Complications of Thoracocentesis

To the Editor:

I read with interest the article written by Doctor Michael G. Seneff et al entitled, "Complications associated with thoracocentesis." (Chest 1986;90:97-100)

I have found a technique helpful, when fluid has not been obtained from a first procedure, which was not discussed. Metal markers (pennies or dimes work quite well) are taped to the chest wall at the site/sites of entry and additional PA and lateral chest x-ray films are obtained. This usually allows retrieval of fluid without the need for other supplemental studies. I found this helpful even after ultrasound examination was unsuccessful in localizing fluid.

In addition, it should be noted that there is a small number of patients (usually those with malignant effusions) who, if the effusion is completely removed, will of necessity develop a pneumothorax because of a trapped lung phenomenon and the inability of that lung to expand into the space left by the fluid removal.

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To the Editor:

I have reviewed (Chest 1986;90:97-100) the article concerning complications of thoracocentesis. I am quite disturbed at the alarming number of serious side effects. I have been doing thoracocentesis for 15 years and have performed at least three to four hundred of these procedures during this time. My rate of serious complication is less than one percent.

In my experience and discussion with others over the years, I do not feel that I am unusual in my experience, but rather that the serious complication rate Dr. Corwin described was excessive. Perhaps house officers should not do thoracocentesis in the early part of their training.

I am also concerned about the potential for increasing malpractice rates when the lay press reads an article such as this.

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To the Editor:

"Complications associated with thoracocentesis: (Chest 1986, 90:97-100) presents sufficient data to raise the question of whether house officers should be performing this procedure, supervised or not. Certainly every procedure is associated with complications, but complications including three chest tubes, a lacerated spleen requiring transfusions, a pneumo-hemothorax, and a sheared-off catheter resulting in thoracotomy in only 125 procedures is cause for alarm. I do not have data to present on complications among pulmonary physicians performing this procedure, but from my own experience the rate of significant pneumothorax (greater than 20 percent) is less than 1 percent. Thoracocentesis is rarely, if ever, an emergency procedure, and there is always time to wait for an experienced physician to perform it or, if in a teaching hospital, for the appropriate sub-specialist in training. At least in this manner the number of inexperienced persons performing the procedure could be limited, hopefully lowering the complication rate. This may be contrary to the previous traditions of internal medicine training, but it is a pragmatic approach as general internists do not routinely perform this procedure once they finish their training. In addition, it would likely result in a more careful selection of patients for whom the procedure is truly necessary.

I would also like to comment that a 14-gauge needle is excessively large for a routine thoracocentesis and may help to explain the high complication rate.

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To the Editor:

I appreciate the comments of Drs. Buchanan, Binder, and Sesso. Dr. Buchanan’s observations on localizing fluid are helpful. However, when a dry tap has occurred, our data suggest that the patient is at increased risk for a complication. Therefore, we prefer to localize the fluid under ultrasound examination to insure direct aspiration. While Dr. Binder’s and Dr. Sesso’s statistics may be correct, they have no hard data to support their experience or that of any other practicing pulmonologist. Further, the fact that this complication rate exists among house officers should not inhibit the reporting of such complications for fear of “the lay press” or increased malpractice rates. Only by objectively investigating procedures done by practicing physicians, house officers, nurses, and physician’s assistants, and by monitoring complication rates will the medical profession be able to objectively assess risks, develop corrective educational programs and, most importantly, monitor our peer performance.

In response to Dr. Binder’s alarm, and as we suggested in our conclusions, the rate of complication in our study may have seemed high; however, we reported all objective complications, both minor and major and the literature cited in our study supports our data in terms of major complications. We agree that the rate is too high. Ongoing educational programs in our institution are a result of this study.

Dr. Binder’s comment on limiting thoracocentesis to physicians highly experienced in doing this procedure is a very controversial suggestion. It is my belief that thoracocentesis is not a difficult procedure to perform and that staff in teaching hospitals have an opportunity and obligation to teach the correct way to do this and all other procedures to our residents.

Finally, I agree with Dr. Binder that the 16-gauge needle-catheter apparatus may have contributed to the complication rate. A future study currently underway will address this issue.

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