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Thymoma and Crohn's Disease: A Case Report

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Abstract | **Case Report**

Thymoma is often associated with other diseases, including autoimmune diseases and endocrine disorders. Crohn's disease is a nonspecific inflammatory disease and is considered an immune-mediated disorder; However, the coincidence of thymoma and Crohn's disease is rare. We report the observation of a 63-year-old woman with invasive thymoma and Crohn's disease. Following radio-chemotherapy, the digestive symptoms disappeared.

Keywords: Crohn's disease, chronic inflammatory bowel disease, autoimmune disease, thymoma, mediastinal tumors, para-thymic syndrome, thymectomy.

INTRODUCTION

Thymomas are rare mediastinal tumors closely associated with autoimmune diseases. While myasthenia is prevalent, occurring in 35-45% of thymoma patients, other autoimmune conditions such as hypogammaglobulinemia, erythroblastopenia, and systemic lupus erythematosus have been reported. Parathymic digestive manifestations remain much rarer and less understood. Autoimmune hepatitis and various forms of colitis are the most common. We report an uncommon paraneoplastic association between thymoma and Crohn's disease with a favorable outcome after therapeutic management. Additionally, we present a review of cases in the literature.

OBSERVATION

We present the case of Mrs. BN, a 63-year-old woman with no significant medical history. She reported a 10-month history of digestive symptoms, including abdominal pain and transit disorders characterized by alternating diarrhea and constipation. One month later, she developed dyspnea (stage 1 mMRC) and a dry cough, in the absence of fever, accompanied by a decline in her general health.

Physical examination revealed diffuse abdominal tenderness, while the chest examination was unremarkable. Chest radiography (Figure 1) revealed enlargement of the middle and lower mediastinum.

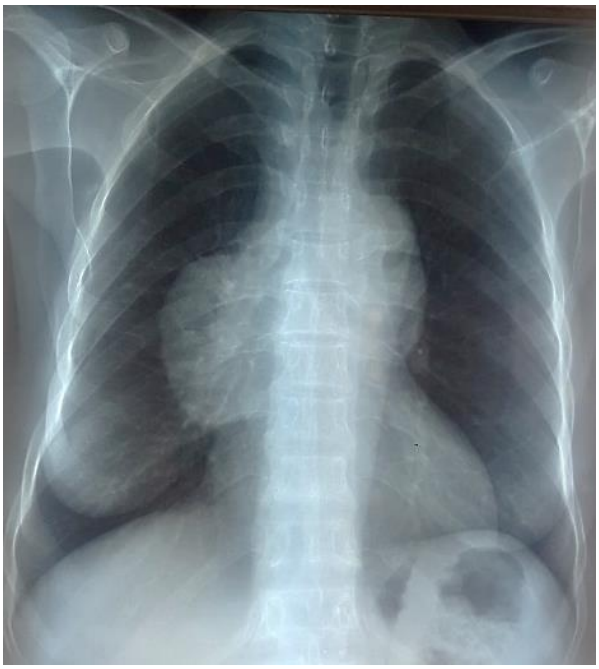

Figure 1: Frontal chest radiograph depicting enlargement of the middle and lower mediastinum

Thoracic CT scan (Figure 2) revealed an anterior mediastinal tissue process with lobulated contours, closely interacting with large vessels and the right heart chambers, showing heterogeneous enhancement following contrast medium injection.

