

Bronchiectasis with ulcerative colitis and myelopathy

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The inflammatory bowel diseases are associated with several extraintestinal manifestations.¹ It has been considered that lung abnormalities are restricted to associations with ankylosing spondylitis and chronic active hepatitis (chest wall restriction or pulmonary fibrosis) and drug side effects.² An association between chronic bronchial suppuration and inflammatory bowel disease has, however, been described.^{3,4} Although the cause of the pulmonary disease is unknown, it has been proposed that an immunological allergic mechanism is concerned.⁴ We continue to see patients presenting with bronchiectasis and ulcerative colitis and report a case associated with an unexplained myelopathy.

Case report

A 40 year old Asian man, who had been resident in Britain for 18 years, presented with diarrhoea and rectal bleeding of six months' duration. He was smoking up to 100 cigarettes a day and had been drinking over 20 pints (8 litres) of beer daily for 10 years, until the previous year, when he stopped for no clear reason. A diagnosis of ulcerative colitis was confirmed by rectal biopsy and he was treated with prednisolone and sulphasalazine. Four months later he developed pains in ankles and hips, which were attributed to colitic arthropathy. Eight months after presentation he underwent subtotal colectomy and a persistent rectal fistula then necessitated removal of the rectal stump.

Six months after colectomy he developed multiple subcutaneous abscesses. At this time he noted stiffness of his legs and cramps in his calves. Nine months after colectomy he developed severe sinusitis, requiring antral washouts, and two months later a cough productive of daily purulent sputum.

The persistent respiratory symptoms required several admissions to hospital for antibiotic treatment and physiotherapy. Physical examinations showed that the patient was thin, breathless at rest, and producing up to 130 ml of purulent, bloodstained sputum daily. On auscultation there were bilateral mid and lower zone respiratory crackles. His legs were moderately spastic with ankle clonus, weakness of pyramidal distribution (MRC grade 4 in flexors), pathologically brisk symmetrical reflexes, and extensor plantar responses. Vibration sense was absent to the costal margins and his gait showed spastic paraparesis.

Results of investigations included: haemoglobin concentration (Hb) 9.6 g/dl, mean cell volume 74 fl, mean cell haemoglobin 23 pg, serum iron concentration 7.3 (normal

12.6-26) $\mu\text{mol/l}$, total iron binding capacity 67 (36-72) $\mu\text{mol/l}$, serum folate concentration 0.9 (3-20) ng/ml, erythrocyte sedimentation rate 138 mm in one hour, aspartate transaminase activity 80 (7-45) IU/l, and alanine transaminase activity 217 (7-45) IU/l. Antinuclear antibodies were present, the rheumatoid factor test gave a negative result, serum anti-DNA antibodies were 16 units/ml, and serum immunoglobulins were: IgG 3010 (50-170) IU/l, IgA 414 (50-170) IU/l, IgM 236 (50-180) IU/l. Serum complement levels were normal (C3 1.35 g/l (normal 0.7-1.8), C4 0.24 (0.2-0.5) g/l, CH50 135%), and C1q binding immune complexes were absent. Histocompatibility typing showed: HL-A24,26; B35,51; BW4,6; C nil; DR2. Serological testing for syphilis gave negative results with blood and cerebrospinal fluid. *Haemophilus influenzae* was cultured from sputum and responses to skinprick tests for immediate hypersensitivity were negative. Spirometric values were: FEV₁ 1.4 litres, forced vital capacity (FVC) 2.5 l. A chest radiograph showed extensive bilateral lower zone bronchial wall thickening with dilated bronchi. Sinus radiographs showed antral mucosal thickening and a pelvis radiograph showed sacroileitis. Echocardiography did not indicate an intracardiac source of emboli.

A computed tomogram of the brain and posterior fossa and supine cervical myelography showed normal appearances. Lumbar cerebrospinal fluid contained $2.1 \times 10^4/l$ lymphocytes and a protein content of 0.35 g/l. Polyacrylamide gel electrophoresis of the protein showed γ 4 and 5 oligoclonal bands, confirmed by isoelectric focusing; but quantitation of cerebrospinal fluid IgG gave normal results. Visual evoked responses were normal and the Kveim test result was negative, and electromyography did not show evidence of any lesion of motor neurones.

Because of the myelopathy the patient was given ACTH 80 units daily; this dose was reduced over three weeks. Sputum production ceased but there was no improvement in neurological symptoms. The haemoglobin increased to 13.5 g/dl, the erythrocyte sedimentation rate fell to 18 mm in one hour and spirometric values improved (FEV₁ 3.2 l, FVC 4.8 l). Three months after the start of ACTH treatment sputum production returned and within 18 months he was producing 130 ml of purulent sputum daily. In addition, a perineal discharge developed at the site of the rectal closure, subcutaneous abscesses developed periodically, and by four years from the onset of paraparesis spasticity had increased and the power of hip flexion was reduced to MRC grade 3.

Discussion

This case is representative of those already described showing the association between the development of persistent purulent bronchial secretions and a phase of active colitis or

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colectomy a few months previously.^{3,4} In view of the small number of similar patients described so far, it is important to consider whether the association represents the chance occurrence of two unrelated disorders. The unexplained nature of the pulmonary symptoms and their temporal relationship to the colitis are against this notion. Reports of pulmonary infiltrates⁵ and impaired gas exchange⁶ in inflammatory bowel disease support the possibility of extraintestinal effects on the lungs. In our patient heavy tobacco consumption could have contributed to the respiratory symptoms. In addition, several studies show a lower prevalence of smoking in inflammatory bowel disease than in control subjects. It is of speculative interest that in this case loss of a protective factor is implied by onset of colitis one year after smoking stopped.

An association with neurological phenomena has not previously been reported but the close temporal association in this patient suggests a common factor. Of interest are the two cerebrospinal fluid bands seen during electrophoresis. These were not present in the patient's serum, indicating their abnormal synthesis within the central nervous system. Such oligoclonal gammopathy is a feature of various diseases, including multiple sclerosis.⁷ Although this gammopathy occurs sufficiently frequently (95%) in multiple sclerosis⁸ to be of diagnostic importance, the classification criteria for multiple sclerosis are not fulfilled in this case.⁹ Features that argue against a diagnosis of multiple sclerosis include the absence of clinical or other evidence (evoked responses) of a second neurological lesion, the patient's upbringing in an area of low risk for multiple sclerosis, and four years' clinical stability. A statistical association between ulcerative colitis and multiple sclerosis has been noted,¹⁰ but there is no further support for this.

Many of the extraintestinal manifestations of inflammatory bowel disease are thought to be immunologically mediated epiphenomena caused by circulating immune complexes and most tend to remit after colectomy. The rapid appearance and progression of chronic bronchial suppuration in some patients after colectomy suggests another pathogenesis and an autoimmune process is fea-

sible. An alternative hypothesis might be that in early infancy similar (enterobacterial) antigens sensitise lung and gut associated lymphoid tissue so that future breaks in the mucosa lead to an allergic inflammatory response situated in the bronchial or colonic mucosa.¹ Similar speculation characterises discussions on other extraintestinal effects of colitis. We have described a case of colitis, bronchial suppuration, and unexplained myelopathy with oligoclonal gammopathy of the cerebrospinal fluid. The latter supports a non-specific immune response of the central nervous system, suggesting that the neurological lesion is an allergic myelopathy.

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