



Obstructive Sleep Apnea and Radiologic Assessment: The Good, the Bad, and the Ugly

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Dear Editor,

Obstructive sleep apnea (OSA) is a prevalent disorder with significant systemic consequences. Diagnosis primarily relies on overnight polysomnography (PSG), which provides objective measures of airway obstruction and sleep fragmentation. In selected patients, drug-induced sleep endoscopy (DISE) can further refine the evaluation by visualizing dynamic airway collapse. Although most cases of OSA result from multifactorial airway collapsibility, a subset arises from discrete structural abnormalities of the head and neck. In this context, radiologic assessment plays a nuanced yet critical role that may be framed as “the good, the bad, and the ugly.”

The “good” lies in the ability of imaging modalities, such as computed tomography and magnetic resonance imaging, to identify clinically significant but often overlooked causes of OSA. Conditions such as aberrant carotid arteries, vallecular cysts, Thornwaldt cysts, parapharyngeal space tumors, and other mass lesions may directly contribute to airway obstruction. Recognition of these conditions is essential because their management differs substantially from standard therapies, such as continuous positive airway pressure. Radiologic evaluation enables precise anatomic delineation, facilitates surgical planning, and may ultimately lead to curative treatment in selected patients, particularly thin patients with long necks and no clear risk factors for OSA (1).

However, the “bad” emerges when imaging is overused without adequate clinical justification. Not all patients with suspected or confirmed OSA require radiologic evaluation. Indiscriminate referral for imaging, particularly in the absence of a detailed history and focused physical examination, can impose an unnecessary financial burden on healthcare systems, increase patient exposure to radiation, and lead to incidental findings that complicate clinical decision-making. Therefore, a more judicious approach is warranted, with imaging reserved for atypical presentations or cases with suspected structural abnormalities (2,3).

The “ugly” represents the most concerning scenario: failure to identify or correctly interpret clinically relevant pathology. Missed diagnoses, such as parapharyngeal or nasopharyngeal tumors, may result in incomplete or ineffective treatment, leaving patients with unresolved symptoms despite standard therapy. Furthermore, unrecognized anatomic variations, such as aberrant carotid artery courses, may pose significant risks during surgical intervention, leading to delayed diagnosis, increased morbidity, or serious complications (1).

In conclusion, radiologic assessment in OSA should neither be neglected nor indiscriminately applied. There is an urgent need to develop clear guidelines for appropriate imaging use in OSA evaluation. Integrating radiologic assessment with clinical history, PSG, and DISE, in collaboration with sleep specialists, otolaryngologists, and radiologists, can optimize diagnosis and improve patient outcomes.

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