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Commentary

Goblet cell autoantibodies in patients with inflammatory bowel diseases

Running title: Goblet cell autoantibodies in IBD

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Abstract

Broberger and Perlmann described for the first-time anti-goblet cell antibodies (GABs) in 1959. Sixty years later the target autoantigen of these inflammatory bowel disease (IBD)-related autoantibodies remains unknown. GABs are detected in approximately one third of patients with ulcerative colitis and Crohn's disease. Their presence in other enteropathies is less prominent making this autoantibody IBD-related. Its diagnostic and clinical significance remains elusive. Currently, routine diagnostic serology testing of suspected patients with IBD does not include assessment of GABs. Very few laboratories report the presence of goblet cell (anti-mucin) autoantibodies and their current testing is mainly performed for research purposes.

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I. INTRODUCTION

Several autoantibodies have been described in patients with inflammatory bowel diseases (IBD), the most prominent of those being perinuclear anti-neutrophil cytoplasmic antibodies (pANCA). We and others have assessed the presence of disease-related pancreatic autoantibodies (PABs) by conventional indirect immunofluorescence or antigen-specific immunoassays (1, 2). Testing of PABs has received increased attention following the identification of their molecular targets (3-18).

Other autoantibodies specifically targeting colonic epithelial cells have been described (19-24). In 1959, Broberger and Perlmann (25) were the first to describe the presence of a goblet cell autoantibody (GAB) in children suffering from ulcerative colitis (UC). GAB appears to react with phenol water extracts pf fetal colonic tissue and is likely a polysaccharide from colonic gobbled cells (26-29). Its diagnostic and clinical significance has been assessed (20, 30-33). Folwaczny et al (30) reported its presence in 39% of patients with UC and 30% of patients with Crohn's disease (CD). These investigators have also reported the presence of GABs in 19% of first-degree relatives of patients with CD but in less than 3% of patients with other enteropathies or healthy controls (30). Previous studies have detected GABs in between 25-38% of patients with UC. Conflicting data regarding the presence of GABs in CD have been provided in the past, as some investigators have failed to report their presence in CD patients, while others have failed to detect them also in a significant proportion of UC (33). The frequent presence of GABs in first-degree relatives of patients with IBD is of potential interest, as it could be an early indication for future development of overt disease, but longitudinal data are missing (30). GABs seem to be prone to immunosuppression as their presence is less prominent in UC patients treated with immunosuppressants.

In patients with CD, detection of GABs may highlight extensive colonic involvement, but the obtained data are not conclusive, and a clear clinical significance of these autoantibodies is not established.

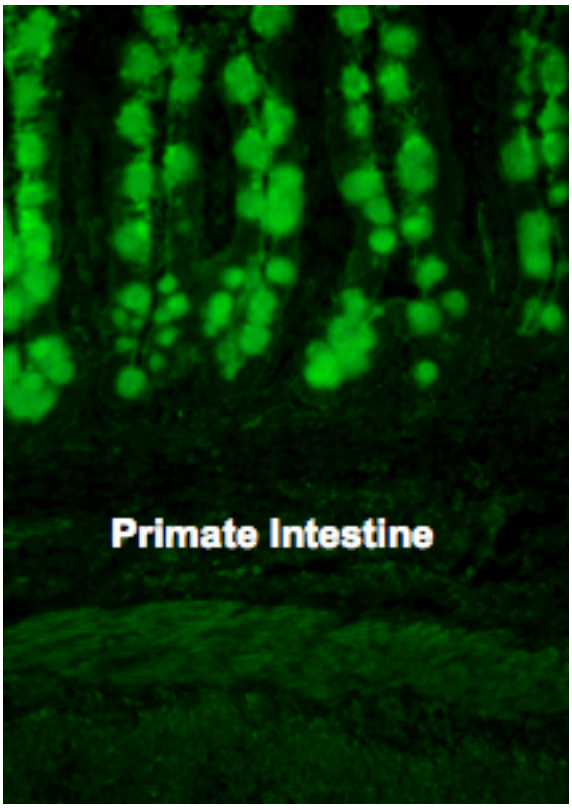

Figure 1. *The autoantibody against goblet cells were first described in 1959 by Broberger and Perlmann. It can only be detected using indirect immunofluorescence testing based on primate intestine. The antigen has not yet been identified.*

Regarding the molecular identity of the target autoantigen(s), the published literature is scarce. While some data support binding of serum antibodies eluted for colonic tissue to a 40 kDa antigen, other findings describe autoreactivity against a 200 kDa glycoprotein.

II. CONCLUSION

In conclusion, GABs are frequently found in patients with UC and CD, as well as first-degree relatives of patients suffering with those diseases. In the absence of a clear molecular target autoantigen and the establishment of a molecular-based immunoassay, the assessment of the diagnostic and clinical significance of these autoantibodies will be limited. More research must be performed in this area, probably in a joined effort of a multi-center study.

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AUTHOR CONTRIBUTIONS

All authors scripted the manuscript. All authors approved the final version of the manuscript.

CONFLICT OF INTEREST

All Authors declare no conflict of interest.

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