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ASSOCIATION BETWEEN AUTOIMMUNE GASTRITIS AND HASHIMOTO THYROIDITIS: PREVALENCE, PATHOPHYSIOLOGICAL MECHANISMS, AND CLINICAL IMPLICATIONS

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ABSTRACT

Autoimmune gastritis (AIG) and Hashimoto thyroiditis (HT) are organ-specific autoimmune disorders that frequently coexist. This association has historically been described within the framework of thyrogastric syndrome and autoimmune polyglandular syndrome type IIIb, although current evidence remains heterogeneous in terms of diagnostic criteria, pathophysiological interpretation, and clinical applicability. To review the available evidence on the association between AIG and HT, with emphasis on prevalence, shared pathophysiological mechanisms, and clinical implications. A structured narrative review was conducted using literature primarily published between 2010 and 2026, with inclusion of seminal earlier studies when relevant to the historical or mechanistic understanding of the association. The review focused on three thematic domains: prevalence and coexistence, shared pathophysiological mechanisms, and clinical implications, including screening and management considerations. Contemporary studies show that anti-parietal cell antibodies are more frequent in patients with HT than in controls, while autoimmune thyroid disease is among the most common autoimmune comorbidities in AIG cohorts (Boutzios et al., 2022; Tripolino et al., 2024; Wang et al., 2025). The mechanistic literature supports biological plausibility through shared features of organ-specific autoimmunity, including CD4+ T-cell-mediated tissue injury, Th1/Th17 polarization, autoantibody production, and impaired immune regulation (Massironi, 2025; Santaguida et al., 2017; Stramazzo et al., 2024). Historical and conceptual studies place this association within the spectrum of autoimmune polyglandular syndrome type IIIb (Dittmar & Kahaly, 2003; Kahaly, 2009; Lam-Tse et al., 2003). Clinically, the coexistence of AIG and HT is relevant because it may contribute to iron deficiency, vitamin B12 deficiency, pernicious anemia, hypochlorhydria, delayed diagnosis, and, in AIG, increased gastric neoplastic risk (Castellana et al., 2024; Hu & Rayman, 2017; Orgler et al., 2023). The available evidence favors selective rather than universal screening, particularly in HT patients with anemia, micronutrient deficiency, dyspeptic symptoms, or increasing levothyroxine requirements, and supports thyroid evaluation in patients with AIG (Cellini et al., 2017; Tozzoli et al., 2010; Wang et al., 2025). The association between AIG and HT is clinically meaningful and biologically plausible, but the evidence remains heterogeneous and largely observational. Current data support targeted cross-evaluation rather than indiscriminate screening. Prospective studies using standardized diagnostic criteria are needed to better define optimal screening and management strategies.

Keywords: Autoimmune gastritis; Hashimoto thyroiditis; autoimmune thyroid disease; thyrogastric syndrome; pernicious anemia; autoimmune polyglandular syndrome type IIIb

INTRODUCTION

Hashimoto thyroiditis (HT) is one of the most common organ-specific autoimmune disorders and a leading cause of hypothyroidism worldwide. Although it is traditionally regarded as a thyroid-confined disease, HT frequently coexists with other autoimmune conditions, supporting the concept of organ-specific autoimmune clustering rather than isolated glandular involvement (Dittmar & Kahaly, 2003; Kahaly, 2009). Among these associated disorders, autoimmune gastritis (AIG) has attracted growing clinical interest because of its implications for hematologic status, micronutrient absorption, endocrine management, and long-term gastric health (Cellini et al., 2017; Castellana et al., 2024).

AIG is a chronic immune-mediated disease characterized by progressive destruction of the oxyntic mucosa, loss of parietal cells, hypochlorhydria, and intrinsic factor deficiency. As the disease progresses, it may lead to iron deficiency, vitamin B12 deficiency, pernicious anemia, and, in some cases, gastric neuroendocrine tumors or gastric adenocarcinoma (Castellana et al., 2024; Orgler et al., 2023). Despite these potentially significant consequences, AIG often remains underrecognized because it may be asymptomatic or present only with mild and nonspecific clinical manifestations, particularly in early stages (Castellana et al., 2024; Massironi, 2025).

