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Dapsone induced eosinophilic pneumonia

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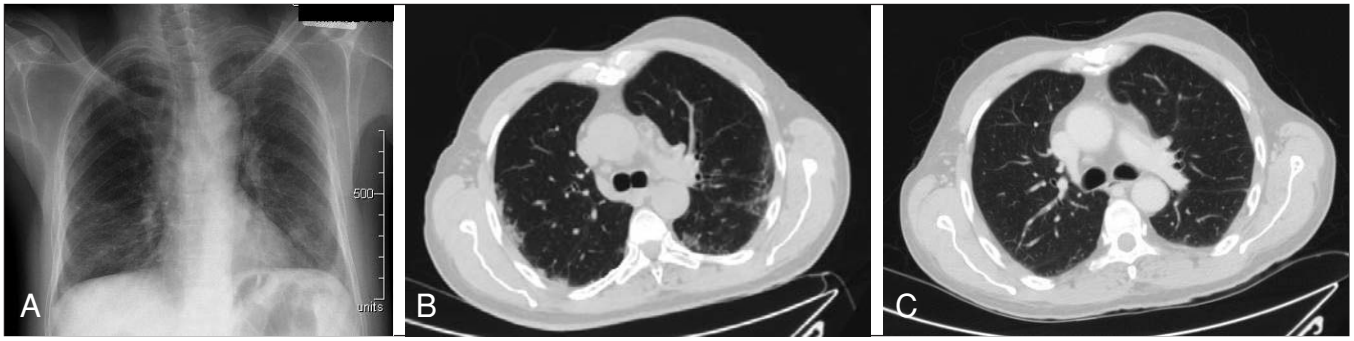
Summary
Eosinophilic lung diseases (ELD) are a variety of several clinical entities, which may result from different etiologies, including drug treatment. Dapsone, a sulfone antibiotic widely used in leprosy (among other indications), has been described as a possible cause of ELD. We report a patient with leprosy who presented with respiratory symptoms and pulmonary infiltrates and was diagnosed as suffering from eosinophilic pneumonia. To the best of our knowledge, this is the first report in which the diagnosis of dapsone-induced eosinophilic pneumonia was supported by bronchoalveolar lavage, lung biopsy and typical response to therapy.

Case presentation

A 72 year-old man presented to our medical center after several weeks of productive cough, without fever or hemoptysis. The patient has been diagnosed several years before with borderline lepromatous leprosy proven by biopsy, and was treated with dapsone, lampren and rifampicin for the last few months. Former medical evaluation five years prior to the present admission revealed negative HIV status, normal chest X-ray and positive syphilis serology, including TPHA, VDRL and FTA-ABS. It was unclear whether he had received any treatment in light of these serological tests.

On physical examination the patient was tachypneic, with room air saturation of 92% and a low grade fever of 37.5°C. Auscultation of the lungs revealed bilaterally reduced breathing sounds with basal crackles. The remainder of the physical examination was unremarkable, except for known coetaneous manifestations of his chronic disease. Laboratory tests showed a white blood cell count of 10,400/mm^3 with 1,300/mm^3 eosinophils. Chest X-ray showed bilateral peripheral opacities (Fig. 1A). Chest CT demonstrated peripheral opacities, cavitary lesions and septal lines thickening (Fig. 1B). Stool samples were negative for parasites. The patient underwent bronchoscopy with bronchoalveolar lavage (BAL) and transbronchial biopsy. The BAL fluid contained 40% eosinophils and was negative for acid-fast stain/bacterial cultures, CMV culture and shell vial cultures. Respiratory virus panel (adenovirus, influenza virus type A and B, parainfluenza virus type 1-3 and respiratory syncytial virus) were all negative. Transbronchial biopsy showed bronchial wall with

Figure 1 - Imaging studies demonstrate peripheral infiltrates on admission in chest X ray (a) and computerized tomography (b) A repeat CT several weeks after dapsone cessation and steroid treatment demonstrates resolution of lung disease (c.).

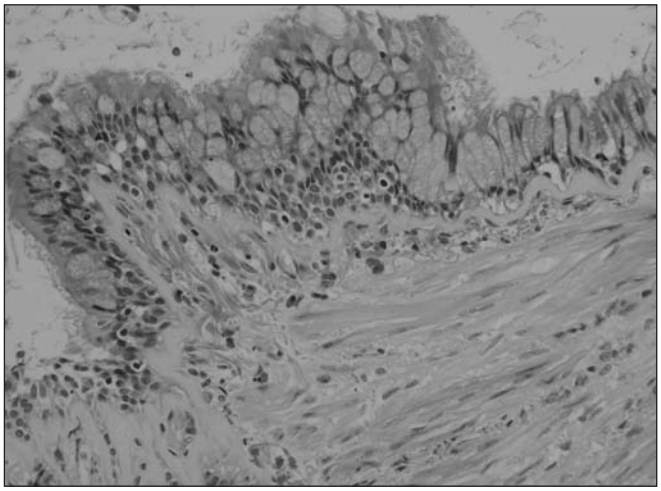


abundant eosinophils without evidence of granuloma or malignancy (Fig. 2), confirming the diagnosis of dapsone-induced eosinophilic pneumonia. Dapsone was discontinued and steroid treatment was initiated. At six weeks follow up the eosinophilia gradually resolved and a repeat chest CT scan showed significant improvement (Fig. 1C). The patient was symptom-free on a follow-up examination several months after the cessation of steroid treatment.

Discussion

Eosinophilic lung diseases (ELD), first described by Loffler (1), may result from several different etiologies, including infectious, inflammatory, toxic and idiopathic (2).

Figure 2 - Transbronchial biopsy with abundant bronchial eosinophils (H&E stain).



Among the drugs described as possible causes of ELD, dapsone was mentioned in patients without leprosy in a few case reports (3-6). However, in these reports, dapsone was given with pyrimethamine. In addition, BAL was not performed to demonstrate increased eosinophil counts and no steroid treatment was administered. There are only two prior reports linking daposne to ELD in patients with leprosy (7, 8).

This case demonstrates ELD which was most likely induced by dapsone treatment. Compared with other suspected cases of dapsone-induced ELD, this case is unique since there were no other possible causes for eosinophilic pneumonia. Moreover, the patient exhibited all the criteria for a definitive diagnosis of ELD, including peripheral blood eosinophilia, BAL parameters and typical histological findings.

Dapsone cessation and steroid treatment achieved a quick resolution of eosinophilia and pulmonary infiltrates, and the patient remained symptom-free, which is in accord with drug-induced ELD response.

The question of whether or not to perform BAL and transbronchial biopsy and the necessity for systemic steroid treatment in such cases should be evaluated for each individual case. It is acceptable that more severe cases, which usually undergo bronchoscopy, are also those treated with steroids.

The fact that dapsone-induced ELD developed in several patients with leprosy is most probably related to the fact that these patients receive more dapsone courses than other patients, and is not secondary to specific interaction between the drug and the infection, although this cannot be ruled out.

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