

Association of Autoimmune Thyroiditis with Crohn's Disease: Pathological Entity or Coincidence? : A Case Report

A. Benhamdane^b (Dr), A. Halouache^{*a} (Dr), A. , A. Guerboub^a (Pr), M. Tamzaoute^b (Pr)

^a department of endocrinology, diabetology, and metabolic diseases, Hôpital Militaire d'instruction Mohamed V, Rabat, MAROC

; ^b department of Gastro-hepato-enterology, Hôpital Militaire d'instruction Mohamed V, Rabat, MAROC

Abstract :

➤ Introduction:

We report the case of a rare association of Hashimoto's thyroiditis with Crohn's disease .

➤ Observation:

17-year-old boy with a 3-year history of fistulizing Crohn's disease treated with biotherapy , admitted to the gastroenterology department for an exacerbation of his disease . He complained of diarrhea, abdominal pain, bradycardia and asthenia. The biological workup was in favor of a high CRP and anemia (Hb at 11g/dl). The etiological workup of the bradycardia showed: a TSH at 8.5IU/ml (0.4-4.78IU/ml) LT4 at 0.46ng/dl (0.7-1.48ng/dl) . Antithyroperoxidase antibodies were 567IU/ml and antityroglobulin antibodies at 150IU/ml (lower than 0.6) . Cervical ultrasound was in favor of Hashimoto's thyroiditis. Abdominal imaging revealed active inflammatory ileocecal involvement. On the basis of these data, a diagnosis of autoimmune Hashimoto's thyroiditis associated with Crohn's disease was made, and the patient was put on Levothyroxine .

➤ Discussion:

In front of the increasing number of reported cases of their association; several authors suggested the existence of a correlation between autoimmune thyroiditis and IBD, many explanations were presented, among which the immunological theory described by Roura-Mir C and his team, whose strong argument is the presence of an imbalance of type TH2 in the 2 diseases, Now, it became recognized that the balance Th1/Th2 controls the immune system. The second is that which suggests that a common genetic etiology contributes to the coexistence of these diseases

Keywords :- Hashimoto, Thyroiditis , Crohn's Disease.

I. INTRODUCTION

Hashimoto's thyroiditis, is becoming more and more frequent. As well as its association with chronic inflammatory bowel disease, cases of which, although still rare, continue to be reported; indicating a common etiopathogenic mechanism. We report the case of Hashimoto's thyroiditis association with Crohn's disease in a 17-year-old boy.

II. CASE REPORT

A 17-year old male with a 3-year history of crohn's ileocolitis fistulising phenotype, which required a biotherapy, was admitted to the Department of Gastroenterology at our hospital for the exacerbation of the disease. He complained of diarrhea, abdominal pain, bradycardia and asthenia.

The results of a physical examination were unremarkable, while laboratory findings revealed normal blood chemical values, except for elevated CRP (47) and anemia (hb 11). Results of thyroid function tests were as follows: TSH was 8,5 (normal value: 0,4-3,78 UI/ml), Free T4 was 0,46 (normal value: 0,7-1,48 ng/dl). As for antithyroid antibodies, the anti-thyroperoxidase antibody was 567 IU/ml (normal value: <0.1 IU/ml) and anti- thyroglobulin antibody was 150 U/ml (normal value: <0.6 U/ml).

Ultrasonography findings revealed a normal-sized thyroid with a heterogenous parenchyma, hypoechogenic pseudonodule. Abdomino scan revealed active inflammatory ileocecal involvement.

Based on these findings, a diagnosis of autoimmune thyroiditis (Hashimoto's disease) associated with Crohn's disease was made and Levothyroxine was prescribed.

III. DISCUSSION

Crohn's disease is a chronic inflammatory bowel disease, most commonly affecting the terminal ileum and colon. Its incidence in France is around 5/100 000 inhabitants per year, and its prevalence has been increasing for the past 40 years [1]

When to Hashimoto's thyroiditis, it is a chronic inflammation of the thyroid gland, described for the first time in more than a century and whose etiopathogeny is still little known. It is now considered the most common autoimmune disease [2], the most common endocrine disease [3], as well as the most common cause of hypothyroidism [4].

