

Transbronchial lung cryobiopsy in sarcoidosis – multiple vs single biopsy

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Introduction

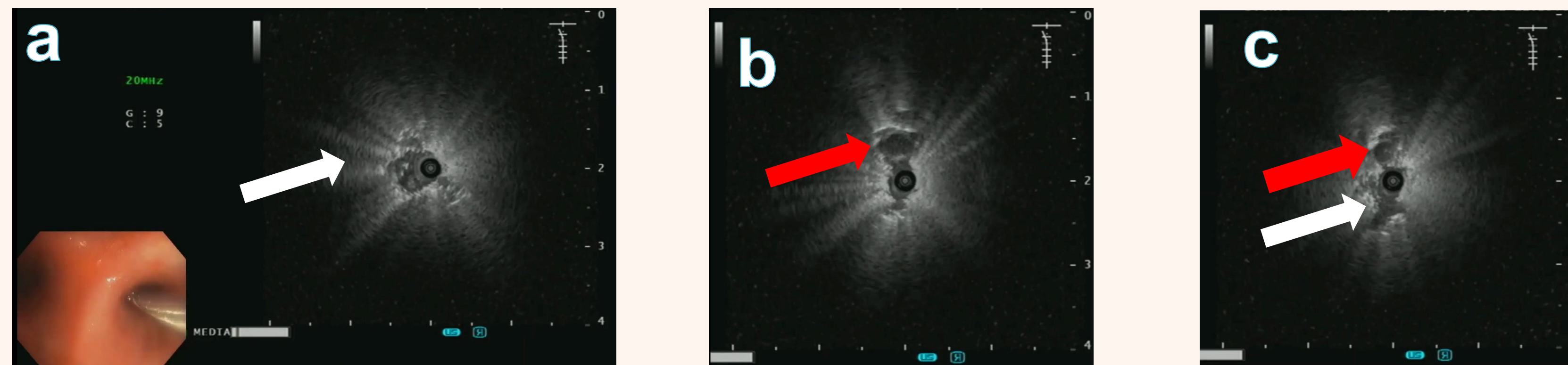
Transbronchial lung cryobiopsy (TBLC) is recognized very useful in diagnosing interstitial lung diseases. According to the current approach two to five biopsies from two different sites should be performed. The main complications of this procedure are pneumothorax and bleeding. The complication rate is correlated with number of biopsies.

On the basis of our five years experience in TBLC guided with radial EBUS miniature probe we hypothesized that in patients suspected of stage III sarcoidosis performing single biopsy could be effective enough for histological diagnosis and minimize complications.

A multicenter Polish retrospective study was conducted to analyze biopsy results and complications in patients with stage III sarcoidosis.

Methods

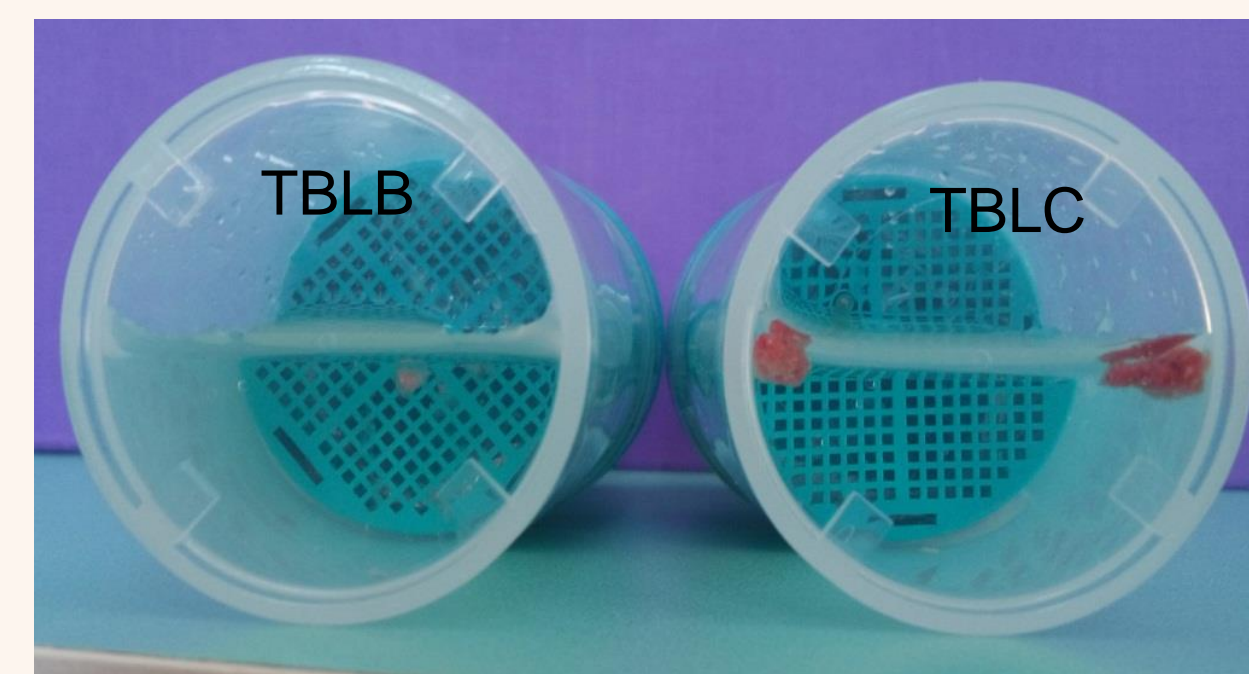
Records of patients biopsied by TBLC due to suspicion of stage III sarcoidosis in four Polish pulmonology centers were identified. TBLC under radial EBUS miniature probe control is a standard procedure for interstitial lung diseases biopsy in all centers. Procedures are performed under mild sedation (Midazolam, Fentanyl) without intubation. Ultrasound is used to identify the best location for the TBLC by localization peribronchial nodules and blood vessels.



