18F-FDG PET/CT imaging of relapsing polychondritis
A case report
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symptom-driven diagnostic testing multidetector. The corresponding clinical manifestations are ear cartilage inflammation, nasal cartilage inflammation, peripheral non-erosive polyarthritis, episcleritis, keratitis, and other multisystem diseases which involve respiratory system, cardiovascular system, and nervous system. As the disease progresses, respiratory tract involvement usually perform affect larynx, trachea, bronchus stenosis, bronchiectasis, pneumonia, atelectasis, etc,[6] in which the main airway and the left and/or right bronchus stenosis are most common. Davis et al[7] reported that not just the main airway and the left and/or right bronchial stenosis but the surrounding small bronchi may also be involved.

The diagnosis bases on clinical manifestations, and no specific laboratory methods or specific histologic findings are considered pathognomonic for RP. Awareness should be raised about systemic multiple cartilage damage associated with unexplained chronic cough, sputum, hoarseness, wheezing, and even dyspnea.

Multidetector CT can clearly define the location and extent of the fixed airway narrowing and wall thickening. Bronchoscopy can visually observe the edema, thickening of bronchial wall, and disappeared cartilage ring as an invasive operation. However, tracheobronchial lumina narrowing is not specific to RP. Other causes that should be considered include infection, amyloidosis, tuberculosis etc. Tc-99m methylene diphosphonate (MDP) bone scintigraphy has also been used to assess RP. Some case reports demonstrated that scintigraphic findings were improved after prednisolone therapy,[8,9] therefore, MDP scanning may be a valuable method in the follow-up of RP.

Our case demonstrates that although the diagnosis is mainly established clinically, the use of 18F-FDG-PET/CT has been proven to be a useful diagnostic tool to accurately determine the extent of inflammation throughout the body. Several studies have reported clinical value of FDG PET/CT imaging for the diagnosis

Figure 1. PET images (left), unenhanced CT images (middle), and the PET/CT fusion imagings (right) of auricle, larynx, trachea, and all costal cartilages and the axillary, hilum, and mediastinal lymph nodes, respectively. CT = computed tomography, PET = positron emission tomography.

Figure 2. Coronal (A), sagittal (B), and MIP PET images showed moderate FDG accumulation in the nasal cartilages, laryngeal cartilages, all costal cartilages, tracheobronchial tree and the axillary, hilum and mediastinal lymph nodes. FDG = fluorodeoxyglucose, MIP PET = maximum intensity projection positron emission tomography.
Most of them well depicted tracheobronchial tree and intercostal cartilages involvement, but the nasal cartilages, larynx, and reactive lymphadenopathy were rarely mentioned entirely, as was noted in our case.

Currently, there is no ideal treatment of this disease. Primary therapy includes corticosteroids, dapsone, and other immunosuppressants, which are partly useful for acute episode. For the tracheobronchial stenosis and/or softening, intratracheal stent implants can significantly improve respiratory symptoms, which is an effective treatment.

In conclusion, FDG PET was found to have a growing role in the diagnosis and follow-up of relapsing polychondritis.

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