accuracy seen with the Edentrace device used in our and other studies.\textsuperscript{1,3} We believe oximetry alone may not be able to distinguish between the different types of sleep disordered breathing as well as the four-channel sleep device described in our report.

Dr. Sackner has expressed his concerns about the physiologic appropriateness of the particular measurement tools used in the portable sleep apnea recording devices. Certainly more complex data acquisition may give purer physiologic data, but we are not convinced this would significantly affect the outcome. It is doubtful that any more invasive technique would have arrived at a different diagnosis in our example patient whose apnea-hypopnea index of 64 with oxygen desaturations to 50 percent confirmed the diagnosis of OSAS. We believe that the literature published to date shows that these sleep apnea recorders can be quite accurate. Unless data to the contrary become available, Dr. Sackner’s concerns appear to be moot. The OSAS is a common disorder that is being under-diagnosed. Simplified accurate testing may help to address this problem.

A duck is a duck.

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References


Subcutaneous Emphysema: Spontaneous or Iatrogenic?

To the Editor:

The article of Herlan et al. \textsuperscript{1} “Massive Spontaneous Subcutaneous Emphysema,” is interesting; the treatment suggested by the authors is attractive. However, the use of the term “spontaneous” in relation to the four cases of subcutaneous emphysema is most surprising. The \textit{New Webster’s Dictionary and Thesaurus} defines “spontaneous” as “happening without external cause or control.” Is this really what happened to the four patients described in the article?

Patient 1 underwent an “uncomplicated” transtheial esophagostomy. According to the description, he had a severe paroxysm of cough that was followed by massive subcutaneous emphysema. Was the operation really uncomplicated and the subcutaneous emphysema spontaneous? It seems obvious that the emphysema was a complication of the operation. While barium contrast study of the cervical esophagus ruled out a leak of barium under normal condition of pressure, it did not rule out a leak of air during the paroxysm of cough, when the pressure was markedly increased. Thus, patient 1 suffered a complication of his operation.

Patient 2 underwent thoracotomy with laser ablation of giant pulmonary bullae. The massive subcutaneous emphysema occurred shortly after tracheal extubation. There was nothing spontaneous here.

Patient 3 was on mechanical ventilatory support for 3 days with peak airway pressure exceeding 65 mm Hg. Subcutaneous emphysema is a well-known complication of ventilatory support. Another case of spontaneity?

Patient 4 underwent coronary artery bypass grafting with division of pleural adhesions. There is certainly a possibility of injuring lung tissue during division of adhesions and causing an air leak. Indeed, massive subcutaneous emphysema developed immediately after removal of the mediastinal drainage tubes.

We can speculate on the mechanism that led to the development of subcutaneous emphysema in every case, but one thing is certain: the occurrence of subcutaneous emphysema in each patient was a complication of treatment (three operations, one ventilatory support), not spontaneous.

Of course, this does not detract from the value of the treatment suggested by the authors. It is attractive, and in view of the good results, probably worth trying.

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References


Role of Closed-Needle Biopsy in the Diagnosis of Malignant Mesothelioma of the Pleura

To the Editor:

The article by Beauchamp et al.\textsuperscript{1} which appeared in the October 1992 issue of \textit{Chest}, purports to test the hypothesis that closed-needle biopsy may be sufficient in many cases to make a diagnosis of malignant mesothelioma of the pleura. In a study of 20 consecutive patients with a histopathologic diagnosis of mesothelioma, the diagnosis was made by closed-needle biopsy alone in 12 cases. Therefore, the authors argue, closed-needle biopsy is sufficient to make a diagnosis of mesothelioma. The circular nature of this reasoning is obvious, and in and of itself is sufficient to invalidate the conclusions of the study.

However, there are additional problems with the study design. The authors suggest that Alcian blue or colloidal iron staining of tumor supports a diagnosis of mesothelioma over metastatic adenocarcinoma. These histochemical stains react equally well with hyaluronic acid produced by mesothelioma and other acid mucopolysaccharides produced by adenocarcinoma.\textsuperscript{2,3} Although the authors note that hyaluronidase pretreatment increases the specificity of this staining procedure, there is no evidence in the text that hyaluronidase was used in their cases. Periodic acid-Schiff stain (PAS) with diastase, which provides useful information in selected cases,\textsuperscript{4} was used by the authors in only one open biopsy specimen. (The entry [8C] specimens opposite "PAS with diastase" in Table 1 in their article actually refers to antibody to carcinoembryonic antigen [CEA] according to the text.)