The coexistence of thyroid and gastric autoimmunity has been recognized for decades and has often been described under the concept of thyrogastric syndrome. More broadly, this association has been interpreted within the spectrum of autoimmune polyglandular syndrome type IIIb (APS IIIb), in which autoimmune thyroid disease occurs together with gastric autoimmunity in the absence of adrenal insufficiency (Kahaly, 2009; Lam-Tse et al., 2003). This conceptual framework is relevant because it places the association between HT and AIG within a broader pattern of organ-specific immune dysregulation rather than viewing it as an incidental overlap (Dittmar & Kahaly, 2003; Lam-Tse et al., 2003).

In recent years, renewed interest in this association has emerged from studies reporting increased anti-parietal cell antibody (APCA) positivity in patients with HT, as well as a high frequency of autoimmune thyroid disease among AIG cohorts (Boutzios et al., 2022; Tripolino et al., 2024; Wang et al., 2025). At the same time, mechanistic studies and reviews have suggested that both disorders may share immunological and genetic features, including CD4+ T-cell-mediated injury, Th1/Th17 polarization, impaired immune regulation, and broader susceptibility to autoimmune clustering (Massironi, 2025; Santaguida et al., 2017; Stramazzo et al., 2024). Some authors have also proposed embryological and functional similarities between thyroid and gastric tissues as possible contributors to this association, although these hypotheses remain interpretive and not fully established (Tripolino et al., 2024).

From a clinical standpoint, the association between AIG and HT is important because it may help explain iron deficiency, vitamin B12 deficiency, unexplained anemia, hypochlorhydria-related symptoms, and altered levothyroxine requirements in selected patients (Cellini et al., 2017; Hu & Rayman, 2017; Wang et al., 2025). In addition, the recognized gastric neoplastic risk associated with AIG underscores the importance of timely identification in appropriate clinical settings (Boutzios et al., 2022; Castellana et al., 2024). However, the literature remains heterogeneous, with substantial variability in study design, diagnostic criteria, population selection, and definitions of gastric autoimmunity. In particular, the distinction between serological overlap and histologically confirmed AIG is not always clearly maintained, which may contribute to inconsistent prevalence estimates and potentially overstate the certainty of the association (Boutzios et al., 2022; Tozzoli et al., 2010; Tripolino et al., 2024).

For these reasons, a structured synthesis of the literature is clinically relevant. Accordingly, the aim of this review is to examine the current evidence on the association between autoimmune gastritis and Hashimoto thyroiditis, focusing on prevalence, shared pathophysiological mechanisms, and clinical implications, including screening and management considerations.

METHODS

Study design

This article was designed as a structured narrative review aimed at synthesizing the available evidence on the association between autoimmune gastritis (AIG) and Hashimoto thyroiditis (HT), with a specific focus on prevalence, shared pathophysiological mechanisms, and clinical implications.

Search strategy

A structured literature search was conducted to identify relevant peer-reviewed studies addressing the relationship between AIG and HT. The search primarily focused on publications from 2010 to 2026 in order to capture contemporary evidence. Earlier studies were additionally considered when they represented landmark contributions to the historical, conceptual, or mechanistic

understanding of the association, particularly in relation to the concepts of thyrogastric syndrome and autoimmune polyglandular syndrome type IIIb (Dittmar & Kahaly, 2003; Kahaly, 2009; Lam-Tse et al., 2003).

Information sources

The search strategy was designed for the following databases: PubMed/MEDLINE, Scopus, and Web of Science. In addition, targeted evidence mapping was supported by AI-assisted academic search tools to identify relevant studies, reviews, and seminal references for subsequent verification and classification.

Search terms

The core search strategy combined terms related to autoimmune gastritis and autoimmune thyroid disease. The following terms were used in different combinations: "autoimmune gastritis," "autoimmune atrophic gastritis," "chronic autoimmune gastritis," "pernicious anemia," "Hashimoto thyroiditis," "autoimmune thyroiditis," "autoimmune thyroid disease," "thyroid autoimmunity," "prevalence," "association," "coexistence," "pathophysiology," "mechanisms," "clinical implications," and "screening."

