Acute pneumonitis caused by Neisseria species are uncommon and usually induced by Neisseria meningitidis and Brannamella catarrhalis previously classified as Neisseria catarrhalis. Only three cases of Neisseria sicca (N. sicca) pneumonitis are published in the literature, all occurring in patients with relative immunodeficiency [1, 2].

We report here a fourth case of N. sicca pneumonia with the previously undescribed association of underlying lesions of bronchiectasis. We review the findings in the three previously reported cases.

Case Report

A 76 year old man was admitted because of suspected community acquired pneumonia. There was a history of allergy to both penicillin and doxycyclin. Because of chronic sputum production with repeated antibiotic treatments, a right bronchography had been performed five years before, which disclosed bronchiectasis in the right lower lobe. Acute allergic reaction developed and left bronchographic examination was not performed. He had smoked 30 cigarettes per day for 40 years. There was no history of episode of loss of consciousness.

At admission the patient was weak, dyspnoeic at rest with a fever of 38.7°C. There was no upper respiratory tract lesion and no dental abscess. Auscultation revealed crepitant rales over both left lower and right lower lobes. Chest roentgenography showed a left lower lobe alveolar infiltrate. The erythrocyte sedimentation rate was 45 mm-h, the leukocyte count was 19,000 per mm³, with 91% neutrophils, 7% lymphocytes and 2% band forms, enzymatic screening was normal and blood cultures remained negative. The patient was treated empirically by intravenous erythromycin (3g per day).

Gram stain on purulent sputum taken before antibiotherapy initiation yielded abundant polymorphonuclear neutrophils and gramnegative diplococci identified as Neisseria sicca according to usual criteria (nonpigmented colonies: catalase and oxidase positive; growth on nutrient agar slants incubated at atmospheric air for 24 hours; acid fermentation for glucose, maltose, sucrose and fructose but not lactose) [3].

Antimicrobial susceptibility testing indicated resistance to penicillin and erythromycin and sensitivity to amoxicillin, cephalosporins, tetracycline and sulfonamides. We firstly did not take these bacteriologic data into account because that bacteria was reputed as a harmless saprophyte.

On the sixth day of treatment, there was neither clinical, biological, nor radiological improvement. Flexible fiberoptic bronchoscopy demonstrated a purulent exudate in left lower lobe with bronchial inflammatory underlying lesions. Secretions were obtained using a bronchoscopic protected catheter brush. This material revealed gram negative diplococci and numerous polymorphonuclear neutrophils and grew a pure culture of N. sicca with the same susceptibility patterns as for N. sicca isolated from sputum. A chest CT scan confirmed the left lower lobe pneumonia with distal bronchial dilations suggestive of bronchiectasis, and identified some rare areas of bronchiectasis on the right lower lobe.

On the next day, erythromycin was stopped and a
15-day oral cefaclor treatment (1.5g per day) was initiated with dramatic clinical improvement. 15 days after the end of the cefaclor treatment, the patient felt very well with normalized chest X-ray and negative cultures from sputum. Two months later, the patient remained well and the sputum cultures were always negative.

Discussion

N. sicca is a contaminant normally present in the oropharynx and has been rarely identified as a causal agent of human life-threatening infections. In addition to the three cases of pneumonitis [1, 2], the literature reports rare cases of endocarditis [4-7], two cases of meningitis [7, 8], one case of osteomyelitis [9], one case of fatal frontal sinusitis [10], and one case of bacteremia [11] due to N. sicca.

The three previous cases of N. sicca pneumonitis occurred in patients with relative immunodeficiency induced by pregnancy in a 30 year old woman, corticosteroids treatment in a 73 year old man with bullous pemphigoid [2], and process of aging in a 80 year old man [1]. Pneumonitis foci were localised to the left lower lobe in all three cases. Diagnosis was supported by bacteriologic studies on secretions samples taken by either transtracheal aspiration or bronchoscopy with protected catheter brush. All the patients recovered with successful antibiotic therapy, either with penicillin or cephalotin. No mention was made of previous underlying lung diseases [1, 2].

Our diagnosis of bronchiectasis localised to the left lower lobe is based upon the chest CT scan pictures (fig. 1). Indeed, Cooke et al [12] have demonstrated that if the sensitivity of computed tomography for disclosing bronchiectasis is about 66%, its specificity can reach 92%, and then may be useful in patients for whom bronchography is contraindicated as in our case.

Previous review of N. sicca infections points out that this organism is not uniformly sensitive to the penicillins, then therapy must be guided by results of the antimicrobial susceptibility testing [11]. The emergence of N. sicca as a causal agent of community acquired pneumonia is probably due in our case to the relative immunodeficiency induced by the ageing process [13]. Moreover, the colonisation and infection by saprophytic organism can be favoured here by both the repeated use of antibiotics and the disordered anatomy with stagnant secretions associated with bronchiectasis [14].

This case seemed interesting to report because the non-recognition of the possible pathogenetic role of N. sicca may delay, as seen in our case, the initiation of an efficient treatment. That report confirms that N. sicca should be added to the list of commensal organisms able to cause lower respiratory tract infections, particularly in immunocompromised hosts.

Reference

**RESUME:** Neisseria sicca, bien que considéré comme saprophyte inoffensif, a été reconnu agent étiologique de trois cas de pneumonies, de rares cas d'endocardites, de méningites et d'ostéomyélite, particulièrement chez des hôtes immunocompromis. Nous rapportons le cas d’un homme de 76 ans admis pour pneumonie extra-hospitalière chez qui aussi bien les expectorations que les sécrétions bronchiques obtenues par brossage bronchique distal protégé ont révélé des cultures pures de N. sicca avec très nombreux polynucléaires neutrophiles. Une amélioration clinique nette ne sera obtenue qu’après mise en route d’une antibiothérapie dictée par le spectre de sensibilité du N. sicca isolé. Des lésions de bronchectasies sous-jacentes seront révélées par tomodigraphie computérisée. Ce cas rapporté confirme l’utilité d’ajouter N. sicca à la liste des organismes commensaux capables de causer des infections pulmonaires. De plus, l’association d’une pneumonie à N. sicca et de bronchectasies sous-jacentes n’a jamais été décrite.