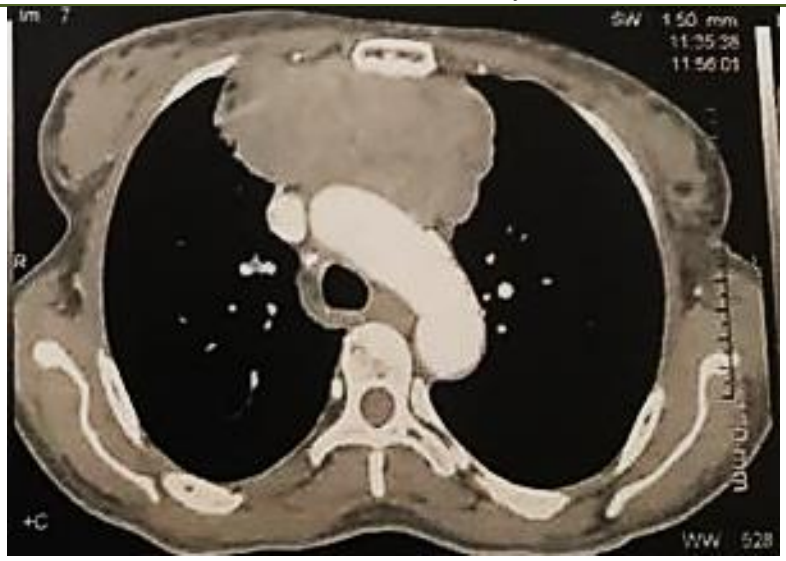

Figure 2: Axial section thoracic CT scan showing a large anterior mediastinal process in close contact with the large vessels

Human Chorionic Gonadotropin (BHCG) and Alpha fetoprotein (AFP) assays were normal. The diagnosis was confirmed by transparietal biopsy, revealing a poorly differentiated and infiltrating tumor proliferation with solid architecture composed of sheets of polygonal epithelioid cells expressing cytokeratin AE1/AE3. CD3 and CD5 were expressed by small T cells, indicative of a B3 type thymoma.

Regarding the digestive symptomatology, the abdominal CT scan (Figure 3) demonstrated multifocal stepped digestive parietal thickening.

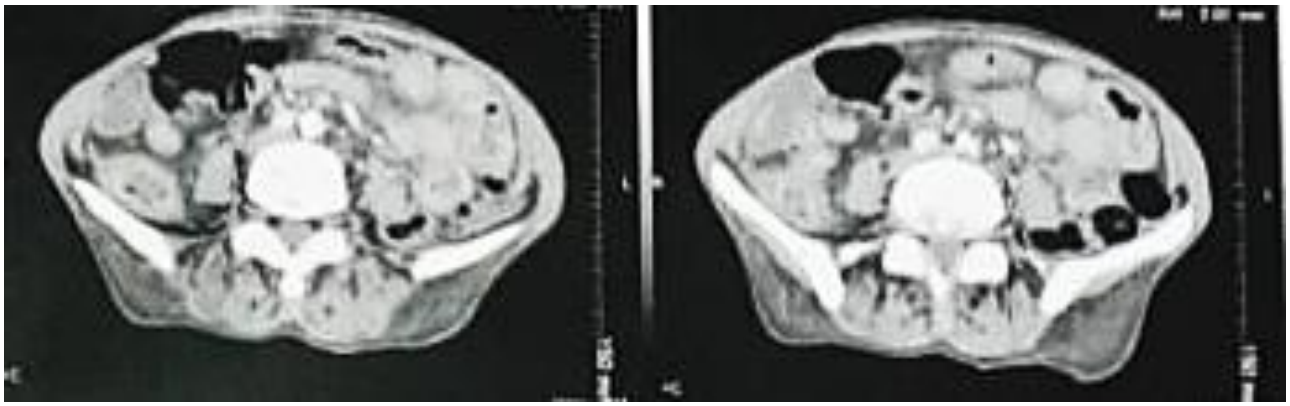

Figure 3: Axial section abdominal CT scan objectifying a stepwise multifocal digestive parietal thickening

The infectious workup, specifically the search for Koch's bacillus in the stool and coproculture, yielded negative results. Fecal Calprotectin was elevated at 160 ug/g stool. The upper gastrointestinal endoscopy was normal, but colonoscopy revealed a regular right colonic stenosis with an inflammatory appearance and large, deep, discontinuous aphthous ulcerations. Colonic biopsies favored a chronic inflammatory remodeling in an active acute attack with non-necrotizing tuberculoid granulomatous inflammation.

After a collaborative decision, the diagnosis of Crohn's disease within the framework of a para-thymic syndrome was established, and the patient was prescribed Aminosalicylates. The remainder of the workup for myasthenia gravis or other associated autoimmune syndromes returned negative results.

Following a decision from the multidisciplinary consultation meeting of thoracic oncology, the patient underwent four courses of induction chemotherapy following the CAP protocol, based on Cisplatin, Adriamycin, Cyclophosphamide. Clinical re-evaluation revealed the persistence of dry cough and dyspnea, but the digestive symptoms had disappeared. In the follow-up thoracic CT scan (Figure 4), the thymoma was stable, prompting the decision for sequential radiotherapy.

