

 CORRESPONDENCE

## Lung Biopsy Without Pleural Drainage

A Randomized Study of a Commonly Performed Video-Thoroscopic Procedure

by PD Dr. med. Thomas Lesser, Prof. Dr. med. Torsten Doenst, Dr. rer. pol. Thomas Lehmann, and Jerar Mukdessi in issue 19/2019

### CT-Guided Rather Than Thoracoscopic

The authors begin their article with the statement: “For patients with a solitary pulmonary nodule that is suspicious for malignancy (larger than 8–10 mm), surgery should generally be performed to evaluate for malignancy (1, 2). The procedure of choice is the minimally invasive video-assisted thoracoscopic surgery (VATS) for atypical lung parenchymal resection [...]” (1).

These statements must be contradicted. The 2018 German S3 Guideline “Prevention, Diagnosis, Treatment, and Follow-up of Lung Cancer” says on the topic of diagnosis: “For pleural-based tumors, ultrasound-guided techniques can be used for pleural puncture; for non-pleural-based tumors, CT-guided pleural puncture is strongly recommended”.

CT (computed tomography)-guided percutaneous biopsy of pulmonary nodules has shown high rates of success, of more than 90%, even for small nodules of less than 2 cm in diameter (2).

The limitations mentioned for thoracoscopic lung biopsy in the article by Lesser et al. (1), such as the depth of the pulmonary nodule (that is, the distance between nodule and pleura), or diffuse pleural adhesions and complications of postoperative pain due to these, are basically not present in CT-controlled lung biopsy.

The relatively common complication of pneumothorax after CT-guided lung biopsy can usually be treated by simple pleural puncture and aspiration, or by placing small-caliber catheters (6– to 9-French); larger catheters are hardly required (3).

### In Reply:

We thank Dr. Rott for his contribution to the discussion on indications for video-assisted thoracoscopic surgery (VATS) for pulmonary nodules. Surgical evaluation of a malignancy-suspected solitary pulmonary nodule was recommended in the first German S3 guideline (2010) (recommendation grade A). If surgery is feasible, trans-thoracic puncture should be avoided (recommendation grade B). Unfortunately, the chapter on pulmonary nodules was not updated in the new guideline (2018).

The exclusion criteria specified in our study (1) refer to the new surgical methods to be evaluated that do not use pleural drainage. They do not represent any limitations for conventional VATS with pleural drainage.

Thus, the indication for thoracoscopic lung biopsy is essentially limited to cases of pulmonary nodules that remain diagnostically unclear even after repeated CT-guided biopsy, as well as to diagnosis of interstitial lung diseases—but even here, it is increasingly being replaced by the non-surgical method of transbronchial cryobiopsy (4).

To sum up, we would again like to cite the S3 Guideline: “In case of suspected lung cancer, a surgical biopsy is recommended only if less invasive methods of tissue sampling were non-diagnostic or could not be performed”.

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### References

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We cannot agree with the opinion of Dr. Rott, that thoracoscopic lung biopsy should be restricted to cases of pulmonary nodules that remain diagnostically unclear after repeated computed tomography (CT)-guided biopsy. VATS allows an immediate and definitive diagnosis in 96–100% of cases. Further advantages over non-surgical biopsy procedures include: no delay in obtaining a diagnosis, an immediate and definitive oncological radical therapy (in the case of malignancy, endoscopic segmentectomy or lobectomy in the same session), sufficient tissue for histological examination and molecular diagnostics, and avoidance of complications of non-surgical biopsy procedures. Along these lines, the guidelines of the National

Comprehensive Cancer Network (NCCN) (Version 5.2019) recommend that non-surgical biopsy be omitted for patients with a malignancy-suspected pulmonary nodule.

Complications after CT-guided lung biopsy are not limited to pneumothorax, as intrapulmonary hemorrhage, hemothorax, or air embolism may also occur. The complication rate is approximately 34%, with life-threatening complications occurring in approximately 6% of cases (2). This is thus higher than the complication rate after video-assisted thoracoscopic removal of lung tissue (3). Furthermore, half of all non-diagnostic (“negative”) biopsies are false negatives for malignancy (2).

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**References**

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**Conflict of interest statement**

The authors of both contributions declare that no conflict of interest exists.

**CLINICAL SNAPSHOT**

**Pneumomediastinum in a Child Following Blunt Thoracic Trauma**

An 11-year-old boy fell from a height of 2 m during parkour training, striking his thorax upon a concrete wall. On admission to hospital he had thoracic pain, a subjective impression of slight breathing difficulty with a normal pattern of respiration, eupnea, bilateral vesicular breathing sounds, pre-existing funnel chest, and left cervical soft-tissue emphysema. There was no hemoptysis.

Radiography showed pneumomediastinum (linear hypertransparencies; white arrows), cervical soft-tissue emphysema (asterisks), and a nondislocated fracture of the left first rib (black arrow).

Focused assessment with sonography for trauma (FAST) of the abdomen, pericardium, and lungs showed no abnormalities, and blood tests, including cardiac enzymes, also came back normal. The patient was discharged in excellent general condition after 2 days.

In this case the most likely cause of the pneumomediastinum is alveolar rupture with extrapleural air dissection into the mediastinum (Macklin effect). Exchange of blood gases was not affected, and antibiotic treatment was not required. The diagnosis was strongly indicated by the classic (cervical) soft-tissue emphysema with only mild clinical symptoms. Pneumomediastinum can also occur in asthma, chronic obstructive pulmonary disease, after consumption of cocaine, or in newborns following spontaneous delivery. Overdiagnosis and overtreatment should be avoided. Bronchial rupture is a possible differential diagnosis but rarely occurs in children due to the elasticity of the thorax. It usually occurs as a component of multiple trauma in serious accidents or falls from a great height.

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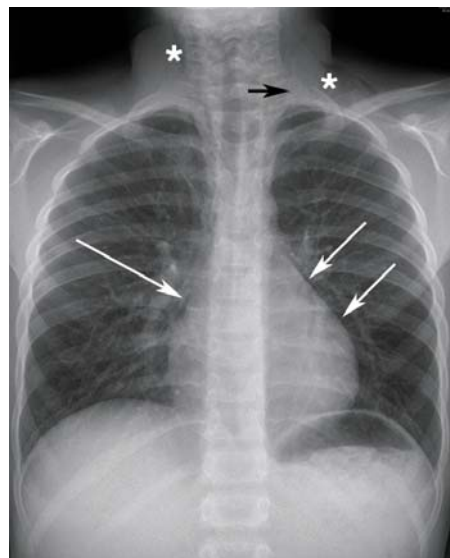
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**Thoracic radiograph** showing pneumomediastinum (white arrows), a fracture of the left first rib (black arrow), and soft-tissue emphysema of the neck (asterisks)