Eligibility criteria

Studies were considered eligible if they met at least one of the following criteria: (1) evaluated the prevalence or coexistence of AIG and HT; (2) explored shared immunological, inflammatory, genetic, or mechanistic pathways; or (3) discussed clinical implications, including anemia, micronutrient deficiency, hypochlorhydria, screening, or gastric neoplastic risk. Peer-reviewed original studies, clinically relevant reviews, and landmark conceptual papers were included. Articles not directly addressing the AIG–HT relationship, isolated case reports with limited relevance, conference abstracts without sufficient detail, and duplicate publications were excluded.

Study selection

Retrieved records were screened by title and abstract for relevance to the review question. Full-text evaluation was then performed for potentially eligible studies. Included articles were classified into three thematic domains: prevalence and coexistence, shared pathophysiological mechanisms, and clinical implications. Seminal pre-2010 papers were classified separately when they contributed primarily to conceptual framing or historical development of the field.

Data extraction and synthesis

For each included study, data were extracted on authorship, year, study design, population, diagnostic basis, main findings, and contribution to one or more of the three thematic domains. The final synthesis was narrative and thematic, with emphasis on the distinction between serological overlap, probable clinical association, and confirmed autoimmune gastritis.

RESULTS

Overview of the literature

The available literature on the association between autoimmune gastritis and Hashimoto thyroiditis is heterogeneous and includes retrospective cohorts, cross-sectional studies, prospective studies, immunophenotypic analyses, clinically oriented reviews, and historical conceptual papers. Contemporary evidence primarily addresses two directions of association: the prevalence of anti-parietal cell antibodies or gastric autoimmunity markers in patients with HT, and the prevalence of autoimmune thyroid disease among patients with AIG (Boutzios et al., 2022; Tripolino et al., 2024; Wang et al., 2025). Additional literature explores the possible immunological basis of this overlap and its implications for diagnosis, screening, and follow-up (Cellini et al., 2017; Massironi, 2025; Santaguida et al., 2017).

The association is often examined using different diagnostic levels. Some studies rely on APCA positivity as a marker of gastric autoimmunity, whereas others include endoscopic, histologic, or combined biochemical confirmation of AIG (Elmahalawy et al., 2021; Kishikawa et al., 2022; Tozzoli et al., 2010). As a result, the reported magnitude of overlap varies substantially according to whether the endpoint is serological, clinical, or histologically confirmed disease. This distinction is central to interpreting the evidence and to avoiding overestimation of true AIG prevalence in thyroid cohorts (Tripolino et al., 2024; Tozzoli et al., 2010).

Historical literature contributed the conceptual basis of this association through the frameworks of thyrogastric syndrome and APS IIIb, while more recent publications have refined its clinical and mechanistic interpretation (Dittmar & Kahaly, 2003; Kahaly, 2009; Lam-Tse et al., 2003). Taken together, the literature supports a meaningful association, but one that must be interpreted with diagnostic precision and awareness of evidence heterogeneity.

Prevalence and coexistence of autoimmune gastritis and Hashimoto thyroiditis

Recent observational studies support a clinically relevant overlap between HT and markers of gastric autoimmunity. In adult HT cohorts, APCA positivity has been reported in a substantial minority of patients, generally in the range of approximately 16% to 21% in the studies reviewed (Boutzios et al., 2022; Tripolino et al., 2024). These findings suggest that gastric autoimmunity is more common in HT than in control populations and that APCA may identify a subgroup of thyroid patients with broader organ-specific autoimmune susceptibility.

