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Usefulness of new flex-rigid pleuroscopy in the diagnosis of malignant pleural mesothelioma

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DESCRIPTION

An 83-year-old woman presented with dyspnoea. Chest X-ray showed right-sided pleural effusion, which was confirmed by chest CT scans on admission. A nodular shadow was also visualised in the front part of the chest (figure 1). ¹⁸F-Fluorodeoxyglucose-positron emission tomography (FDG-PET) showed a maximum standardised uptake value of 10.5 in the nodule. Thoracentesis showed that the effusion was exudative, while cytodiagnosis was negative. Hence, pleuroscopy under local anaesthesia was performed to aid diagnosis.

We enforced flex-rigid pleuroscopy using the LTF-Y0032 (Olympus, Japan). The LTF-Y0032 enables observations with a maximum angle of curvature of 180°, allowing visualisation of the area near the insertion site of the pleuroscope (figure 2). Pleuroscopy revealed the mass near the insertion site of the pleuroscope. Then, biopsy forceps were inserted and a sufficient amount of tissue was successfully harvested for immunohistochemistry. The pathological evaluation demonstrated that the tumour was malignant pleural mesothelioma (biphasic type). We report the first case in which the LTF-Y0032, a new pleuroscopy, was used for diagnosis. Conventional fibrescopes (the LTF-240 and LTF-260) have a maximum angle of curvature of 160° and this angle is further reduced by the insertion of biopsy forceps. However, the new pleuroscope enables observations to be made up to an angle of 180°.

Since malignant mesothelioma is difficult to diagnose, requiring harvesting of a sufficient amount of tissue.¹ In the present case, malignant cells were also detected in biopsy specimens from small protuberances at other sites, although the amount collected was insufficient for immunostaining. The new pleuroscope

Figure 2 (A) Conventional pleuroscope (LTF-240) with the inserted biopsy forceps directed fully upward (upper). New pleuroscope (LTF-Y0032) with the inserted biopsy forceps directed fully upward (lower). (B) The LTF-Y0032 is capable of observations at a maximum curvature of 180° when directed fully upward, enabling the observation of masses at the introducer insertion site and close to the introducer. (C) Biopsy forceps were inserted and moved near the mass, which was close to the introducer.

enabled a sufficient amount of the tissue sample to be biopsied from a mass close to the introducer insertion site.

Although the diagnostic yield of pleuroscopy under local anaesthesia for pleural effusion of unknown origin is high at 92.6%, the diagnosis of malignant mesothelioma may be difficult in some cases.² It has recently been reported that cryobiopsy is useful for the diagnosis of sarcomatoid-type malignant mesothelioma.³ Cryobiopsy is useful in thickened pleura including the adipose tissue.

The internal diameter of the LTF-Y0032 pleuroscope is 3.0 mm, compared with the diameter of 2.8 mm of existing pleuroscope. New pleuroscopy allows the use of both 1.9 and 2.4 mm cryoprobes. A cryoprobe is stiffer than conventional biopsy forceps and it is difficult to attain a full 180° range. Currently, it is not clear whether conventional biopsy forceps or cryobiopsy provide a higher diagnostic yield when diagnosing malignant pleural mesothelioma. This will need to be evaluated in the future.

Use of this new pleuroscope promises to increase diagnostic yield under local anaesthesia for pleural effusion of unknown origin.

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Figure 1 (A) Chest CT scans on admission showing a right pleural effusion. A nodular shadow is seen in the front. (B) ¹⁸F-Fluorodeoxyglucose-positron emission tomography showed a maximum standardised uptake value of 10.5 in the nodule.

Learning points

- ▶ The new pleuroscope (LTF-Y0032) enables observations to be made up to an angle of 180°.
- ▶ The internal diameter of the LTF-Y0032 pleuroscope is 3.0 mm, compared with the diameter of 2.8 mm of existing pleuroscope.

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