Tuohy Needle and Loss of Resistance Technique: A Safer Approach for Thoracentesis

To the Editor—One complication of thoracentesis is a pneumothorax. This is a particular concern in patients being mechanically ventilated. In an effort to reduce this risk, we have recently been using Tuohy needles for this procedure, rather than the standard short-bevel needles included in our standard kits. We have now performed thoracentesis in eight mechanically ventilated patients, each receiving PEEP ranging from 5 to 10 cm of water. Surgical intensive care unit residents under the direct supervision of a single attending physician performed...
thoracentesis. After skin cleansing and local anesthesia, an 18-gauge Tuohy needle was inserted with the bevel directed cephalad and was advanced until contact was established with the seventh rib. The stylet was withdrawn and a well-lubricated glass syringe with 2 ml of air was attached. The needle was then redirected and advanced above the rib margin until a distinct loss of resistance was encountered. Aspiration of pleural fluid confirmed the presence of the tip of the needle in the pleural space.

A distinct loss of resistance to air occurred in all eight patients. Pleural fluid was immediately aspirated through the needle in six patients. In two other patients, no fluid could be aspirated. In these patients a 20-gauge epidural catheter was passed through the Tuohy needle and advanced 25 cm posteriorly. In both patients we were then able to aspirate pleural fluid through the catheter. No pneumothorax or other complications occurred in any of the patients.

Complications and technical problems of thoracentesis have been quite well described. However, the technique of using an 18-gauge Tuohy needle and the ability to detect the loss of resistance during entry into the pleural space have not been described for the purpose of thoracentesis. The 18-gauge Tuohy needle has a blunt, curved tip that should decrease accidental dural/pleural puncture and facilitate the detection of the loss of resistance. The incidence of pneumothorax after thoracentesis with this technique is unknown. The reported incidence of pneumothorax for interpleural analgesia averages 2% when using the loss-of-resistance technique with a Tuohy needle, compared to 12% with the thoracentesis needle. We believe that the most common cause for unintentional lung puncture during thoracentesis is the occurrence of "dry tap," which may lead to further advancement or unnecessary manipulation of the needle in the pleural space, or both. In the technique described herein, the capability to easily insert the epidural catheter and aspirate pleural fluid adds to the safety of this procedure.

We believe that the Tuohy needle and the loss-of-resistance technique described herein is a safer approach for diagnostic/therapeutic thoracentesis than the short-bevel needles and traditional method.

**Arjang Khorasani, M.D.*
Chairman
Division of Critical Care Anesthesiology
Department of Anesthesiology & Pain Management
Cook County Hospital
Chicago, Illinois
Assistant Professor
Department of Anesthesiology

**Rush Presbyterian-St. Luke's Medical Center**
Chicago, Illinois
arjangk@SPHK.com

**Samuel K. Appavu, M.D.**
Chairman
Division of Surgical Critical Care
Cook County Hospital
Chicago, Illinois
Assistant Professor
Department of Surgery
University of Illinois College of Medicine at Chicago
Chicago, Illinois

**Antoun M. Nader, M.D.**
Fellow in Pain Management
Department of Anesthesiology & Pain Management
Cook County Hospital
Chicago, Illinois

**Simin Saatee, M.D.**
Attending Anesthesiologist
Department of Anesthesiology & Pain Management
Cook County Hospital
Chicago, Illinois
Assistant Professor
Department of Anesthesiology
Rush Presbyterian-St. Luke's Medical Center
Chicago, Illinois

References


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**Perioperative Extrapyramidal Reactions Associated with Ondansetron**

To the Editor.—Ondansetron is a selective serotonin, 5-HT₃, receptor antagonist antiemetic and has been considered to have few extrapyramidal side effects. During the past several years, however, five cases of dystonia and two cases of psychiatric complications (i.e., dysphoria-depression and a panic attack) were reported during ondansetron treatment of chemotherapy-induced emesis. We would like to describe...