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Focus
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Coeliac disease

Coeliac disease is an auto-immune enteropathy that is caused by a food antigen – gluten (gliadin in wheat, secalin in rye, hordein in barley) – in genetically predisposed people. It is the most frequent cause of malabsorption in adults and children. In terms of its epidemiology, coeliac disease has a higher prevalence in the Northern hemisphere than in the Southern hemisphere: Scandinavia, Great Britain (1-2%), the Maghreb (0.25%), Australia, the USA, France (0.1-0.25%); it is extremely rare in Asia and sub-Saharan Africa. The sex ratio in adults is between two and three women to one man; in children it is approximately one.

Clinical profile

Symptomatic coeliac disease typically occurs in infants between the ages of 6 and 24 months, following the introduction of gluten in the diet. The disease manifests as stunted growth/failure to thrive, chronic diarrhoea with malabsorption, abdominal distension, loss of muscle mass with hypotonia, loss of appetite and irritability. In adults (between the ages of 20 and 40), symptoms are diarrhoea, weight loss, recurrent abdominal pain accompanied by nausea, irritable bowel syndrome and vomiting, and are associated with biological signs of malabsorption.

The following extra-digestive symptoms are reflective of malabsorption: anaemia (iron deficiency, folate deficiency, B12 deficiency or a combination), frequently severe osteopenia, osteoporosis with or without fractures, polyarthralgia, migraine, tetany, epilepsy, major depression, alopecia, small stature, pubertal delay, amenorrhoea, recurrent miscarriage, infertility, myocarditis, and an unexplained increase in transaminase levels.

Coeliac disease may also be found by chance in asymptomatic patients, such as during an endoscopy performed for another reason.

Reminder of the physiopathological mechanism

CGliadin intolerance occurs in certain people who carry a particular HLA group (95% of coeliacs have HLA-DQ2 while 5-10% have HLA-DQ8; 30% of the general population carries either HLA-DQ2 or HLA-DQ8). The molecule modified by tissue transglutaminase is recognised as foreign by the subject's T lymphocytes. The reaction of the body's immune system results in destruction of the intestinal villi and antibody synthesis.

Biological diagnosis

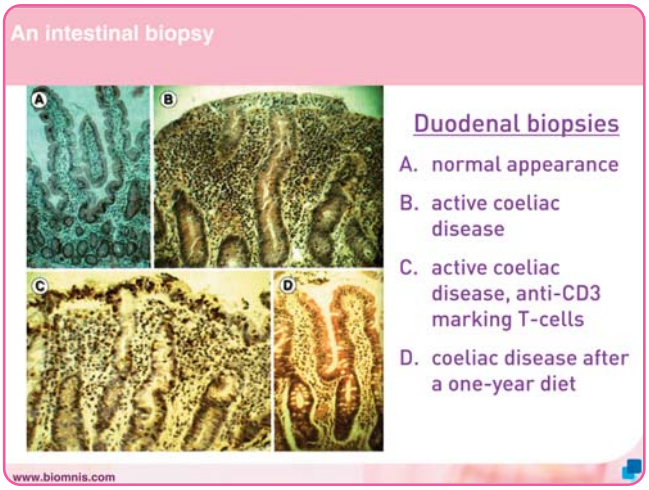
Biological diagnosis of coeliac disease is based on the detection of auto-antibodies. IgA anti-reticulin, IgA and IgG anti-gliadin, IgA anti-jejunum and IgA anti-actin are among the many antibodies (Ab) used. Only IgA anti-tissue transglutaminase antibodies (anti-tTG) and IgA anti-endomysium antibodies should now be prescribed. IgG antibodies are useful only in the event of total IgA deficiency. Only anti-tTG and anti-endomysium antibodies are reimbursed under the French schedule of accredited medical procedures.

Anti-endomysium antibodies are screened by IIF using sections of monkey oesophagus as a substrate; anti-tTG antibodies are screened by ELISA, a more-standardised method.

The sensitivity and specificity performance of the auto-antibodies used in diagnosing coeliac disease is summarised in the table below:

	Sensitivity	Specificity
Anti-reticulin IgA Ab	40 to 60 %	95 to 100 %
Anti-gliadin IgA Ab	60 to 90 %	42 to 80 %
Anti-gliadin IgG Ab	65 to 100 %	50 to 90 %
Anti-endomysium IgA Ab	85 to 100 %	95 to 100 %
Anti-tissue transglutaminase IgA Ab	95 to 100 %	90 to 100 %
Anti-tissue transglutaminase IgG Ab	98 %	95 %
Anti-deamidated gliadin peptide Ab	94 %	86 %
Anti-deamidated gliadin peptide Ab	94 %	100 %
Anti-actin IgA Ab	30 to 95 %	96 %

An intestinal biopsy in performed to confirm or refute the diagnosis.