Tripolino et al. (2024) reported higher APCA prevalence in adults with HT than in controls, reinforcing the concept of thyroid-gastric autoimmune overlap and reviving the relevance of thyrogastric syndrome in contemporary clinical practice. Similarly, Boutzios et al. (2022) found APCA positivity in a notable proportion of patients with HT and showed that APCA-positive individuals tended to be older and more likely to present with additional organ-specific autoimmune diseases. Elmahalawy et al. (2021) also observed APCA positivity in patients with autoimmune thyroid disease, with a substantial proportion of APCA-positive individuals showing endoscopic and histologic evidence of chronic atrophic gastritis. These findings indicate that APCA positivity in thyroid cohorts may reflect clinically meaningful gastric involvement in at least a subset of patients.

The reverse direction of association has also been documented. In a retrospective AIG cohort, Wang et al. (2025) reported that autoimmune thyroid disease was the most frequent autoimmune comorbidity, with Hashimoto thyroiditis representing the predominant subtype. Patients with both AIG and autoimmune thyroid disease tended to be younger, were more often female, and appeared to have milder gastric atrophy, suggesting that coexistence with thyroid autoimmunity may characterize an earlier or more actively recognized clinical phenotype.

Although these studies support a significant overlap between the two diseases, prevalence estimates should be interpreted carefully. APCA positivity is a useful marker of gastric autoimmunity, but it is not synonymous with histologically confirmed AIG (Tozzoli et al., 2010; Tripolino et al., 2024). Therefore, the literature supports a graded interpretation of coexistence: serological overlap appears relatively frequent, while confirmed autoimmune gastritis likely affects a smaller but clinically important subgroup of patients with HT.

Shared pathophysiological mechanisms

The mechanistic literature supports the biological plausibility of the AIG–HT association. Both disorders are classic examples of organ-specific autoimmunity, characterized by lymphocytic infiltration, epithelial cell damage, glandular dysfunction, and circulating autoantibodies directed against tissue-specific antigens (Massironi, 2025; Santaguida et al., 2017). In HT, the autoimmune response targets thyroid antigens such as thyroid peroxidase and thyroglobulin, whereas in AIG the main targets include parietal cell H+/K+ ATPase and intrinsic factor (Massironi, 2025; Tripolino et al., 2024).

Several studies and reviews suggest that CD4+ T-cell-mediated tissue injury is a central component in both disorders. A predominance of Th1 and Th17 immune responses has been reported in HT and has also been proposed as a major feature of AIG (Massironi, 2025; Santaguida et al., 2017). Santaguida et al. (2017) described an immunophenotypic profile in HT characterized by inflammatory bias and altered regulatory B-cell compartments, especially in patients with associated organ-specific autoimmune diseases, including gastric involvement. Stramazzo et al. (2024) further suggested that patients with HT associated with chronic atrophic gastritis may display expansion of proinflammatory T-cell subsets linked to IFN-γ and IL-17 production, reinforcing the concept of a shared inflammatory axis in APS III-related phenotypes.

In addition to T-cell-mediated mechanisms, failure of immune regulation appears relevant. Both disorders have been discussed in relation to defective tolerance and broader autoimmune susceptibility, including possible imbalance between effector and regulatory pathways (Massironi, 2025; Santaguida et al., 2017). These observations support the interpretation that AIG and HT may emerge from a common immunological terrain rather than as entirely independent autoimmune events.

Some recent authors have also proposed structural and functional parallels between thyroid and gastric tissues. These include shared embryological derivation from the foregut and similarities in iodine handling and oxidative enzymatic systems (Tripolino et al., 2024). While these proposals are conceptually attractive and may help explain thyroid-gastric organotropism, they should be considered supportive hypotheses rather than definitive mechanistic proof.

The role of genetic susceptibility has also been invoked, particularly in relation to class II HLA-associated autoimmune clustering (Dittmar &

Kahaly, 2003; Massironi, 2025). Although the reviewed literature frequently points to probable shared immunogenetic predisposition, the evidence remains more suggestive than definitive for a disease-specific AIG–HT allele pattern. Overall, the available evidence supports a biologically plausible association based on overlapping organ-specific autoimmunity, inflammatory polarization, and impaired immune regulation, even if no single unifying mechanism has been conclusively established.

