Small Airways Centered Granulomatosis Caused by Long-Term Exposure to Polytetrafluoroethylene

To date, there have been no reports of chronic pulmonary granulomatosis associated with exposure to polytetrafluoroethylene (PTFE). We report 3 cases of small airways centered granulomatous lesions in workers employed at facilities that apply coatings to pans and other utensils. The workers were repeatedly exposed to polytetrafluoroethylene particles that were probably generated by the high-pressure air spray and high temperatures (380-420°C) used in the application process. The duration of inhalational polytetrafluoroethylene exposure was between 7 and 20 years. We found granulomatous lung lesions around the small airways in lung biopsy specimens obtained from the workers. Scanning electron microscopy/energy-dispersive X-ray spectroscopy (SEM/EDX) was performed focusing on the area where the PTFE particles were suspected to be located in macrophages. SEM/EDX analyses showed fluorine in the particles. Lung tissue samples from the all cases were analyzed using a fully automated Fourier transform infrared (FT-IR) spectrometer. Analysis of the spectrum extracted from the position of the foreign particles enabled the precise identification of the foreign bodies as PTFE. FT-IR detected all of the lung tissues samples had the bands at 1202-1148 cm⁻¹ and 1202-1146 cm⁻¹ are characteristic of the asymmetric and symmetric stretching vibrations of the C-F bonds of PTFE. These cases suggest that recurrent inhalational exposure to polytetrafluoroethylene particles causes chronic pulmonary granulomatosis.

A Case of Intracranial Tuberculoma Presenting as a Target Lesion at Left Cerebellum in Milliary TB Patients

Although tuberculosis of the central nervous system (CNS) is well known, intracranial tuberculoma presenting as a target lesion in brain MRI has rarely been reported. The most frequent finding of miliary tuberculosis of brain MRI is miliary nodules with T2 hypointensity, which are distributed at leptomeningeal or deep parenchyma. We report a case of intracranial tuberculoma presenting as a target lesion at left cerebellum in miliary TB patients. A 24-year-old woman visited for weight loss of 10 kg during 1 month (from 55 kg to 45 kg). Enhanced chest CT showed miliary nodules in both lungs and multiple, low-attenuated lesions in the spleen. Anti-HIV antibody was negative, Sputum TB PCR was positive (later, M. tuberculosis was cultured from sputum, which was sensitive to all anti-TB drugs). Anti-TB medication (HREZ) was started. Brain MRI, which was taken to evaluate headache and dizziness, showed 10 mm-sized, ring-enhancing, target lesion in left cerebellum and 4 mm-sized, solid enhancing nodule in right inferior frontal lobe. After 24 months of anti-TB medication, Her medical condition was improved and The size of TB granuloma was decreased.

Conclusion: It is important to consider CNS tuberculosis when a patient with miliary tuberculosis complains of headache or dizziness. And like this case, CNS lesion of miliary TB can present as a target lesion in Brain MRI.