Cerebral abscess caused by *Nocardia asteroides* in renal transplant recipient

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**Introduction**

Infection from bacteria from the Nocardia class is seldom found in our country. They are opportunist infections that almost exclusively affect patients who are immunocompromised. We present a renal transplant patient with a cerebral abscess caused by *Nocardia asteroides*.

**Case report**

A 59-year-old male with renal failure of unknown origin, started peritoneal dialysis in 1994. In 1996 he received a cadaver renal transplant. He was initially treated with cyclosporin, prednisolone and antilymphocyte globulin, and did well. Five months after the transplant he had a respiratory infection with high fever (38°C), a non-productive cough, dyspnoea and intense pleuritic pain. The chest X-ray showed a small area of consolidation in the left lung, and pulmonary infiltrate poorly defined in the right lung. Blood and sputum cultures were positive only for cytomegalovirus which is inhaled causing a... ganciclovir can spread locally and produce the successive invasion for presumed CMV pneumonia and trimethoprim-sulfamethoxazole (TMP-SMX) as prophylaxis for *P. carinii*. After 2 weeks of treatment, the patient became pancytopenic and because of clinical and radiological improvement the medication was stopped.

Fifteen days later he had hemianopia and dysphasia that resolved spontaneously within 24 h. The CT scan showed a hypodense lesion in the left occipital lobe. It was assumed that he had had a transient ischaemic episode and he was discharged. Ten days after this episode he developed a right hemiparesis mixed dysphasia and reduced level of consciousness. A further CT scan showed an increase in the former occipital lesion with perilesional oedema and collapse of the lateral ventricle (Figure 2). The MRI scan showed an abscess and from a biopsy *N. asteroides* was isolated. Twenty-four hours later the abscess was excised, treatment with TMP-SMX was resumed and the cyclosporin dose was reduced. Throughout this period the patient maintained normal renal function and currently has only a right haemianopia.

**Discussion**

Nocardia is a strict aerobic bacteria, Gram-positive and feebly resistant to acid alcohol. It grows easily at temperatures below 37°C, in simple environments like blood agar, sabouraud agar and mycobacteria cultures. The addition of CO₂ at 10% favours its growth. There are three species that are pathogenic in humans: *N. asteroides*, *Nocardia brasiliensis* and *Nocardia caviae* [1]. In immunocompetent patients the primary infection is usually cutaneous due to *N. brasiliensis* [2]. In immunosuppressed patients the infection is caused by *N. asteroides* with pulmonary involvement.

*Nocardia asteroides* is part of the soil’s microflora, which is inhaled causing a pulmonary infection that can spread locally and produce the successive invasion of the pleura, ribs and the subcutaneous cellular tissue (10%) and, more rarely spread to bones, kidneys, liver, spleen, pericardium and endocardium [3,4]. In 20% of cases, extrapulmonary lesions are found without the primary mode of access being identified. In 80% of the cases the infection presents with pneumonia of a subacute or chronic type with fever, dry cough and pleuritic pain which is out of proportion to the radiological changes [1,5,6]. The chest X-ray shows areas of nodular consolidation that progress to cavities and the formation of abscesses [6].

The illness is observed most frequently in patients undergoing a prolonged treatment with corticosteroids, with neoplastic disease, HIV or after transplantation. Some studies have indicated a greater incidence in renal transplant patients treated with azathioprine or antilymphocyte globulin as in our patient [7]. Early
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Fig. 1. Chest film shows a small area of consolidation in the left lung, and pulmonary infiltrate poorly defined in the right lung.

Fig. 2. Enhanced CT scan demonstrating a ring-enhancing multiloculated lesion in the occipital lobe, with surrounding oedema.

Fig. 3. (a,b) T2-weighted MR images showing the nocardial abscess in the left occipital lobe. There is clear differentiation between the lesion and the reactive adjacent oedema.

Fig. 4. Coronal enhanced T1–weighted scan, demonstrating irregular thick ring enhancement.
diagnosis, as well as prolonged treatment, is necessary in order to avoid metastatic spread. Cerebral involvement is associated with 80% mortality [4,8]. At present, antibiotic regimens include TMP-SMX, and if the patient cannot tolerate sulphonamides one should be guided by the in vitro sensitivity to choose the alternative treatment. Amoxycillin, imipenem, amikacin, cefotaxime, minocyclin all in normal doses are active against most of the strains [9]. The optimum duration of treatment is uncertain, but most doctors recommend a prolonged course of 6–12 months with surgical excision [4,6,9] or drainage of the abscesses [10].

References