Clinical implications

The coexistence of AIG and HT has important diagnostic and management implications. Across the reviewed studies, the most consistent clinical clues suggesting possible gastric autoimmunity in patients with HT include iron deficiency, low ferritin, vitamin B12 deficiency, unexplained anemia, pernicious anemia, mild dyspeptic symptoms, and increasing levothyroxine requirements (Cellini et al., 2017; Hu & Rayman, 2017; Tripolino et al., 2024). These features are particularly relevant because AIG may remain clinically silent or present with only subtle symptoms despite meaningful nutritional and hematologic consequences (Elmahalawy et al., 2021; Orgler et al., 2023).

Several publications support the use of APCA as an initial screening marker in selected patients with HT, especially when clinical or biochemical suspicion is present (Cellini et al., 2017; Tonegato et al., 2024). Tozzoli et al. (2010) provided particularly relevant evidence by showing that APCA positivity in patients with autoimmune thyroid disease predicted subsequent development of histologic atrophic body gastritis over follow-up. This finding strengthens the clinical value of APCA not only as a marker of coexistence but also as a possible predictor of progression toward confirmed gastric disease. Additional support comes from pediatric and adult thyroid cohorts in which APCA positivity was associated with biochemical deficiencies or endoscopic confirmation of gastritis (Calcaterra et al., 2020; Elmahalawy et al., 2021).

The reviewed literature favors a selective rather than universal screening strategy. In practical terms, patients with HT who develop iron deficiency, vitamin B12 deficiency, recurrent or unexplained anemia, persistent gastrointestinal complaints, or apparent levothyroxine malabsorption may warrant evaluation for gastric autoimmunity (Cellini et al., 2017; Hu & Rayman, 2017; Tozzoli et al., 2010). In this context, APCA testing may be complemented by gastrin, pepsinogen measurements, and endoscopic assessment with biopsy when clinically indicated (Castellana et al., 2024; Kishikawa et al., 2022; Tonegato et al., 2024). Kishikawa et al. (2022) contributed to this practical approach by highlighting the value of non-invasive biomarkers such as pepsinogen and gastrin in the diagnostic workup of suspected AIG.

The reverse clinical pathway is also relevant. Patients with AIG frequently show autoimmune thyroid disease as one of their most common associated autoimmune conditions (Wang et al., 2025). Therefore, thyroid-oriented assessment, including thyroid function testing and thyroid autoantibodies when appropriate, appears justified in patients diagnosed with AIG (Cellini et al., 2017; Wang et al., 2025). Wang et al. (2025) additionally suggested that thyroid involvement in AIG may have therapeutic implications, including possible effects on levothyroxine management in patients with coexisting gastric dysfunction.

Another major implication concerns long-term gastric outcomes. AIG is associated with an increased risk of gastric neuroendocrine tumors and gastric adenocarcinoma, which makes early recognition clinically meaningful (Castellana et al., 2024; Orgler et al., 2023). In selected HT patients with evidence of gastric autoimmunity, timely diagnosis may therefore affect not only nutritional correction but also subsequent gastroenterology-based surveillance (Boutzios et al., 2022; Castellana et al., 2024). Nonetheless, surveillance decisions should be determined primarily by the severity and characteristics of confirmed AIG rather than by the presence of thyroid disease alone.

Taken together, the clinical literature suggests that the greatest practical value of recognizing the AIG–HT association lies in targeted cross-evaluation rather than indiscriminate testing. This perspective supports closer collaboration between endocrinology and gastroenterology, especially in patients with anemia, micronutrient deficiency, polyautoimmunity, or unexplained therapeutic difficulties (Cellini et al., 2017; Orgler et al., 2023).

Historical and conceptual framework

The association between thyroid and gastric autoimmunity was recognized well before recent studies revisited it with modern serological and clinical tools. Historical reviews and autoimmune syndrome frameworks described the coexistence of autoimmune thyroiditis and autoimmune gastritis within broader models of organ-specific autoimmune clustering (Dittmar & Kahaly, 2003; Lam-Tse et al., 2003). In this context, the concept of thyrogastric syndrome emerged as a clinical descriptor of concurrent thyroid and gastric

autoimmunity (Cellini et al., 2017; Lam-Tse et al., 2003).