Immunohistochemical studies performed by the authors are similarly suboptimal. Keratin and vimentin immunostaining do not discriminate between malignant mesothelioma and metastatic adenocarcinoma involving the pleura.\textsuperscript{4} In my own experience, CEA is the most useful immunostain available to make this distinction,\textsuperscript{5} an observation supported by others.\textsuperscript{6,7} However, staining procedures that employ monoclonal antibodies B72.3 and Leu-M1 are also quite useful,\textsuperscript{8,9} and examples of metastatic adenocarcinoma that
were CEA negative and Leu-M1 or B72.3 positive have been reported. These latter two antibodies were not used by the authors. Furthermore, ultrastructural studies have been found useful by a number of authors, but were not employed in the study by Beauchamp et al. Some of these tests may not have been performed due to the limitation of the sample size. This merely serves to underscore the diagnostic limitations of closed-needle biopsy of the pleura.

It has been my experience that needle biopsy of the pleura is only occasionally sufficient to make an unequivocal premortem diagnosis of malignant mesothelioma, and then only after careful correlation with clinical and radiographic features. The study by Beauchamp et al does not refute that position, and the readers of Chest should not conclude that closed-needle biopsy in most cases provides the pathologist with sufficient material to make this oftentimes difficult diagnostic distinction.

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REFERENCES

To the Editor:

We appreciate the comments of Dr. Roggli and agree with him that closed-needle biopsy is not always sufficient to make the diagnosis of malignant mesothelioma of the pleura.

There is no single diagnostic test, pathologic or otherwise, for malignant mesothelioma of the pleura. Some biopsy samples will require more pathologic testing than others to help separate malignant mesothelioma from adenocarcinoma. However, not all biopsy samples require all pathologic tests to be performed on them for a diagnosis to be made.

The histochemical stains Alcian blue and colloidal iron can be positive in both malignant mesothelioma and adenocarcinoma. In malignant mesothelioma, Alcian blue and colloidal iron can stain positive due to their reaction with hyaluronic acid. In adenocarcinoma, Alcian blue and colloidal iron can stain positive due to their reaction with chondroitin sulfate. Hyaluronidase can be used to help separate the two. Exposure of the tissue to hyaluronidase will digest hyaluronic acid present in a mesothelioma; on subsequent exposure to Alcian blue or colloidal iron, the mesothelioma will fail to stain. However, hyaluronidase will not digest the chondroitin sulfate present in adenocarcinoma; on subsequent exposure to Alcian blue or colloidal iron the adenocarcinoma will still result in a positive reaction.

There are many antibodies available for use in immunohistochemical testing to differentiate malignant mesothelioma from adenocarcinoma. Of these antibodies, CEA is the most useful. However, no single antibody is diagnostic.

Although some authors have found electron microscopy to be useful, others have found this not to be the case. At the time of our diagnoses of malignant mesothelioma of the pleura, electron microscopy was not available at our institution.

In our study, we were able to make a diagnosis of malignant mesothelioma of the pleura in 20 cases utilizing some of the pathologic tests available. In these 20 cases, tissue was obtained at closed-needle biopsy of the pleura in 12. In 10 of these 12 cases a diagnosis of malignant mesothelioma of the pleura was made without subjecting the patient to an open pleural biopsy.

These findings show that the yield of malignant mesothelioma of the pleura by closed-needle biopsy, in their study, is higher than previously recorded. We suggest that this finding may be due to the improvement in pathologic tests that have become available in the past 10 years.

In light of these findings, we suggest that a closed-needle biopsy be performed before proceeding to open pleural biopsy when a diagnosis of malignant mesothelioma of the pleura is considered. The advantage to the patient, as well as the considerable reduction of hospital costs, in making a diagnosis by closed-needle biopsy is obvious. However, should a closed needle biopsy be nondiagnostic, we surely do not suggest that the investigation stop there. On the contrary, if a closed-needle biopsy is nondiagnostic for malignant pleural mesothelioma, open pleural biopsy or thoracoscopy should be performed.

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REFERENCES

Discordance Between Cardiopulmonary Physiology and Physical Therapy

To the Editor:

In the June 1992 issue of Chest, Dean and Ross1 provided an interesting noncritical review of a selection of literature relating to cardiopulmonary physiotherapy (CPP) and the lack of clinical trials demonstrating its efficacy. However, this narrow review does not reflect current practice or discuss the literature that clearly supports CPP interventions. I was unclear as to who was the target audience for this article, since it does not provide physiotherapists with new information and ignored many important aspects of CPP.

Current CPP practice does not have a primary focus on removal of secretions unless they are the only pathologic change. Positioning and mobilization are integral components of CPP and will frequently be the only intervention required. I am not sure to whom Dean and Ross were referring when they cautioned against “primarily attributing the underlying mechanism of atelectasis to