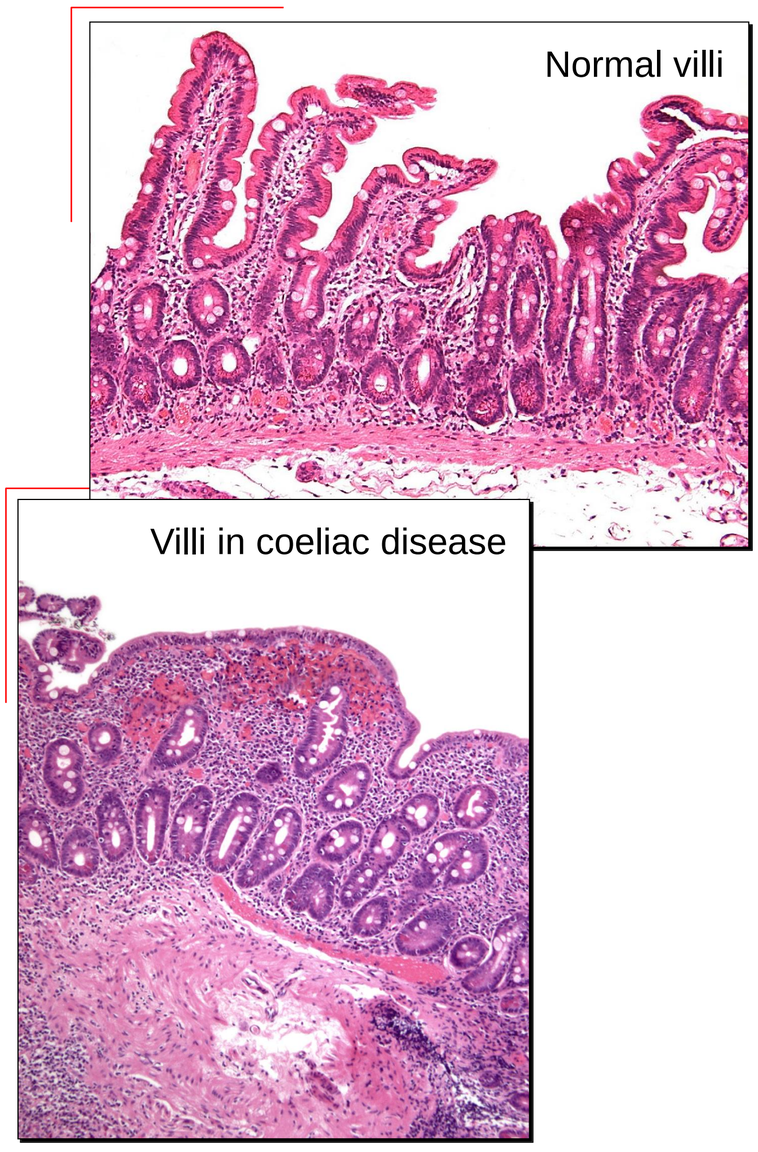
What causes it?

It is not clear why people develop coeliac disease but some people have a genetic make up that will increase the likelihood of them developing the disease. We also know that these people have immune cells that react to the protein gluten found in wheat, barley and rye etc. This reaction makes these 'autoimmune' cells attack lining of the intestine - destroying it. During this process components are released and the immune system makes antibodies that cause further tissue damage and inflammation.

Interestingly, patients who are genetically deficient in an antibody called IgA are more at risk of developing coeliac disease but this is not the only reason because this deficiency is surprisingly common and usually without any adverse effects.

What are the symptoms?

Patients typically suffer from bloating, diarrhoea, weight loss and abdominal pain caused by inflammation of the gut. They are often tired and pale, due to lack of iron, vitamin B12 and foliate – essential for red blood cell production – and lack of calcium absorption, resulting in thinning of bones – leading to osteoporosis.



Testing and Diagnosis

Less invasive tests than biopsy can be used in the first instance to help diagnose coeliac disease. These tests investigate the patients' immune system to detect the specific autoantibodies present in a patients' blood.

To make an accurate diagnosis, an endoscopic procedure is carried out to take a small piece of tissue from the intestine. The tissue sample is stained with special chemicals so that the structure can be viewed under the microscope. Pathologists look for signs of inflammation and of destruction of the intestinal wall.

Treatment

The best treatment is to remove the cause, gluten, from the diet. Without treatment, coeliac patients have an increased risk of developing cancer of the small bowel.

Patient compliance with treatment can be monitored by re-testing for the specific autoantibodies every few months. Autoantibodies, inflammation and symptoms may disappear once the patient is treated but they will always have coeliac disease.

Villi post gluten-free diet