

## IMAGE OF THE MONTH

# From Reversed Halo Sign to Halo Sign

## Unusual Centripetal Growing of a Lung Adenocarcinoma

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A reversed halo sign, which is a focal rounded area of ground-glass attenuation surrounded by a more or less complete ring of consolidation,<sup>1</sup> was observed in the right lower lobe of a 73-year-old woman with a history of lung carcinoid on a follow-up chest computed tomography scan (Fig. 1A).

During the following 10 years, this finding was monitored on computed tomography and showed a stable size of 23 mm but a progressive centripetal increase in attenuation: a gradual reversing from reversed halo sign to halo sign was observed (Fig. 1B, C). A final histological diagnosis of invasive adenocarcinoma was made.

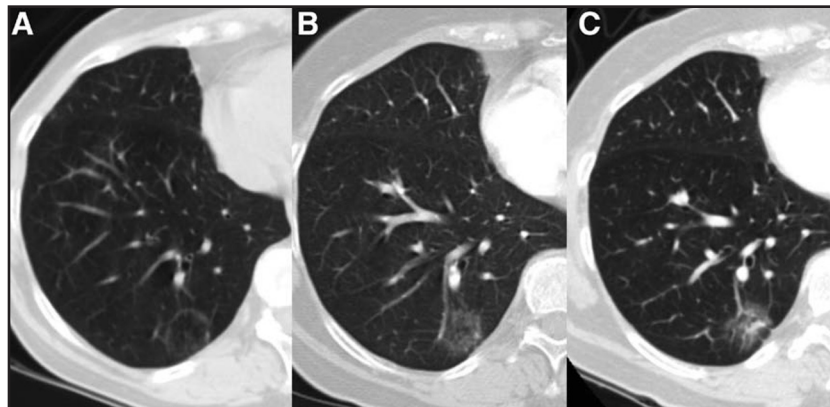
The reversed halo sign, also known as the Atoll sign, was first described as being relatively specific for cryptogenic organizing pneumonia but was later observed in several other

infectious and noninfectious diseases, including rare cases of lung adenocarcinoma.<sup>2</sup>

Typically, we are used to see a dimensional growth of the nodule associated with an homogeneous increasing in attenuation. To the best of our knowledge, the observed reversing behavior has never been reported previously: a slow and progressive centripetal increase in attenuation with stable dimension, from reversed halo sign to halo sign, can be observed in lung adenocarcinoma.

### REFERENCES

1. Hansell DM, Bankier AA, MacMahon H, McLoud TC, Müller NL, Remy J. Fleischner Society: glossary of terms for thoracic imaging. *Radiology* 2008;246:697–722.
2. Godoy MC, Viswanathan C, Marchiori E, et al. The reversed halo sign: update and differential diagnosis. *Br J Radiol* 2012;85:1226–1235.



**FIGURE 1.** A. Axial computed tomography (CT) scan showed in the right lower lobe a 23 mm ring opacity which surrounds a center of normal lung tissue and ground-glass opacification. (B) Four years later, the CT scan showed a 23 mm ground-glass nodule resulting from the centripetal growth of the ring opacity with a complete ground-glass replacement of the normal lung tissue. (C) At 10 years, the lesion was stable in size (23 mm) but increased in attenuation with the development of a central solid component.

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Disclosure: The authors declare no conflict of interest.

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ISSN: 1556-0864/14/0908-1230