In the literature, coexistence of Crohn's disease and Hashimoto's thyroiditis was reported in 10 patients [8-13]. Of which, three were male and seven were female.

The two diseases were diagnosed simultaneously in 3 cases, and the discovery of Crohn's disease preceded that of Hashimoto's thyroiditis in 5 of the remaining 7 cases.

The coexistence of the two diseases was diagnosed between 10 and 55 years, and the interval between the diagnosis of the first disease and the second was 0 to 27 years. As for thyroid function, 3 cases were in hypothyroidism [10, 14, 15], four cases in hyperthyroidism [8, 11, 12, 13] and one case had a normal thyroid function [10].

For our patient, he had hypothyroidism and Hashimoto's disease was diagnosed at the age of 17, 3 years after the discovery of Crohn's disease.

Due to the increasing prevalence of the association of chronic inflammatory bowel disease and autoimmune thyroiditis [5-7] it was suggested that there is a relation between the two diseases, and several explanations have been proposed.

Among which we evoke : Genetic factors; because the familial occurrence of the two diseases is well known, in our case, no family history has been demonstrated in either of the two diseases. Immunological factors: several studies have shown that the immune response is polyclonal in the two diseases [16] while a study by Bansal AS on autoimmune thyroiditis and Crohn's disease revealed a difference in rates serum of CD23 in both diseases [17]. In addition, it has become recognized that the Th1 / Th2 balance controls the immune system. Hashimoto's thyroiditis is considered to be a Th2-type disease [18], similarly, ulcerative colitis is considered to be a Th2-type disease [19], while several studies have shown Crohn's disease to be more of a disease of type Th1 [20–22]. This explains the high frequency of association of autoimmune thyroiditis with ulcerative colitis compared to its association with Crohn's disease

IV. CONCLUSION

At the moment, there is no clear explanation for the coexistence of autoimmune thyroid disease and Crohn's disease. Random coexistence remains possible but the increasingly accumulation of reported cases requires a more in-depth analysis to clarify the etiology of these associations.