At the same time, major conceptual developments in the classification of autoimmune polyglandular syndromes helped frame this overlap within APS type IIIb, in which autoimmune thyroid disease is associated with gastric autoimmunity without adrenal insufficiency (Kahaly, 2009). Foundational contributions from Dittmar, Kahaly, Lam-Tse, and related authors established the notion that these disorders may cluster in predictable combinations and should be approached as part of a wider autoimmune diathesis (Dittmar & Kahaly, 2003; Kahaly, 2009; Lam-Tse et al., 2003).

This historical framework remains relevant because it provides conceptual continuity between older syndrome-based descriptions and current evidence on APCA positivity, autoimmune thyroid comorbidity in AIG, and mechanistic overlap. Rather than representing a new observation, the contemporary literature largely refines and updates a long-recognized clinical relationship. In this sense, the current evidence supports not only the existence of overlap between HT and AIG, but also the enduring usefulness of the thyrogastric and APS IIIb frameworks for interpreting its clinical significance.

DISCUSSION

This structured narrative review supports the existence of a clinically relevant association between autoimmune gastritis (AIG) and Hashimoto thyroiditis (HT), although the strength of evidence varies according to the diagnostic criteria applied and the type of study considered. Contemporary literature consistently shows that patients with HT have a higher prevalence of anti-parietal cell antibodies (APCA) than controls, while AIG cohorts frequently include autoimmune thyroid disease among their most common autoimmune comorbidities (Boutzios et al., 2022; Tripolino et al., 2024; Wang et al., 2025). However, an important interpretive distinction must be maintained throughout the literature: serological overlap does not necessarily equate to histologically confirmed AIG. This distinction is essential, as some of the variability in reported prevalence likely derives from differences in how gastric autoimmunity is defined across studies (Elmahalawy et al., 2021; Tozzoli et al., 2010).

From a pathophysiological perspective, the association between AIG and HT appears biologically plausible. Both are organ-specific autoimmune disorders characterized by lymphocytic infiltration, glandular destruction, and autoantibody production against tissue-specific targets (Massironi, 2025; Santaguida et al., 2017). The available literature suggests that CD4+ T-cell-mediated injury, Th1/Th17 polarization, and impaired immune regulation may contribute to the coexistence of these disorders, particularly within the framework of autoimmune polyglandular syndrome type IIIb (Kahaly, 2009; Massironi, 2025; Stramazzo et al., 2024). Some authors have also proposed embryological and functional similarities between thyroid and gastric tissues, including shared foregut origin and comparable molecular machinery involved in iodine handling and oxidative processes (Tripolino et al., 2024). While these hypotheses are conceptually appealing, they should be interpreted as supportive rather than definitive mechanistic explanations.

The historical literature further strengthens the conceptual basis of this association. Long before contemporary cohort studies revisited APCA prevalence in HT or autoimmune thyroid disease in AIG, earlier reviews and clinical frameworks had already described the coexistence of thyroid and gastric autoimmunity within the concepts of thyrogastric syndrome and autoimmune polyglandular syndrome type IIIb (Dittmar & Kahaly, 2003; Kahaly, 2009; Lam-Tse et al., 2003). These models remain useful because they frame the HT–AIG association not as an isolated coincidence, but as part of a broader pattern of organ-specific autoimmune clustering.

The most clinically relevant implication of this association lies in case-finding and selective cross-evaluation. The current evidence does not justify indiscriminate screening of all patients with HT for AIG. However, it does support a more targeted strategy in higher-risk subgroups. Across the studies reviewed, the most consistent clinical clues that should raise suspicion of gastric autoimmunity in patients with HT include iron deficiency, low ferritin, vitamin B12 deficiency, unexplained anemia, pernicious anemia, mild upper gastrointestinal complaints, and increasing levothyroxine requirements (Cellini et al., 2017; Hu & Rayman, 2017; Tripolino et al., 2024). In such patients, APCA testing appears to be a reasonable initial screening tool, particularly when followed by further evaluation with gastrin, pepsinogen testing, or endoscopy with biopsy when clinically indicated (Kishikawa et al., 2022; Tozzoli et al., 2010; Tonegato et al., 2024).

