

PERCUTANEOUS TRANS-THORACIC PROCEDURES IN CHILDREN WITH TUMORS OF THORACIC WALL, MEDIASTINUM AND LUNG. THE EXPERIENCE OF A SINGLE INSTITUTION

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Background

While percutaneous trans-thoracic procedures (PTTP) are commonly performed in adults with tumors of thoracic wall, mediastinum and lung, the experience is limited in children, in whom however less invasive methods should be the choice for the diagnosis or the identification of small pulmonary nodules that need to be removed, sparing lung tissue. The results of the PTTP performed by the interventional radiologists in our Pediatric Surgery Department are analyzed.

Methods

CT-guided biopsies, utilizing a 64-slice CTscanner, with low-radiation dose, were performed applying the coaxial technique with 16-18G needles with a single tissue path. For localization of lung nodules before surgery, two 20G-hook wires were positioned beyond the nodule. CT images after each manipulation of the needles were obtained. US-guided biopsies were performed either with or without coaxial technique through a needle bracket. Younger patients required sedation. All patients underwent a chest radiogram two hours after the procedure and remained under observation for 24 hours.

Results

From January 2015 to March 2019, 23 procedures were performed in 22 patients (Age:16M-19Y): 6 patients underwent CT-guided biopsy (4 lung nodules, 2 mediastinal mass); 3 underwent 4 CT-guided hook-wire localization of pulmonary nodules, just before surgery; 13 underwent US-guided biopsy (posterior mediastinum 2; anterior mediastinum 5, thoracic/intrathoracic mass 5). Adequate core biopsies were obtained in all patients, except three, who underwent thoracoscopy/thoracotomy. The hook-wires were successfully positioned in all cases, as confirmed by histology. After the procedure, two patients presented perilesional hemorrhage and one pneumothorax, but they did not required treatment.

Conclusion

PTTP were successful in most patients, without significant complications. These techniques should be encouraged to avoid diagnostic aggressive surgical approaches in children with cancer. For all cases a multidisciplinary team is essential to discuss the indications and planning the procedures.