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Ankylosing spondylitis and auto-immunity

G. O. COWAN

M.B., M.R.C.P., M.R.C.P.E., D.T.M.&H.

British Military Hospital, Rinteln B.F.P.O.29

Summary

A case of ankylosing spondylitis is described in which a relationship with gastric and endocrine auto-immunity could be demonstrated.

Case report

C.B., a Caucasian male aged 46, presented with a history for 4 months of general malaise, night sweats, loss of 8 kg in weight and deep constant pain in both hips, lower central back and upper lateral chest, with associated morning stiffness and considerable loss of spinal mobility. He admitted to occasional slight backache for 10 years, but he had never previously sought treatment for it. He had no peripheral joint pain and no gastro-intestinal or urinary symptoms.

On examination, he had marked loss of spinal mobility, being unable to rise from a supine position without first rolling prone. There was marked tenderness over both sacro-iliac joints and generally over his spine and rib-cage. Cervical spinal mobility was good. There was no evidence of peripheral joint disease and examination of his central nervous system, abdomen, heart and eyes was normal. Chest expansion was limited to 2 cm, but his peak expiratory flow rate was 410 l/min. Rectal examination revealed a slightly enlarged and markedly tender prostate gland, especially in the medial lobe.

Investigations. Significant abnormal findings were: ESR (Westergren) 85–120 mm/hr; total serum proteins 7.4 g/100 ml, albumin 3.0 g/100 ml, globulin

4.4 g/100 ml, with no abnormality on paper electrophoresis but moderately raised IgG level (1.7 g/100 ml). Auto-antibodies (Doniach, personal communication): thyroglobulin tanned cell agglutination negative; cytoplasmic immunofluorescent antibodies positive (CFT 1 in 4); gastric parietal cell antibodies strongly positive; adrenal antibodies negative; anti-nuclear factor negative.

Serum B_{12} 125 pg/ml. (*Euglena gracilis*). Schilling test (1 μg of $^{58}\text{Co B}_{12}$) less than 1% absorbed in 24 hr without intrinsic factor; 25% absorbed in 24 hr with intrinsic factor. Maximal histamine test (0.04 mg/kg): no free acid in gastric contents before or in 1 hr after injection. Gastric biopsy: marked thinning of the mucous membrane, shortening of gastric glands, marked plasma cell and lymphocyte infiltration of lamina propria.

Haemoglobin 13.2 g/100 ml, PCV 42%. Sternal marrow biopsy: normoblastic erythropoiesis but reduced stained iron. Serum iron 100 μg /100 ml. X-rays: chest and skull normal. Lumbar spine: marked bilateral sacro-iliac joint sclerosis with anterior and posterior lumbar intervertebral spondylitis and syndesmophytes. Slight posterior intervertebral sclerosis in upper dorsal spine. Barium meal showed mild atrophic gastritis and barium enema was normal. Normal results were obtained for the following investigations: blood urea, serum uric acid, calcium, inorganic phosphate, acid and alkaline phosphatase, cholesterol, folate; liver function tests; VDRL, RPCFT, RA and LE latex,

SCAT (Rose-Waaler), Widal, brucellar antibodies, ECG, stool examination for occult blood and parasitic ova; thyroid function (Thyopac T3-105); glucose tolerance test; plasma cortisol.

Examination of routine mid-stream urine specimens showed no abnormality; after prostatic massage the urine contained large numbers of pus cells but was sterile on routine culture.

He was treated with oral Indomethacin 25 mg t.i.d. which produced rapid and complete remission of his skeletal symptoms. He has remained well on this treatment, but has been unable to reduce the dosage without recurrence of back pain and stiffness, and his ESR remains elevated at 75 mm/hr 6 months after starting treatment. He has also been given intramuscular vitamin B₁₂ 1000 µg monthly, and courses of ampicillin and sulphonamide, which have reduced his prostatic tenderness and post-massage pyuria.

The patient was unable to produce medical details of his parents, but both had died in their seventies. He knew of no family history of joint disease, thyroid disease, or pernicious anaemia. His only sibling, a male aged 57, had been found at the age of 49 to have Addison's disease and radiological but asymptomatic sacroiliitis. He later developed thyrotoxicosis and diabetes mellitus and a positive result for gastric parietal cell antibodies, but his serum B₁₂ level was normal. Tests for thyroid and adrenal antibodies were negative (Mahler, personal communication).

Discussion

Ankylosing spondylitis has not generally been regarded as one of the interrelated group of auto-immune diseases with organ-specific antibodies, which includes Hashimoto's disease, thyrotoxicosis, atrophic gastritis, diabetes mellitus, Addison's disease, and hypoparathyroidism (Turk, 1969; Irvine *et al.*, 1970). Although Whittingham *et al.* (1971) associate rheumatoid arthritis and ulcerative colitis with these diseases, they found no correlation with ankylosing spondylitis, despite the known relationship between ulcerative colitis and ankylosing spondylitis (Acheson, 1960; Steinberg & Storey, 1957; Bennett, 1971). There is general agreement on the absence of significant anti-nuclear antibodies in the serum (Ritchie, 1967) and synovial fluid (Mac-sween *et al.*, 1967) of patients with ankylosing spondylitis, but conflicting evidence on the signifi-

cance of increased serum immunoconglutinins; Bienenstock & Block (1967) reporting significant increases in rheumatoid arthritis, ankylosing spondylitis, acute gout, Hashimoto's disease, Sjogren's syndrome and systemic lupus erythematosus, a group in which they find the presence of gout and ankylosing spondylitis 'unexpected'. Ankylosing spondylitis has also been associated with antibodies to joint tissue (Felsch, 1969) and with chronic prostatitis (Mason *et al.*, 1958) and prostatic autoantibodies (Grimble & Lessof, 1965).

The patient described shares with his only sibling sacro-iliitis and gastric parietal cell antibodies. The patient has atrophic gastritis, symptomatic ankylosing spondylitis and sub-acute prostatitis and his sibling Addison's disease, thyrotoxicosis and diabetes mellitus, thus implying a more direct relationship in this instance between ankylosing spondylitis, prostatitis and the thyrogastric and polyendocrine group of auto-immune diseases.

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