The reverse clinical pathway is also important. In patients with AIG, autoimmune thyroid disease appears to be one of the most frequent associated autoimmune conditions (Wang et al., 2025). For this reason, thyroid-oriented evaluation, including thyroid function testing and thyroid autoantibodies when appropriate, seems justified

as part of the broader assessment of autoimmune comorbidity (Cellini et al., 2017; Wang et al., 2025). This bidirectional perspective is particularly useful in interdisciplinary settings, where collaboration between endocrinology and gastroenterology may improve recognition of underdiagnosed disease, nutritional complications, and long-term follow-up needs (Orgler et al., 2023).

Another major clinical consideration is that AIG has consequences that extend beyond anemia and micronutrient deficiency. The literature consistently recognizes its association with gastric neuroendocrine tumors and gastric adenocarcinoma, which makes timely diagnosis clinically important (Castellana et al., 2024; Orgler et al., 2023). In this context, identifying gastric autoimmunity in selected patients with HT may have implications not only for hematologic and endocrine management, but also for gastroenterological surveillance (Boutzios et al., 2022; Castellana et al., 2024). Still, surveillance strategies should be guided primarily by AIG-specific risk stratification rather than by thyroid status alone.

This review has several limitations. First, the available evidence is heterogeneous in design, population, and diagnostic definitions. Second, much of the direct evidence comes from observational or single-center studies, which limits causal inference and generalizability. Third, several clinically relevant recommendations derive from expert synthesis or narrative reviews rather than formal guideline-level evidence (Cellini et al., 2017; Castellana et al., 2024). Fourth, the literature often uses different terms for gastric autoimmunity, including autoimmune gastritis, autoimmune atrophic gastritis, chronic autoimmune gastritis, and pernicious anemia, which may obscure comparisons across studies. Finally, although mechanistic plausibility is strong, no single unified pathway has been definitively established to explain the coexistence of AIG and HT (Massironi, 2025; Tripolino et al., 2024).

Despite these limitations, the cumulative literature supports the practical relevance of the AIG–HT association. Rather than viewing these disorders as independent autoimmune entities, clinicians should consider the possibility of selective cross-involvement in patients with suggestive clinical, biochemical, or immunological features. Future research should prioritize prospective multicenter studies using standardized diagnostic criteria, with particular attention to the predictive value of APCA, the role of non-invasive gastric biomarkers, and the clinical impact of targeted screening strategies in both endocrine and gastroenterology practice.

CONCLUSIONS

Autoimmune gastritis and Hashimoto thyroiditis show a meaningful and clinically relevant association supported by historical, observational, and mechanistic literature (Dittmar & Kahaly, 2003; Massironi, 2025; Tripolino et al., 2024). Current evidence suggests that this relationship is best interpreted within a broader framework of organ-specific autoimmune clustering, particularly autoimmune polyglandular syndrome type IIIb (Kahaly, 2009; Lam-Tse et al., 2003).

Although the available data do not support universal screening of all patients with Hashimoto thyroiditis for autoimmune gastritis, they do support selective evaluation in higher-risk individuals, especially those with iron deficiency, vitamin B12 deficiency, unexplained anemia, pernicious anemia, mild gastrointestinal symptoms, or increasing levothyroxine requirements (Cellini et al., 2017; Hu & Rayman, 2017; Tozzoli et al., 2010). Conversely, patients diagnosed with autoimmune gastritis should be assessed for autoimmune thyroid disease as part of a bidirectional clinical approach (Wang et al., 2025). Overall, the AIG–HT association has implications for diagnosis, nutritional assessment, endocrine management, and, in selected cases, gastroenterological surveillance. More robust prospective studies are needed to define optimal screening algorithms and to clarify the predictive and mechanistic significance of this autoimmune overlap.

