

Feasibility and safety of pleural biopsy using rigid forceps in semi-rigid medical thoracoscopy



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BACKGROUND

Semi-rigid medical thoracoscopy (MT) is a pleural procedure that could be easily performed by a pulmonologist.

However, the flexible forceps biopsy through working channel of semi-rigid thoracoscope has a disadvantage in that the diagnostic yield is not high due to the small size of biopsy specimen (compared to the rigid forceps biopsy) and the procedure time is long to acquire a large number of biopsy specimens.

To overcome these limitations, methods such as cryobiopsy have been used for MT.

Recently, we have successfully used rigid forceps (used in rigid MT) in semi-rigid MT. We would like to share our experience and report short-term data on feasibility and safety.

METHODS

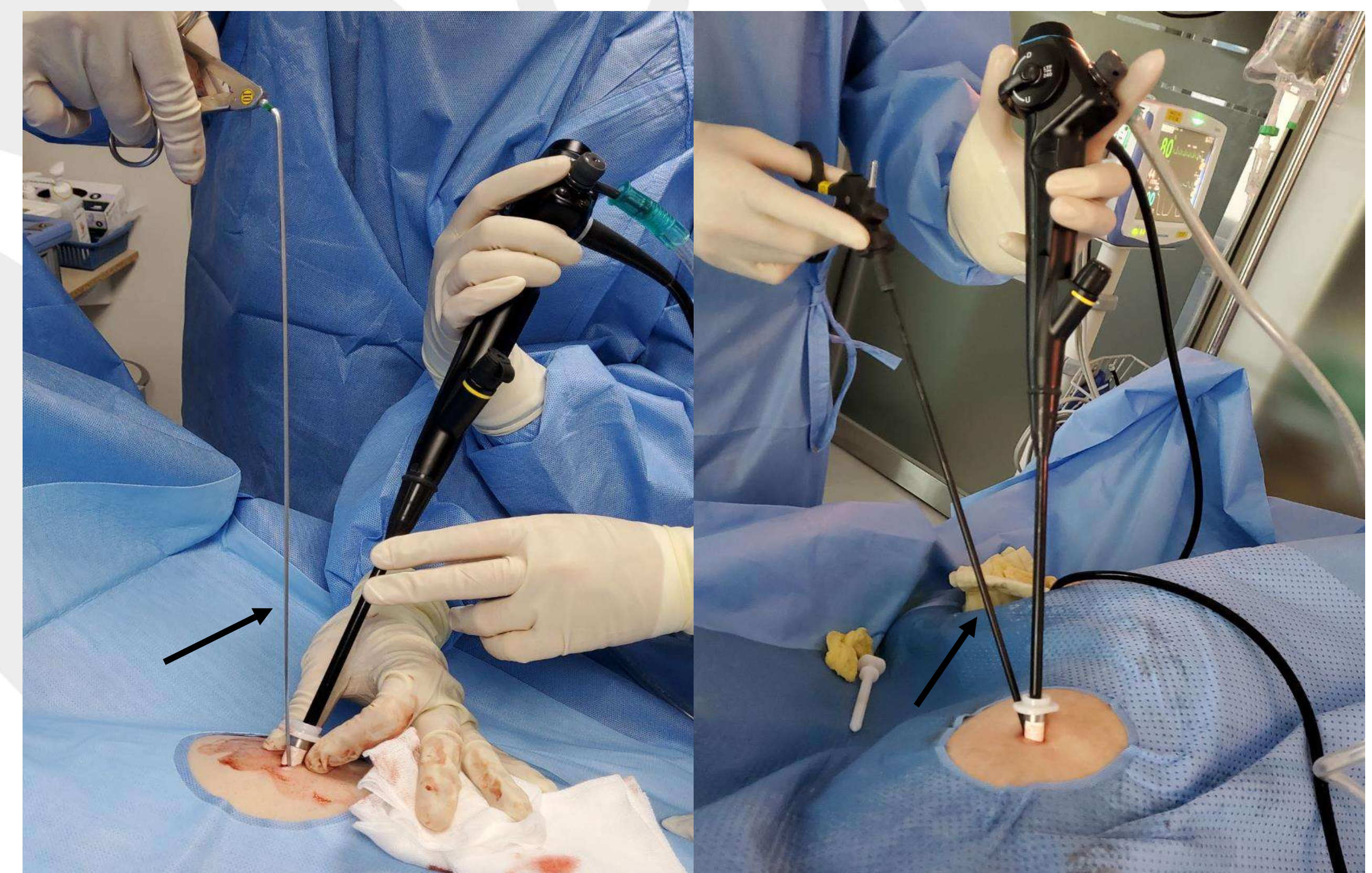
PATIENTS

- We retrospectively analyzed patients who underwent the semi-rigid MT using rigid forceps between November 2020 and April 2022 at Ulsan University Hospital.

