

Case 11

Complete Thorax with Flash Spiral

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HISTORY

A 64-year-old male patient was referred to the department of radiology for evaluation of abnormal chest radiographic findings in March 2006. This patient was an ex-smoker (smoking cessation 18 years ago) with a cigarette consumption of 20 pack-years. At the time of first referral, chest CT revealed the presence of a spiculated nodule in the right middle lobe. This was associated with hilar and mediastinal adenopathies with a final diagnosis, in June 2006, of right middle lobe adenocarcinoma with lymph node metastases. This diagnosis, obtained after atypical resection of the right middle lobe nodule and lymph node sampling, indicated chemotherapy followed by radiotherapy at the level of the tumoral zones. In 2008, this patient was also diagnosed with bone and cerebral metastases.

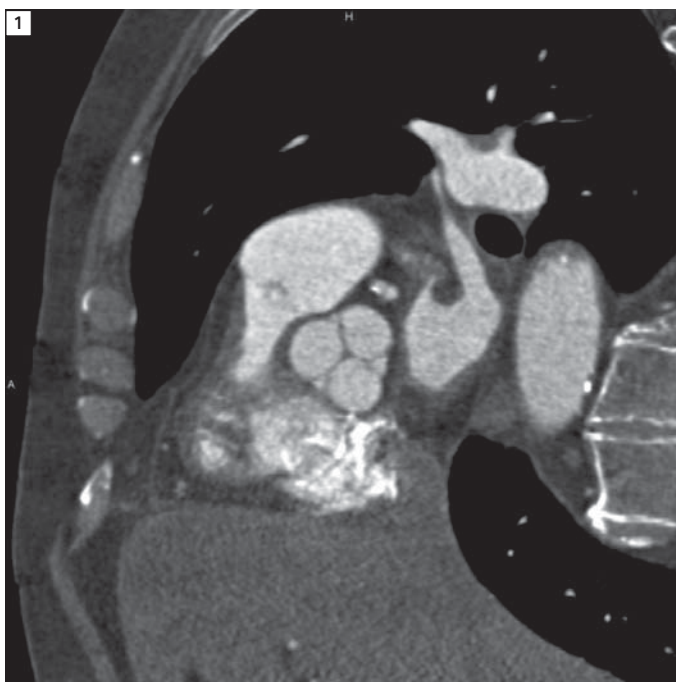
DIAGNOSIS

The present CT examination was indicated for the follow-up of the chest lesions in a patient in poor general condition. This examination showed sequelae of right middle lobe resection and areas of airspace consolidation in the lung parenchyma located close to the right hilum, caused by radiotherapy. Furthermore multiple areas of non-specific ground glass attenuation in both lung lobes were discovered, predominantly on the right side, resulting from radiotherapy or an infection. In addition to hilar and subcarinal adenopathies, osteolytic lesions of the thoracic spine and the sternum were found.

COMMENTS

This examination was obtained with an ultra fast Flash Spiral mode which made the overall examination very comfortable for this patient in poor general condition. The optimization of data acquisition and administration of contrast medium generates high quality images of the mediastinum that are devoid of respiratory motion artifacts. This kind of

acquisition makes the analysis of the coronary arteries at the same time possible. In this case, the patient's heart rate was 65 bpm. The delineation of aortic and pulmonary valves was excellent. The only limitation was the presence of interpolation artifacts around the ribs, noticeable on lung images.



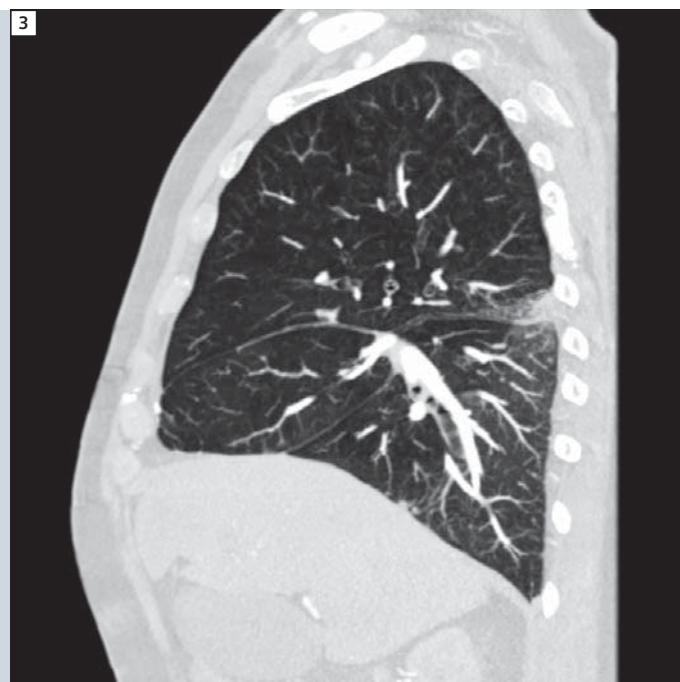
1 Even without ECG-triggering, sharp delineation of aortic valve leaflets is possible.

EXAMINATION PROTOCOL

Scanner	<i>Flash Spiral mode</i>		
Scan area	whole chest	Reconstruction increment	1 mm
Scan length	345 mm	Reconstruction kernel	BB20f (mediastinum); B50f (lung)
Scan direction	cranio-caudal	Contrast	350 mg of iodine/mL
Tube voltage	120 kV		
Tube current	52 Eff. mAs	Volume	80 ml
Heart rate	65 bpm	Flow rate	4 ml/s
Pitch	3.2	Start delay	18 s (ROI within descending aorta)
Spatial resolution	0.33 mm	Postprocessing	syngo InSpace
Slice width	1 mm		



2 Coverage of the entire lung in ultra-short breath hold time of < 3 sec. Note the apparent right lower lobe consolidation secondary to lung resection.



3 Sagittal view of the right lung highlights the high quality of lung images from top to bottom of the volume scanned.