Haematology testing following a diagnosis of coeliac disease

Haematology tests are performed to explore the consequences of coeliac disease. They include complete blood count with differential, blood electrolyte analysis, serum protein electrophoresis, a battery of assays (total IgA, serum iron, ionised calcium, albumin, magnesium, vitamin B12), complete hepatitis evaluation, prothrombin time test, and calcium-phosphorus balance evaluation.

Additional malabsorption tests (D-xylose test, steatorrhoea, small intestinal motility, push enteroscopy) are not indicated.

Treatment: a gluten-free diet

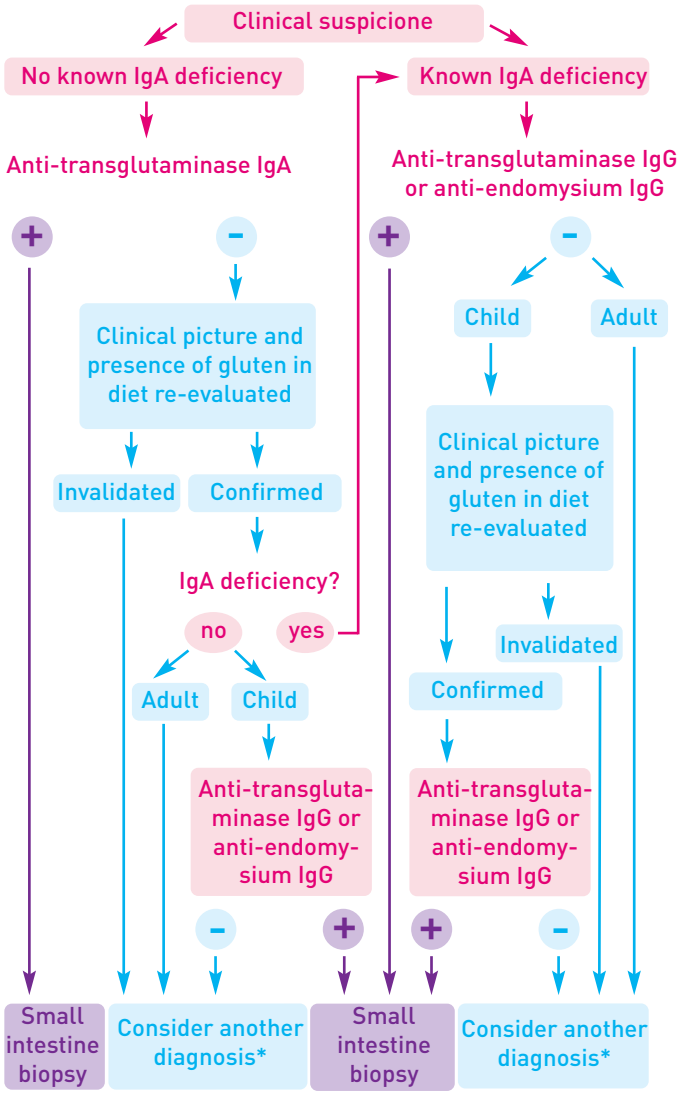
A gluten-free diet is one that is free of wheat, rye and barley (rice and maize are allowed). Such a diet is expensive (around €45 a month) and adherence is mediocre (less than 50%). Its clinical efficacy is based on improvement of the symptoms (in a matter of a few days to a few months), its biological efficacy on a drop in antibody levels (in a matter of a few months), and its histologic efficacy on the normalisation of villous atrophy and renewed growth of villi (in a matter of a few months).

Decrease in anti-tTG Ab with a gluten-free diet

	1 month	3 months	6 months	9 months
anti-tTG Ab	100 %	50 %	20 %	10 %

Diagnosis algorithm

Recommendations on testing for antibodies when screening for coeliac disease. See the diagram opposite.



* A small intestine biopsy may nevertheless be requested in some circumstances and if the clinical suspicion in adults is strong.

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Pitfalls to avoid

- Consider only the digestive manifestation of coeliac disease,
- Prescribe a gluten-free diet before making a diagnosis confirmed by serologic and histologic examinations,
- Make a diagnosis if isolated positive anti-gliadin IgG antibodies are found,
- Rule out a diagnosis if negative IgA markers are found (2% IgA deficiency in France).

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