

Title: Small intestinal inflammation drives granulocyte activation in the pathogenesis of dermatitis herpetiformis

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Abstract

Objective: Dermatitis herpetiformis (DH) is the primary extraintestinal manifestation of coeliac disease (CD). Neutrophils and dermal deposits of IgA are strongly associated with the skin pathogenesis in DH. Granulocytes are also often found in the small intestine of CD patients with gut enteropathy. We are investigating the role of the small intestinal inflammation as a driver of granulocyte activation during active skin pathogenesis.

Methods: We are using transcriptomics and histological methods to assess granulocyte infiltration and activity in untreated DH and CD patients' small intestine and skin at the time of diagnosis and after one year on gluten-free diet, as well as in samples collected from GFD-treated DH patients prior to a gluten-challenge and after relapse. Flow cytometry and quantitative PCR are used to characterize the circulating granulocyte population.

Results: Preliminary results indicate that gut and skin resident neutrophils and eosinophils are found both in untreated DH patients and in treated patients, following a gluten challenge. Both tissues are largely devoid of granulocytes on GFD-treatment. Large neutrophilic abscesses, typical for DH skin, are absent in the small intestine.

Conclusions: The presence of neutrophils in the small intestine of DH patients implicates a role in the disease progression involving both the gut and the skin. We are currently studying if there is a link between neutrophil populations in these two compartments.