A 60-year-old woman was seen at the outpatient clinic of the Department of Internal Medicine at Spaarne Hospital, Hoofddorp, the Netherlands. Her previous medical history showed a temporal arteritis in 2001. At that time, biopsies were negative, and the diagnosis was made by magnetic resonance imaging. Treatment with prednisolone resolved her complaints. The prednisolone was slowly tapered to zero.

After a disease-free period of 7 years, she visited the outpatient clinic because of pain in the shoulders and upper back region, being suspicious of a relapse. She did not have a fever, nor did she have headaches. For medication, she used a thiazide diuretic for mild high blood pressure and desloratadine for allergic complaints. Physical examination revealed no abnormalities.

Lab results showed an initial erythrocyte sedimentation rate of 22 mm/h initially, reaching 53 mm/h maximum, a C-reactive protein of 122 mg/L, and a normal white blood count with no abnormalities. Chest x-ray showed a widened superior mediastinum. Lab results showed an initial erythrocyte sedimentation rate of 22 mm/h initially, reaching 53 mm/h maximum, a C-reactive protein of 122 mg/L, and a normal white blood count with no abnormalities. Chest x-ray showed a widened superior mediastinum.

A positron emission tomography (PET) computed tomography (CT) scan was performed using $^{18}$F-Fluorodeoxyglucose (FDG) as a tracer. The CT scan showed a dilated ascending thoracic aorta up to 59 mm, ranging from the root until the brachiocephalic trunk. The arch and descending aorta were normal. The wall of the ascending aorta was clearly thickened (Figure 2). The PET scan clearly showed increased FDG uptake, mainly in the wall of the ascending (dilated) aorta, but also a moderate increased uptake in the descending thoracic part as well as the pericardium (Figure 3). The diagnosis of a vasculitis, presumably a giant cell arteritis, was made.

Immediate surgical intervention was postponed in this situation because of active inflammation. The patient was...
treated with high-dose prednisolone (1 mg/kg/d) for 3 months, during which her erythrocyte sedimentation rate and C-reactive protein returned to normal. As a workup for surgery, a coronary angiography with aortography was performed (Figure 4). Repeated CT scanning after 2 months of treatment revealed a normalization of the wall thickness. She then underwent a supracoronary replacement of the ascending aorta. Histopathologic analysis showed no residual signs of inflammation of the aortic wall. One year later, she is doing fine with a low dose of prednisolone.

Giant cell arteritis is a chronic vasculitis mainly affecting the large- and medium-sized muscular arteries, especially the proximal aorta and its branches.\(^1\) In 40% to 60% of patients, it is associated with temporal arteritis.\(^1\) Complications include aortic arch syndrome, thoracic aneurysm formation, and dissection. The average interval between the first onset of clinical symptoms and the development of a thoracic aneurysm is 5.8 years.

As inflamed tissues demonstrate increased glucose metabolism, this can be visualized with a PET scanner after the administration of a fluorine-labeled glucose analogon, FDG. Accurate anatomic localization is possible using combined PET-CT scanning. This imaging modality is widely used to evaluate the dissemination and localization of malignancies, sites of infection, or inflammation, as well as the detection of myocardial viability in hibernating myocardial tissue.

Meller divided the FDG uptake in large-vessel vasculitis into 4 groups: no uptake at all (grade 0), uptake lower (grade 1), similar to (grade 2), or higher than the liver (grade 3).\(^2\) A typical example of a grade 3 large-vessel vasculitis is shown in Movie I in the online-only Data Supplement. Sensitivities between 60% and 92% and specificities of 88% to 100% using FDG PET have been reported,\(^3\) making it a reliable diagnostic tool in the evaluation of large-vessel vasculitis.

Disclosures

None.

References

Detection of Giant Cell Aortitis Using $^{18}$F-Fluorodeoxyglucose Positron Emission Tomography Computed Tomography

K. Bogaard, J.G. Schrama, A.J. Voogel, A. Zwijnenburg and J.P. Ezechiels

_Circulation_. 2010;122:e411-e412
doi: 10.1161/CIRCULATIONAHA.109.923243

_Circulation_ is published by the American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231
Copyright © 2010 American Heart Association, Inc. All rights reserved.
Print ISSN: 0009-7322. Online ISSN: 1524-4539

The online version of this article, along with updated information and services, is located on the World Wide Web at:
http://circ.ahajournals.org/content/122/5/e411

Data Supplement (unedited) at:
http://circ.ahajournals.org/content/suppl/2010/07/14/122.5.e411.DC1

Permissions: Requests for permissions to reproduce figures, tables, or portions of articles originally published in _Circulation_ can be obtained via RightsLink, a service of the Copyright Clearance Center, not the Editorial Office. Once the online version of the published article for which permission is being requested is located, click Request Permissions in the middle column of the Web page under Services. Further information about this process is available in the Permissions and Rights Question and Answer document.

Reprints: Information about reprints can be found online at:
http://www.lww.com/reprints

Subscriptions: Information about subscribing to _Circulation_ is online at:
http://circ.ahajournals.org//subscriptions/