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LOW - DOSE CT OF THE CHEST AS A SCREENING METHOD FOR EARLY DETECTION OF PULMONARY CANCER

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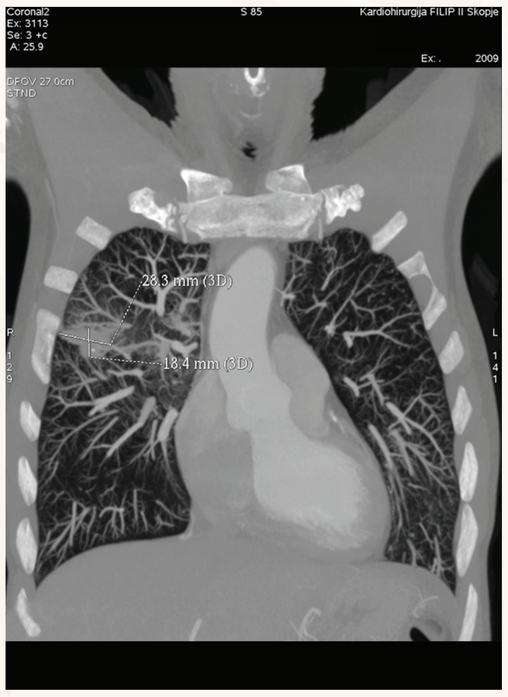
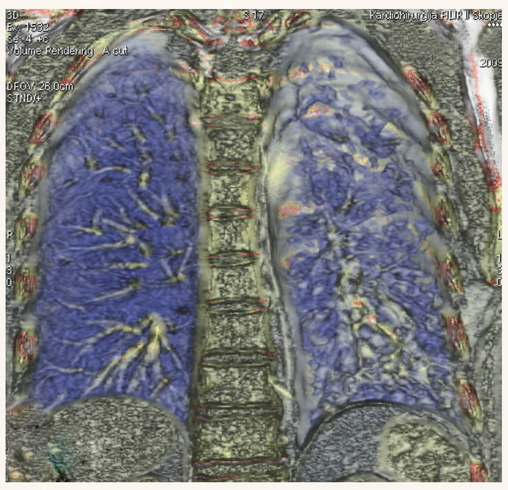


Standard CT protocol



Standard CT protocol

INTRODUCTION: Dose limitation is one of the vital principles in radiation protection regulation.

PURPOSE: The use of that Low-dose chest CT can be a screening method of choice for early detection of pulmonary cancer.

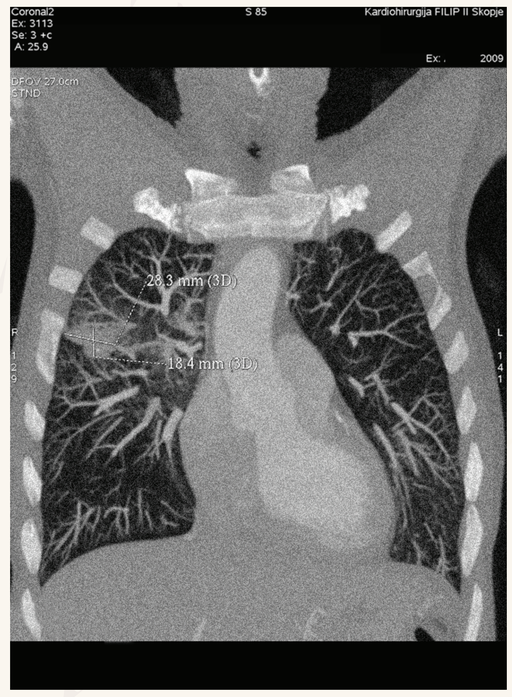
SUBJECTS AND METHODS: During 5 days, we studied 50 patients with different risk factors like: 50+ years old, smokers, cough. We used a 64 Light Speed VCT – GE scanner. A modified Single breath - hold Routine chest – Low dose protocol was used for every patient. The pitch & speed, the kV and mA were reduced.

Parameters	Standard protocol	Low-dose protocol
kV	120	80
mA	330	75
Scan type	helical	helical
Rot. time	0.6	1.0
Rot length	Full	Full
Detector coverage	40.0 mm	40.0 mm
Thickness	5.0 mm	5.0 mm
Pitch & Speed	1.375:1/55.00	0.516:1/20.62
Interval	5.00 mm	5.00 mm
SFOV	Large body	Large body
DLP	570,13 mGy-cm	249,36 mGy-cm
Total exposure time	4.6 s	19.4 s

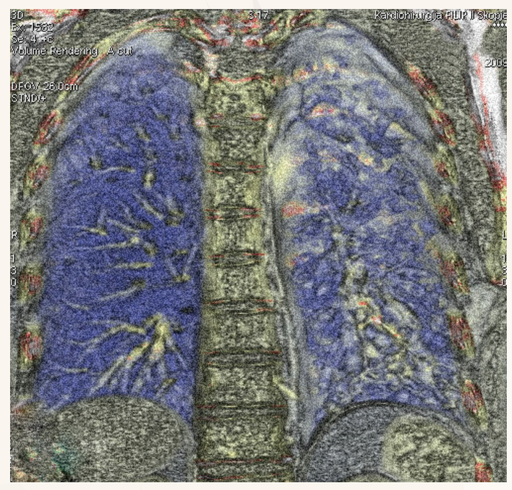
Standard CT protocol

RESULTS: Despite the reduced dosage, we got a satisfactory image quality with good resolution of the slices which was fully acceptable and sufficient for conducting a diagnosis. Radiation doses (based on weighted-CT–dose index) from Standard - dose CT and Low - dose CT (50%–reduced-dose CT) were DLP 570,13 mGy-cm and 249,36 mGy-cm.

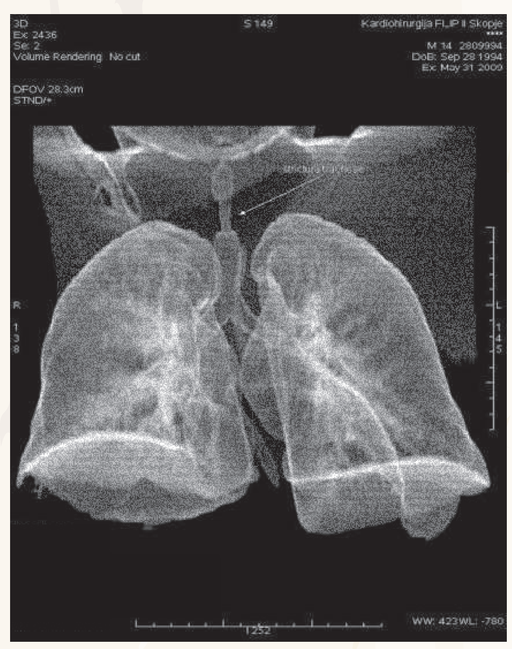
CONCLUSION: Low-dose CT of the chest appears to be acceptable as a screening method in early detection of pulmonary cancer, even with a 50% reduction in radiation dose.



Low-dose CT protocol



Low-dose CT protocol



Low-dose CT protocol