TABLES

Table 1. Key studies addressing the association between autoimmune gastritis and Hashimoto thyroiditis

Study	Year	Study type	Population	Main contribution
Boutzios et al.	2022	Retrospective case-control study	840 patients with HT	Reported APCA positivity in a substantial proportion of HT patients and linked APCA positivity with organ-specific autoimmunity and gastric neoplastic findings.
Tripolino et al.	2024	Cross-sectional study	100 adults with HT and 100 controls	Confirmed higher APCA prevalence in HT and discussed shared thyroid-gastric autoimmunity within the framework of thyrogastric syndrome.
Wang et al.	2025	Retrospective cohort study	183 patients with AIG	Showed that autoimmune thyroid disease was the most frequent autoimmune comorbidity in AIG and highlighted clinical differences in AIG patients with thyroid disease.
Elmahalawy et al.	2021	Cross-sectional study	60 patients with autoimmune thyroid disease and 30 controls	Identified APCA positivity and endoscopic-histologic atrophic gastritis in a subgroup of thyroid autoimmune patients, with anemia as an important clinical clue.

Study	Year	Study type	Population	Main contribution
Tozzoli et al.	2010	Prospective 5-year study	208 patients with autoimmune thyroid disease	Demonstrated that APCA positivity predicted later development of histologic atrophic body gastritis.
Calcaterra et al.	2020	Cohort study	220 pediatric patients with autoimmune thyroid disease	Supported APCA screening in juvenile thyroid autoimmunity and early detection of AIG-related nutritional abnormalities.
Kishikawa et al.	2022	Cross-sectional diagnostic study	Patients with confirmed AIG and controls	Proposed non-invasive diagnostic markers such as pepsinogen and gastrin to support AIG diagnosis.
Santaguida et al.	2017	Immunophenotypic study	Patients with isolated HT or HT plus other organ-specific autoimmune diseases	Supported a Th1/Th17-skewed immune profile and regulatory imbalance in autoimmune clustering.
Stramazzo et al.	2024	Pilot immunophenotypic study	Patients with isolated HT and APS type III	Identified proinflammatory CD20+ T-cell expansion in patients with HT associated with chronic atrophic gastritis.
Massironi	2025	Narrative review	Not applicable	Framed AIG as a model of organ-specific autoimmunity driven by CD4+ autoreactivity and Th1/Th17 pathways.

Table 2. Main clinical implications of the association between autoimmune gastritis and Hashimoto thyroiditis

Clinical issue	Relevance in the AIG–HT association	Practical implication
Iron deficiency	Frequently reported in patients with HT and may reflect occult gastric autoimmunity.	Evaluate ferritin and iron studies in HT, especially when deficiency is unexplained or recurrent.

Clinical issue	Relevance in the AIG–HT association	Practical implication
Vitamin B12 deficiency	May occur in AIG due to intrinsic factor deficiency and can coexist with HT.	Consider B12 testing in HT patients with anemia, macrocytosis, neurologic symptoms, or suspected gastric autoimmunity.
Unexplained anemia	One of the most consistent clues suggesting possible AIG in HT.	Consider APCA testing and further gastric evaluation when anemia is not otherwise explained.
Pernicious anemia	Represents an advanced hematologic consequence of AIG.	Should prompt evaluation for gastric autoimmunity and associated thyroid disease.
APCA positivity	Marks increased risk of gastric autoimmunity but does not by itself confirm histologic AIG.	Use as a screening tool in selected higher-risk patients, interpreted alongside clinical and biochemical data.
Increasing levothyroxine requirements	May reflect impaired absorption in patients with gastric hypochlorhydria or associated gastric disease.	Consider gastric evaluation in HT patients with apparently increasing levothyroxine needs without clear explanation.
Thyroid disease in AIG	AITD, particularly HT, is one of the most frequent autoimmune comorbidities in AIG.	Assess thyroid function and consider thyroid autoantibodies in patients diagnosed with AIG.
Gastric neoplastic risk	AIG is associated with gastric neuroendocrine tumors and gastric adenocarcinoma.	Endoscopic surveillance should follow AIG-specific risk stratification and gastroenterology guidance.

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