

Exploring the Causes of Respiratory Infections

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ABOUT THE STUDY

A complete blood test revealed macrocytic anaemia with a haemoglobin level of 8.3 g/dL, hematocrit of 22%, mean corpuscular volume of 104 fL, mean corpuscular haemoglobin of 35.6 pg/dL, and normal leucocyte and platelet counts. Hematology was consulted to further investigate megaloblastic anaemia. A bone marrow aspirate specimen revealed normal granulopoiesis, normal megakaryopoiesis, and no erythroid precursors. A bone marrow biopsy revealed a normal myeloid series as well as the absence of erythroid progenitor cells consistent with Pure Red Cell Aplasia (PRCA). PRCA caused the probability of thymoma. The contrast-enhanced computed tomography scan revealed a 2.5 cm anterior mediastinal mass with a regular outline, positioned in the anterior vicinity of the main pulmonary artery. Thymoma was discovered, and a thymectomy was performed *via* a partial median sternotomy. The histological examination revealed a lymphoepithelial thymoma, confirming the diagnosis of thymoma-associated PRCA. Following surgery, the patient received radiation challenging [1].

Thymoma is a thymic epithelial tumour, and around 40% of thymoma patients have clinically related paraneoplastic syndromes such as Magnesium (MG), PRCA, hypogammaglobulinemia (Good's syndrome), autoimmune diseases, and vasculitis. PRCA and hypogammaglobulinemia have been documented to occur in 1.6-5% and 3-6% of thymoma patients, respectively [2].

Thymectomy should be undertaken to prevent thymoma local invasion, dissemination, and metastatic spread. In almost all cases, however, thymectomy does not restore immunological function. Standard immunoglobulin replenishment is recommended for hypogammaglobulinemia. A review of the efficacy of immunoglobulin replacement for Good's syndrome found that 23 of 30 patients responded favourably during their follow-up periods. Nevertheless, there are no other known therapy alternatives for infection suppression [3]. Recurrent sinopulmonary infections, as in this example, are the most prevalent infectious consequence of Good's syndrome, and they

they are usually caused by encapsulated bacteria. They found that the infections most typically observed in Good's syndrome patients were recurrent sinopulmonary infections caused by encapsulated bacteria, most often *Haemophilus influenzae*, followed by mucocutaneous candida infections and Cytomegalovirus (CMV) illness. The history of our patient suggested CMV ulcers in the tongue accompanied by retinitis, however this was not confirmed by tissue collection and/or laboratory testing. CMV illness and other opportunistic infections appear to be more common in Good's syndrome patients than in other hypogammaglobulinemic diseases. This shows that these patients also had substantial cellular immunological abnormalities, which was substantiated by *in vitro* investigations that revealed defects in T lymphocyte proliferation and/or Interleukin-2 (IL-2) production in these patients. The patient's immunodeficiency was assumed to be the cause of both recurring respiratory infections and the activation of latent infections [4]. In our case, neither surgery nor IVIG administration improved PRCA. Blood transfusions were necessary on a regular basis. It obtained complete remission of PRCA with systemic steroid therapy that was gradually decreased over six months, and no relapses were detected thereafter. In our patient, Good's syndrome did not react to either surgical resection or immunosuppressive medication, as previously reported. The risk of respiratory infections was reduced with monthly intravenous immunoglobulin supplementation of 0.5 g/kg [5].

Therefore, thymoma-associated PRCA accompanied with Good's syndrome merits special consideration in terms of treatment strategy targeting both PRCA and infectious consequences. For the long term recommend meticulous management with comprehensive infection control utilizing antibiotics and intravenous immunoglobulins. As part of the management also prescribe vaccination against encapsulated microorganisms and prophylaxis against herpes simplex virus infection and *Pneumocystis jiroveci*. The decision to use immunosuppressive medication for PRCA will be determined by larger-scale studies.

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