MATERIALS

- Insertion of rigid forceps [10371L (Karl Storz, Germany): outside diameter [OD] 2mm, length [L] 35cm; 34410MB (Karl Storz, Germany): OD 5mm, L 43cm] was done with careful insertion tip rotation in the chest wall opening outside the dedicated trocar of semi-rigid thoracoscope [LTF-240 (Olympus, Japan)].

FIGURE 1. Pleural biopsy using rigid forceps (marked by arrows) in semi-rigid medical thoracoscopy (Left: 10371L, Right: 34410MB)



RESULTS

- Forty patients underwent semi-rigid MT using rigid forceps. All patients succeeded in inserting rigid forceps during semi-rigid MT. Regarding safety issues, no patients died due to complications related to the semi-rigid MT, and no significant bleeding or infectious complication was noted.
- Chest tube removal was successfully performed within 7 days in 75% (30/40) at 4.4 ± 2.1 day. The main cause of delayed removal was that the volume of drainage continued due to malignant effusion.
- The longest diameter of the biopsy specimens was 1.4 ± 1.2 cm, and definitive pathologic diagnostic yield was 80% (32/40).

FIGURE 2. Tissue sampling of parietal pleura with rigid forceps (Left: rigid forceps [34410MB], Right: flexible forceps)

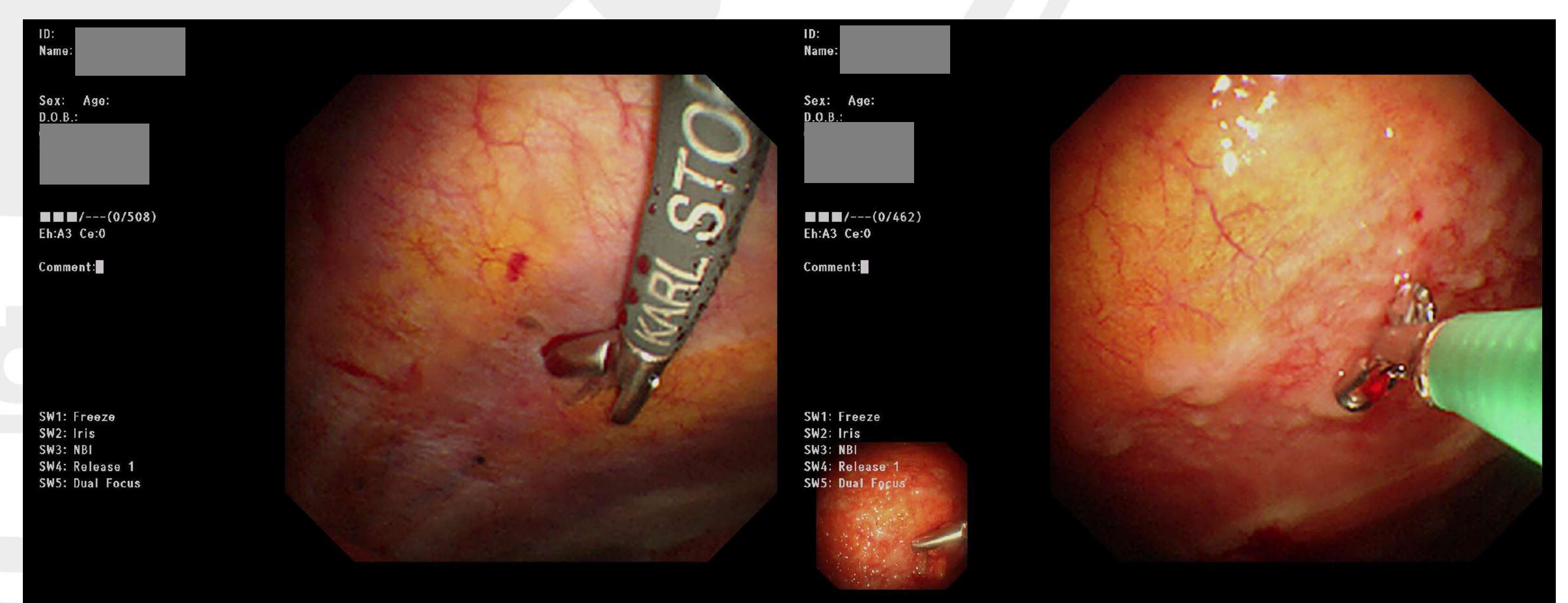


FIGURE 3. Comparison of biopsy specimen size between rigid forceps (A) and flexible forceps (B)