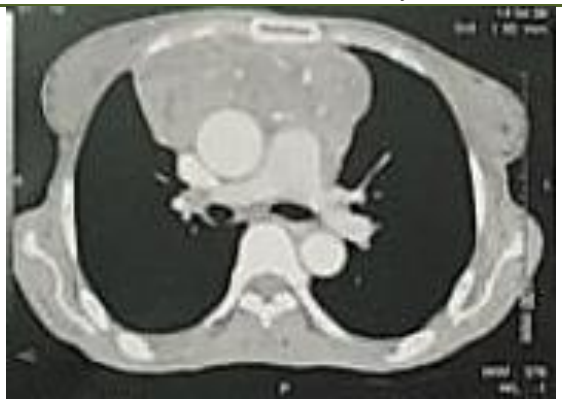

Figure 4: Follow-up thoracic CT scan indicates a quasi-stable appearance of the thymoma

DISCUSSION

Thymomas, rare tumors originating from thymic epithelial cells, account for half of anterior mediastinal tumors. Thymopoiesis, active in thymomas, contributes to autoimmune disease development by producing polyclonal CD4 and CD8 T cells. Failure in the positive and negative selection of T cells in the thymus may result in autoreactive lymphocytes, leading to loss of tolerance to autoantigens and the development of autoimmune syndromes, either preceding, occurring simultaneously, or following the thymoma diagnosis.

These autoreactive lymphocytes target self-antigens in various organs, including those in the gastrointestinal system. While chronic inflammatory bowel diseases (IBD) like ulcerative colitis (UC) and Crohn's disease involve adaptive immune response dysregulation and loss of tolerance to commensal intestinal flora, the coexistence of thymoma and IBD is uncommon.

Souadjian and al in their own experience at the Mayo Clinic found para-thymic syndrome in 71% of patients. UC was associated with thymoma in 2 of 598 patients (0.3%) [2]. A nationwide study in Japan over 4 years found one case of UC out of 417 patients followed for thymoma [3]. Tsuchiya *et al.*, studied the association between thymic abnormalities and autoimmune diseases. In patients with myasthenia gravis or UC, age-related physiological involution of the thymus does not occur and the ratio of suppressor T cells (CD8+) to auxillary T cells (CD4+) was low [4]. However, two cases of patients with Crohn's disease were studied and the CD4+/CD8+ ratios were found to be normal [5]. Nevertheless, the available evidence suggests that tissue damage in UC and Crohn's disease is mediated by immune mechanisms, especially as it is ameliorated following thymectomy. Indeed, a 1991 trial demonstrated the benefit of thymectomy in patients with IBD resistant to conventional therapy by increasing the duration of remission compared to the non-thymectomized group [6]. Moreover, Finnie *et al.*, reported the case of a patient with crohn's disease who, despite rectal resection, still had perineal lesions associated with myasthenia gravis that did not respond to anticholesterase drugs, and in whom thymectomy allowed the disappearance of all digestive and myasthenic symptoms [7]. Another case in Japan reported by Okubo *et al.*, about a patient with a thymoma associated with UC. Thymectomy resulted in complete resolution of clinical and endoscopic signs of ulcerative colitis [8]. Interestingly, James reported remission of Crohn's colitis in a patient who developed HIV-associated immunodeficiency, suggesting that CD4+ T cells may play an important role in the pathogenesis of Crohn's disease [9]. All this leads us to consider the role of thymectomy in the treatment of inflammatory bowel disease.

CONCLUSION

Thymomas are often linked to autoimmune pathologies, emphasizing the importance of considering such associations as para-thymic syndromes rather than mere coincidences. In this report, we present an uncommon case involving the coexistence of Crohn's disease and a thymoma. While the association of thymomas with chronic inflammatory bowel disease (IBD) is documented, it is typically linked to hemorrhagic rectocolitis. This observation, along with findings in existing literature, underscores the potential promising role of thymectomy in the treatment of IBD.

Declaration of interest: The authors declare that they have no conflict of interest.

Consent: Written informed consent for publication of their clinical details and/or clinical images was obtained from the patient Ethical approval has been exempted by our institution

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