An example of radial EBUS miniature probe imaging in sarcoidosis affecting pulmonary parenchyma. White arrows indicate peribronchial nodules and red ones pulmonary vessels adjacent to the bronchial wall. When there are only nodules without vessels (like in picture a) the TBLC considered efficient and safe.



ERBECRYO@2 unit with reusable flexible cryprobe (www.erbe-med.com)



biopsies obtained with cryoprobe

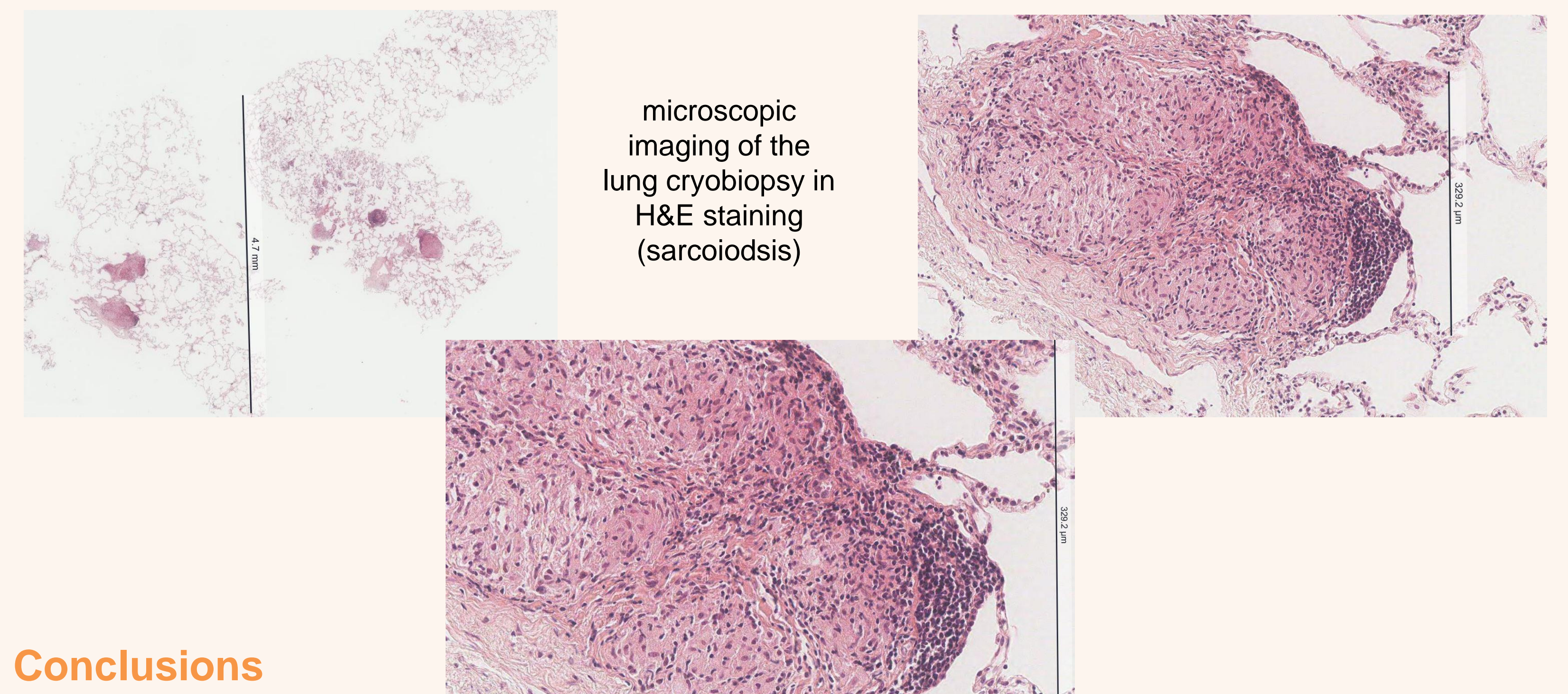


Results

Since March 2017 to January 2022 57 patients (M:32;F:25) of mean age (SD) 46.7 (10.5) years were identified. If the lung infiltrates were visible in ultrasound imaging this locations were preferred for biopsy. If not visible specimens were taken from two different segments of the same lobe. One to four biopsies with mean (SD) freezing time 7 (1) seconds were performed with 1,9 mm cryoprobe. Moreover ultrasound guidance was used to avoid injury of lung vessels and pleura. Multiple biopsy (2-4) was performed in 34 cases and single in 23. Mean (SD) biopsy number was 1.75 (0.74). Sensitivity and accuracy were 96.8% and 97.06% in multiple biopsy group and 95.45% and 95.83% in single biopsy group. The difference between groups was insignificant (P=0.87). Specificity was 100% in both. Location of the biopsy (upper vs middle/lower lobes) and consolidations visible in ultrasound imaging did not influence significantly on the result (P=0.2 and 0.23 respectively). But **the tendency for higher yield in upper lobes and with positive ultrasound findings was observed**. Fluoroscopy and balloon blockers were not used in all procedures.

Pneumothorax was observed in 3 cases, 1 requiring chest tube. No mild or severe bleeding was noted.

parameter	Single biopsy	Multiple biopsy	P value
Sensitivity	95.45%	96.8%	0.87
Accuracy	95.83%	97.06%	0.87
Specificity	100%	100%	1.0
NPV	67%	75%	0.97



Conclusions

Single TBLC with radial EBUS guidance seems to be efficient enough for diagnosing patients suspected of stage III sarcoidosis.