Original article

Title: Utility of gastric biopsy in diagnosing IgG4-related gastrointestinal disease

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Running title:
IgG4-RD diagnosis with gastric biopsy
Abbreviations:
AIP, autoimmune pancreatitis; BHP, bottom-heavy plasmacytosis; GI, gastrointestinal;
HP, Helicobacter pylori; HPF, high-power field; Ig, immunoglobulin; IgG4-GID, IgG4-related gastrointestinal disease; IgG4-RD, IgG4-related disease; MALT lymphoma, extranodal marginal zone lymphoma of mucosa-associated lymphoid tissue;
MLP, mucosal lamina propria; SMT, submucosal tumor

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ABSTRACT

The utility of gastric biopsy for diagnosing IgG4-related gastrointestinal disease (IgG4-GID) remains unclear. Bottom-heavy plasmacytosis (BHP) is a distinct feature of IgG4-GID. To clarify the feasibility of using gastric biopsies to diagnose BHP in IgG4-GID, we analyzed the histological features and immunostaining of gastric biopsy specimens from 31 known IgG4-related disease (IgG4-RD) patients and we assessed the presence of BHP in 1,696 consecutive routine gastric biopsies. Cases with both >10 IgG4-positive plasma cells per high-power field and an IgG4/IgG-positive ratio >40% were defined as IgG4-high. Ten of the 31 IgG4-RD patients were concluded to have IgG4-GID, in which IgG4-positive plasma cells were notably detected at the deeper part of the mucosa. Six cases displayed BHP whereas the remaining four cases showed transmural infiltration with concomitant *Helicobacter pylori*-associated gastritis. In addition to BHP, we identified two unique histologic features for IgG4-GID: plasmacytic aggregation in the muscularis mucosae and permeative plasmacytic infiltration between fundic glands in the non-atrophic mucosa. Six of the routine cases (0.35%) displayed BHP, including a case with IgG4-RD. IgG4-GID can be suspected by the presence of gastric biopsy specimens with characteristic histological features. Such cases are recommended to undergo further examinations to determine whether IgG4-RD is present.

KEYWORDS

Biopsy, feasibility studies, gastritis, gastric mucosa, IgG4, IgG4-related disease, immunoglobulin G4, immunohistochemistry, plasma cells