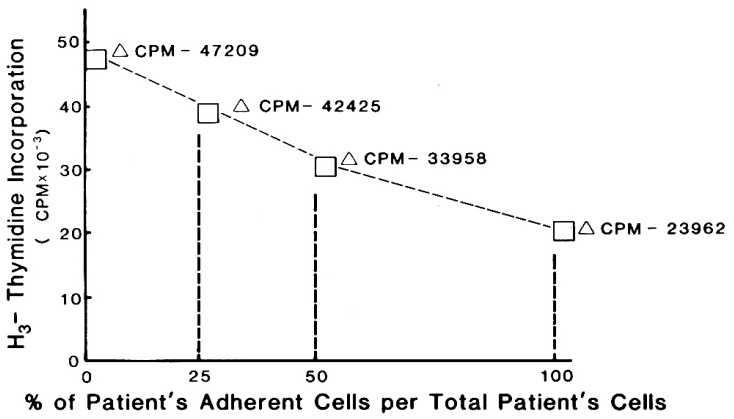

Figure 4. *Co-culture with PPD of the normal positive PPD control cells and patient's adherent cells. *Gradual increase in the percentage of adherent cells per total patient's cells resulted in a progressive decrease of the proliferative response.

as suppressor cells in human tuberculosis,[3] as well as in leprosy.[5] Prostaglandin-mediated adherent cells[16] have been found to suppress cellular immunity in both sarcoidosis and Hodgkin's Disease.[8,9]

This particular patient has, in addition to anergy and increased suppressor cell activity, common variable hypogammaglobulinemia. It has been shown by Waldmann et al[11] that this disease is also associated with an immunoregulatory imbalance, namely abnormal suppressor cell activity. We postulate that the association of common variable hypogammaglobulinemia and *M. avium-intracellulare* pulmonary infection in this patient may be explained as due to a generalized suppressor hyperreactivity which may have been first associated with the hypogammaglobulinemia. Increased pulmonary infections ensued, leading to bronchiectasis. Due to the deformed structure and impaired clearance secondary to bronchiectasis, colonization of an opportunistic organism such as *M. avium-intracellulare* was facilitated. Because the increased suppressor activity resulted in depressed cellular immunity, the colonization eventually resulted in tissue invasion by the organisms with progressive destruction of lung parenchyma.

Summary

Immunologic studies were done in a patient with common variable hypogammaglobulinemia, bronchiectasis and *M. avium intracellulare* pulmonary infection.

Adherent cells from the patient were found to suppress the proliferative response of normal control cells to PPD antigen. The suppression seemed to be mediated by prostaglandin as it was reversed by indomethacin.

Increased suppressor cell activity may play an important role in the pathogenesis of *Mycobacterium avium-intracellulare* infection by permitting the transformation of a status of colonization by the organism in pre-existing pulmonary conditions into an invasive, progressive disease.

The role of prostaglandin in mediating this suppression merits further consideration as reversal of the suppression by indocin may favorably influence the outcome of this difficult-to-treat disease. Immunologic studies of a large group of patients with *M. avium-intracellulare* infection would be required to clarify this possibility.

References

1. Davidson PT: The management of disease with atypical mycobacteria. Clin Notes Respir Dis 18: 3–13, 1979.
2. Wolinsky E: Nontuberculous mycobacteria and associated diseases. Am Rev Resp Dis 119: 107–159, 1979.
3. Ellner JJ: Suppressor adherent cells in human tuberculosis. J Immunol 121: 2573–2579, 1978.
4. Katz P, Goldstein RA and Fauci AS: Immunoregulation in infection caused by *Mycobacterium tuberculosis*: the presence of suppressor monocytes and the alteration of subpopulation of T lymphocytes. J Infect Dis 140: 12–21, 1979.
5. Mehra V, Mason LH, Fields JP and Bloom BR: Lepromin-induced suppressor cells in patients with leprosy. J Immunol 123: 1813–1817, 1979.
6. Stobo JD, Paul S, Vanscoy RE and Hermans PE: Suppressor thymus derived lymphocytes in fungal infection. J Clin Invest 57: 319–328, 1976.
7. Bean MN, Kodera Y, Cummings KB and Bloom BR: Occurrence of restricted suppressor T-cell activity in man. J Exp Med 146: 1455–1460, 1977.
8. Goodwin JS, Messner RP, Bankhurst AB, Peake GT, Saiki JH and Williams RC: Prostaglandin-producing suppressor cells in Hodgkin's disease. New Eng J Med 297: 963–968, 1977.
9. Goodwin JS, Dehoratius R, Israel H, Peake GT and Messner RP: Suppressor cell function in sarcoidosis. Ann Int Med 90: 169–173, 1979.
10. Kagan WA, Ascensoai JA, Pahwa RN et al: Aplastic anemia: presence in human bone marrow of cells that suppress myelopoiesis. Proc Natl Acad Sci USA 73: 2890–2894, 1976.
11. Waldmann TA, Broder S, Krakauer R et al: The role of suppressor cells in the pathogenesis of common variable hypogammaglobulinemia and the immunodeficiency associated with myeloma. Fed Proc 35: 2067–2072, 1976.
12. Deaton CD, Maxwell KW, Smith RS and Creveling RL: Use of laser nephelometry in measurement of serum proteins. Clin Chem 22: 1465–1471, 1976.
13. Preud'Homme JL and Labaume S: Detection of surface immunoglobulins on human cells by direct immunofluorescence. In *In vitro Methods in Cell-mediated and Tumor Immunity*, Bloom BR and David JR (Eds.). New York: Academic Press. 1976, p. 155.
14. Hoffman T and Kunkel HG: The E rosette test. In *In Vitro Methods in Cell-mediated and Tumor Immunity*, Bloom BR and David JR (Eds.). New York: Academic Press. 1976, p. 71.
15. Maino VC, Kurnick JT, Kubo RT and Grey HM: Mitogen activation of human chronic lymphatic leukemia cells. I. Synthesis and secretion of immunoglobulin. J Immunol 118: 742–748, 1977.
16. Goodwin JS, Bankhurst AD and Messner RP: Suppression of human T-cell mitogenesis by prostaglandin: existence of prostaglandin-producing suppressor cells. J Exp Med 146: 1719–1734, 1977.

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