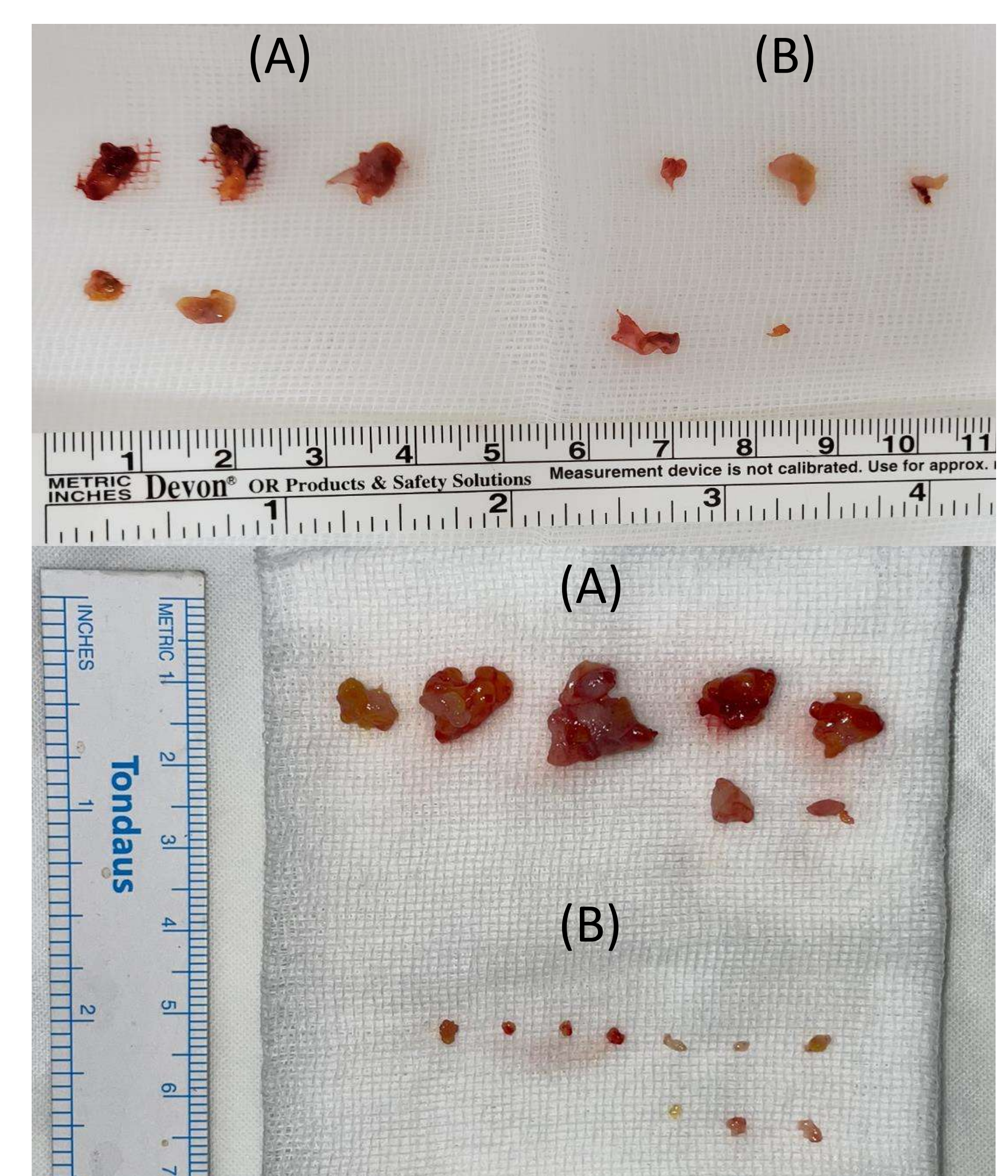


TABLE 1. Clinical and demographic characteristics of the 40 patients

Characteristics	N (%)
Number of patients	40
Age, years (mean \pm SD)	69.2 \pm 12.8
Male gender	23 (57.5%)
Ever-smoker	22 (55.0%)
Side	
Left	12 (30.0%)
Right	28 (70.0%)
Diagnosis	32 (80.0%)
Lung cancer	21 (52.5%)
Pleural metastasis	5 (12.5%)
Mesothelioma	1 (2.5%)
Tuberculosis	4 (10.0%)
Empyema	1 (2.5%)

CONCLUSIONS

In semi-rigid MT, pleural biopsy using rigid forceps was feasible and safely performed.

Disclosure There are no potential conflicts of interest related to this article. **Contact Email for Inquiries** ganghee@uuh.ulsan.kr