
Pneumomediastinum resulting in procedure failure during computed tomography-guided biopsy of anterior mediastinal lesion in two children

Sir,

Percutaneous transthoracic biopsy is an established technique for investigating anterior mediastinal masses and lymph nodes.^[1] Computed tomography (CT) guidance is usually preferred as the presence of vascular structures and lung requires precise needle placement. Recently, we have attempted CT-guided biopsy in two children with anterior mediastinal lesions; however, the development of pneumomediastinum resulted in procedure failure. In the first case, a 6-year-old boy, CT-guided biopsy was attempted under sedation to confirm whether the anterior mediastinal lesion was enlarged thymus or a potentially dangerous lesion. A 20G 9 cm long coaxial needle set (Quick core biopsy set, Cook, Bloomington, IN, USA) was placed from the right anterior chest wall till the margin of lesion. After the stellate was removed and biopsy was attempted, pneumomediastinum developed. It resulted in the movement

of lesion away from outer cannula [Figure 1a and b]. Whenever inner biopsy needle was advanced toward the lesion, it pushed lesion away rather than piercing. No tissue core could be obtained despite repeated attempts and procedure was abandoned. In the second case, an 11-year-old boy, CT-guided biopsy was attempted from the left parasternal approach under local anesthesia using an 18G 10 cm long coaxial biopsy set (Bard Mission, Bard Medical, Covington, GA, USA). Similar to the first case, in this case also, the node moved away from the outer cannula due to pneumomediastinum [Figure 1c and d]. The outer cannula was further advanced about 1.5 deeper to cross pneumomediastinum; however, whenever inner needle was pushed, it moved the node away rather than cutting cores. The child complained chest pain, and after many unsuccessful attempts, the procedure was abandoned. In both cases, pneumomediastinum remained stable after outer cannula removal and resolved with conservative treatment.

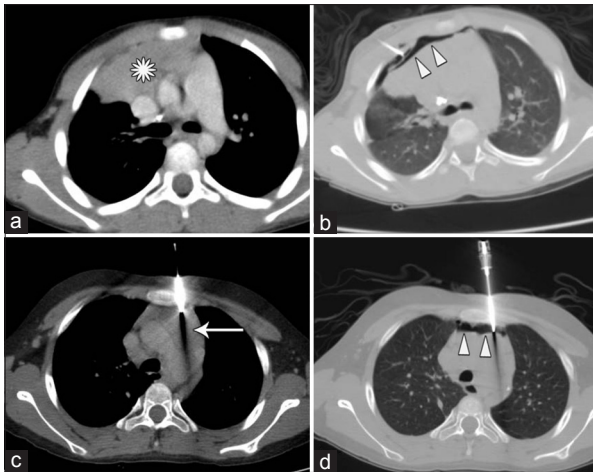


Figure 1: (a) Axial contrast-enhanced computed tomography image of a 6-year-old boy showing suspicious anterior mediastinal lesion (asterisk). (b) Pneumomediastinum resulting in movement of lesion (arrowheads) away from outer cannula. (c) Axial contrast-enhanced computed tomography image showing outer cannula placed at the edge of prevascular node (arrow) in an 11-year-old boy. (d) Movement of lymph node (arrowheads) away from outer cannula due to pneumomediastinum

Pneumothorax is a rare complication of mediastinal biopsy, mostly due to inadvertent transgression of the lung.^[2,3] Pneumomediastinum is not described as a complication of percutaneous mediastinal biopsies; however, it can occur following transbronchial biopsy.^[4] We have performed about 82 CT-guided percutaneous mediastinal biopsies from 2011 to 2017, mostly in adult patients. In below 18-year age group, mediastinal biopsy was performed in 9 cases only. Pneumomediastinum causing procedure failure was not observed in any other case except these two boys. Both these cases were young boys and outer cannula was placed at the margin of lesion to obtain a longer tissue core without hurting vascular structures. No air-containing structure was transgressed. We frequently use similar technique in adult patient; however, pneumomediastinum has never been observed. Probably, the elasticity of tissues and easy separation of fascial planes in these young boys resulted in ingress of atmospheric air through the outer cannula during negative intrathoracic pressure. Once the lesion moves away from the chest wall, cutting needle tends to push the lesion away rather than piercing due to tissue elasticity. In a series of ultrasound-guided percutaneous needle biopsy of anterior mediastinal masses in children using a coaxial system, no pneumomediastinum or technical failure was reported.^[5] There are no reports of pneumomediastinum resulting in failure of percutaneous mediastinal biopsy in children and ways to overcome it.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have

given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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