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Complications of Computed Tomography Guided Tru-cut Transthoracic Biopsy

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Objectives: Transthoracic biopsy is a well-defined and effective method used for pathologic sampling in the diagnosis of the pulmonary lesions. It is less invasive in comparison to surgical procedures. The most frequent complication encountered during transthoracic biopsy is pneumothorax which can present between 0 and 61% at different series. The rate of placing a tube thoracostomy is between 10.4 and 17.4%. Indications of transthoracic biopsy include pulmonary nodules, pleural lesions, mass lesions, consolidation, persistent focal infiltration, presence of cavities and abscesses, and mediastinal and hilar mass diagnosis. This study assessed the pneumothorax, intrapulmonary haemorrhage, hemoptysis, haemothorax and hemopneumothorax after computed tomography guided lung biopsies.

Methods: Prothrombin time, activated prothrombin time, and international normalized ratio parameters were measured in all patients before the biopsy to ensure that they were within normal limits. In patients receiving aspirin, clopidogrel or coumadin the treatment was discontinued at least four days prior to the procedure. Localization of the mass was determined by computed tomography. Local anesthesia of the skin, subcutaneous and intercostal tissues was achieved with 4–12 cc of Prilokain hidroklorür 2%. A coaxial approach was implemented in all patients by using an 18 gauge automated biopsy gun was inserted for tissue sampling. Tube thoracostomy were inserted into symptomatic patients and patients with evidence of increasing pneumothorax, haemothorax and hemopneumothorax.

Results: Two hundred patients underwent CT guided biopsy of a pulmonary lesion in the Thoracic Surgery Department of Kayseri City Hospital between January 2016 and December 2018. After transthoracic biopsy, complications were observed in 43 cases (21.5%). Pneumothorax occured in 36 of 200 biopsies (18%). Haemothorax occurred in 2 of 200 patients (1%) and intrapulmonary hemorrhage was seen in 5 cases (2.5%). Hemoptysis did not develop. Tube thoracostomy was applied to 11.5% (n=23).

Conclusion: Even if the area of pneumothorax is less than 10%, patients often require very urgent tube thoracostomy. In the biopsy room there should be an emergency response bag and an oxygen system. Materials for tube thoracostomy should be readily available and the physician should have the experience to perform a thoracostomy without loss of time.

Keywords: Computed tomography, pulmonary nodules, transthoracic biopsy, tru-cut