References

- [1]. Torres J., Mehandru S., Colombel J.F., Peyrin-Biroulet L.: Crohn's disease. *Lancet* 2017; 389: pp. 1741-1755.
- [2]. Jacobson D.L., Gange S.J., Rose N.R., and Graham N.M.: Epidemiology and estimated population burden of selected autoimmune disease in the United States. *Clin Immunopathol* 1997;84:pp.223-243
- [3]. Golden S.H., Robinson K.A., Saldanha I., Anton B., and Ladenson P.W.: Clinical review: prevalence and incidence of endocrine and metabolic disorders in the United States: a comprehensive review. *J Clin Endocrinol Metab* 2009; 94: pp. 1853-1878
- [4]. Delemer B., Aubert J.P., Nys P., Landron F., and Boue S.: An observational study of the initial management of hypothyroidism in France: the ORCHIDEE study. *Eur J Endocrinol* 2012; 167: pp. 817-823
- [5]. Jarnerot G, Azad Khan AK, Truelove SC. The thyroid in ulcerative colitis and Crohn's disease. II. Thyroid enlargement and hyperthyroidism in ulcerative colitis. *Acta Med Scand* 197: 83–87, 1975.
- [6]. Snook JA, deSilva HJ, Jewell DP. The association of autoimmune disorders with inflammatory bowel disease. *Q J Med* 72: 835–840, 1989.
- [7]. Mosen U, Sorstad J, Hellers G, Johansson C. Extracolonic diagnoses in ulcerative colitis: An epidemiological study. *Am J Gastroenterol* 85: 711–716, 1990.
- [8]. T. Inokuchi, Y. Moriwaki, S. Takahashi, Z. Tsutsumi, T. Ka, and T. Yamamoto, "Autoimmune thyroid disease (Graves' disease and Hashimoto's thyroiditis) in two patients with Crohn's disease: case reports and literature review," *Internal Medicine*, vol. 44, no. 4, pp. 303–306, 2005.
- [9]. J. A. Carneros, C. Ciriza, O. Urquiza, and S. Dajil, "Crohn's disease in a patient with Hashimoto's thyroiditis and Sjögren's syndrome," *Medicina Clinica*, vol. 119, no. 2, pp. 78–89, 2002.
- [10]. S. A. Shah, M. A. Peppercorn, and J. A. Pallotta, "Autoimmune (Hashimoto's) thyroiditis associated with Crohn's disease," *Journal of Clinical Gastroenterology*, vol. 26, no. 2, pp. 117–120, 1998.
- [11]. I. Bank and J. O. Busari, "Crohn's disease, autoimmune thyroiditis, and beta-thalassemia trait in an adolescent: an unusual combination of diseases," *European Journal of Pediatrics*, vol. 167, no. 11, pp. 1343–1346, 2008.
- [12]. U. Halac and D. Herzog, "Bardet-Biedl syndrome, Crohn disease, primary sclerosing cholangitis, and autoantibody positive thyroiditis: a case report and a review of a cohort of BBS patients," *Case Reports in Medicine*, vol. 2012, Article ID 209827, 5 pages, 2012.
- [13]. J. K. Triantafyllidis, S. Durakis, and E. Merikas, "Crohn's disease of the small bowel, complicated by primary biliary cirrhosis, Hashimoto thyroiditis, and Raynaud's phenomenon: favorable response of all disorders to adalimumab treatment," *Gastroenterology and Hepatology from Bed to Bench*, vol. 6, no. 2, pp. 101–105, 2013.
- [14]. H. Noto, M. Imura, T. Karibe et al., "A case of Turner syndrome complicated with Crohn's disease, erythema nodosum and Hashimoto disease," *Japanese Journal of Gastroenterology*, vol. 103, no. 9, pp. 1039–1043, 2006.
- [15]. S. Honjo, M. Shiraishi, A. Doyama et al., "A case of small intestine Crohn's disease diagnosed by double balloon endoscopy with Hashimoto's disease," *Rinsho Shonikagaku*, vol. 60, pp. 39–42, 2012.
- [16]. Kaulfersch W, Baker JR, Burman KD, et al. Molecular genetic detection of polyclonal immune response in autoimmune thyroiditis and inflammatory bowel diseases. *Monatsschr Kinderheilkd* 137: 610–615, 1989.
- [17]. Bansal AS, Ollier W, Marsh MN, Pumphery RS, Wilson PB. Variations in serum CD23 in conditions with either enhanced humoral or cell-mediated immunity. *Immunology* 79: 285–289, 1993.

- [18]. Roura-Mir C, Catalfamo M, Sospedra M, Alcalde L, Pujol-Borrell R, Jaraquemada D. Single-cell analysis of intrathyroidal lymphocytes shows differential cytokine expression in Hashimoto's and Graves' disease. *Eur J Immunol* 27: 3290–3302, 1997.
- [19]. Bonapace ES, Srinivasan R. Simultaneous occurrence of inflammatory bowel disease and thyroid disease. *Am J Gastroenterol* 96: 1925–1926, 2001.
- [20]. Niessner M, Volk BA. Altered Th1/Th2 cytokine profiles in the intestinal mucosa of patients with inflammatory bowel disease as assessed by quantitative reverse transcribed polymerase chain reaction (RT-PCR). *Clin Exp Immunol* 101: 428–435, 1995.
- [21]. Parronchi P, Romagnani P, Annunziato F, et al. Type 1 T-helper cell predominance and interleukin-12 expression in the gut of patients with Crohn's disease. *Am J Pathol* 150: 823–832, 1997.
- [22]. Targan SR, Murphy LK. Clarifying the causes of Crohn's. *Nat Med* 12: 1241–1243, 1995.