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Case Report

Intermittent Polyarthritis Due to Propylthiouracil

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Summary **A case of intermittent polyarthritis developing as a result of long term propylthiouracil (PTU) uptake is described together with successful treatment based on drug replacement.**

Key words **Hyperthyroidism, Propylthiouracil, Arthritis.**

INTRODUCTION

Intermittent polyarthritis has been reported to occur in several diseases such as early rheumatoid arthritis, palendromic rheumatism, intermittent hydrarthrose, familial Mediterranean fever, Behçet's syndrome, serum sickness, allergic reactions and in drug hypersensitivity cases (1). In each of the above conditions, the patient's history and different clinical and laboratory findings may help establish differential diagnosis. Furthermore, a history of foreign serum or drug uptake, skin rashes and oedema are important clues in view of the diagnosis of serum sickness and drug-induced arthritis. In these cases, arthritis is non-destructive and the symptoms are apt to disappear spontaneously when the aetiologic factor is eliminated. Here we report an intermittent polyarthritis which developed in a patient who had been receiving propylthiouracil (PTU) for over 10 years as an antithyroid treatment.

CASE REPORT

A 45-year-old woman referred to the Department with arthritis complaints. She has had a toxic nodular goitre confirmed by serum free T3, T4, TSH and thyroid scintigraphy for over 10 years, and has been receiving PTU since then. The maintenance dosage was 100 mg three times a day, following the development of acute arthritis of her right elbow for six months prior to admission. She then suffered from intermittent arthritis attacks every 2-3 weeks lasting for 3 to 4 days. No changes were made in the dosages of the drug and no concomitant therapy was given before the onset of rheumatic symptoms. In addition, there was no apparent reason for arthritis to develop. Arthritic symptoms, mostly localised at large joints such as elbows, wrists, knees and ankles with all the inflammatory signs eased spontaneously until the next attack.

Physical examination revealed pain, mild swelling, slight fever and hyperaemia at her right wrist. All the other joints and systemic examination were normal. Except for a mild elevation in the serum IgM and CRP levels, all the other laboratory investigations including CBC, ESR, urine analysis, blood chemistry and the serum levels of ASO, RF, IgG, IgA, C3, C4, ANA, Anti-dsDNA, TSH, free T3 and T4 were all within normal range. The X-ray findings of the joints and the chest were also normal. Microbiological examinations of successive throat swabs were negative.

Due to suspected PTU involvement in the syndrome, the drug was replaced with methimazole. Prompt alleviation of the arthritic symptoms was observed. Follow-up examinations have shown no evidence of relapse over two years after the replacement of the drug.

DISCUSSION

It is known that some rheumatic manifestations may develop in patients with hyperthyroidism. These include thyroid acropacy, proximal muscle weakness, adhesive capsulitis and calcific periarthritis (2,3). Thyroid acropacy consisting of distal soft tissue swelling, clubbing, periosteal new bone formation is especially seen in the hands and feet. Acropacy may first occur after a euthyroid state is achieved and signs of inflammation are not prominent although the syndrome is painful (2-4). On the other hand, some adverse reactions to PTU have been described mainly in connection with hypersensitivity reactions involving skin eruptions, agranulositosis, hepatotoxicity and rheumatic syndromes (5-7). The rheumatic

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symptoms are rare and consist of migratory polyarthralgia or polyarthritis, myalgia, joint effusions, serum sickness-like syndrome, rheumatoid arthritis, lupus erythematosus and polyarteritis nodosum (3,5,6,8,9).

Although drug-induced lupus has been described in patients receiving PTU, it may not account for many of the rheumatic symptoms observed with this medicine. In some cases positive antinuclear antibodies, low levels of serum complement and elevated gamma globulin levels have been reported (3,5). While in a series of 500 cases treated with antithyroid drugs, polyarthralgia without erythema or swelling has been reported in only 8 patients (5), all the objective joint inflammation signs were significantly manifested in our patient.

Drug replacement, particularly a change from propylthiouracil to methimazole, to alleviate the rheumatic complaints in antithyroid drug receivers has been successful, albeit with the recurrence of the symptoms (5). A cause-and-effect relationship between the propylthiouracil uptake and the development of arthritis profile was not investigated in our patient. The fact that the replacement of the drug with methimazole completely eliminated the symptoms clearly suggests a not-well characterised drug-induced hypersensitivity reaction in the absence of consistent laboratory findings. Mildly elevated serum IgM and CRP levels in our patient were not attributed to a particular response. It was considered as indicative of an immunologic reaction attributed to the use of PTU.

Our experience with this patient highlights the possibility of arthritis development following the use of an antithyroid drug. This condition should be distinguished from the rheumatic symptoms developing in hyperthyroidism and the other periodic arthritis cases.

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