case of TSS, even though the patient did not live long enough to exhibit all of the clinical criteria, namely desquamation. The criteria for TSS diagnosis include the following: temperature >38.9°C; diffuse macular erythoderma; hypotension (systolic blood pressure <90 mm Hg); desquamation of the palms and soles 2 to 3 weeks after the onset of illness; and evidence of multisystem organ failure of at least 3 organ systems. This patient had evidence of renal, respiratory, and hematologic failure. In addition, the patient must have negative blood, throat, or cerebrospinal fluid culture and no rise in titer to Rocky Mountain spotted fever, leptospirosis, or rubella.

During the initial week of ICU admission, multiple diagnoses were entertained. These included septic shock with no focus, acetylsalicylic acid overdose, and Korean hemorrhagic fever. In addition, group A Streptococcus pneumonia and sepsis were considered and have been associated with a toxic shock-like syndrome, but the cultures and antistreptolysin-OT titer were negative.

Patients with AIDS have an increased incidence of positive S aureus blood cultures. In a chart review of 22 cases of S aureus bacteremia in 18 patients with AIDS or AIDS-related complex, none had complications ascribed to a toxin (TSST-1) mediated source. In a recent review of five cases, Cone et al found five patients with a TSS-like picture with positive TSST-1. All these patients had AIDS. In 1982, Davis et al described possible altered host defense mechanisms in TSS. These included a profound absolute lymphopenia during acute TSS which may result from direct cytoxicity of TSST-1. It is impossible to be certain as to the cause of the lymphopenia in this patient for it could be due to either TSS or HIV. However, his lymphocyte count did return to low normal during the first week in the ICU.

Our patient presented with the clinical picture of TSS and had a hyperdynamic septic shock pattern on pulmonary artery readings. This case demonstrates the overwhelming nature of TSS when combined with an HIV-positive patient. Therefore, in the appropriate demographic groups, the HIV status of the patient should be investigated in nonmenstrual TSS.

REFERENCES

Endobronchial Spread of Bronchioloalveolar Carcinoma*
William D. Donovan, M.D., M.P.H.; David F. Yankelevitz, M.D.; Claudia I. Henschke, Ph.D., M.D.; Nasser Altorki, M.D., F.C.C.P; and Thomas A. Nash, M.D.

Bronchioloalveolar cell carcinoma is known to have several presentations. We present a case of a patient with a solitary nodule in the upper lobe who had an episode of hemoptysis one week prior to lobectomy. Blood clots were removed from the lower lobe bronchus at surgery. Seven months later, the patient was documented to have recurrence in the lower lobe with computed tomographic scan and pathologic findings consistent with endobronchial spread of tumor. (Chest 1993; 104:951-53)

B ronchioloalveolar cell carcinoma (BAC) is the least understood and the rarest of the malignant primary lung neoplasms. It is commonly believed to occur in two forms: a localized lesion usually presenting as a single nodule or mass, and as diffuse, infiltrating lesions associated with a significantly poorer prognosis. Crossover between the two types, or progression from the localized form to the diffuse form, has been suspected in the past, but at best this has been documented only circumstantially in the literature. This case demonstrates endobronchial spread of BAC over

*From the Departments of Radiology (Drs. Donovan, Yankelevitz, and Henschke), Surgery (Dr. Altorki), and Pulmonary and Critical Care Medicine (Dr. Nash), The New York Hospital-Cornell Medical Center, New York City.
Reprint requests: Dr. Yankelevitz, 525 East 68th Street, New York 10021

Figure 1. Posteroanterior chest radiograph obtained three weeks prior to surgery shows a solitary left upper lobe mass.
in the left upper lobe on preoperative chest radiograph (Fig 1). Computed tomography (CT) confirmed this finding (Fig 2). The patient was asymptomatic, but had a 75 pack-year smoking history.

Transbronchial biopsy via fiberoptic bronchoscopy (FOB) obtained cells consistent with BAC. One week following bronchoscopy, the patient experienced an isolated episode of hemoptysis. This was accompanied by wheezing that improved when she used a previously prescribed bronchodilator. Three weeks after bronchoscopy, the preoperative chest radiograph (CXR) (Fig 3) again demonstrated the left upper lobe mass, but now there was new left lower lobe atelectasis.

At surgery, repeated FOB prior to intubation demonstrated mature blood clots in the left main, left upper, and left lower lobe bronchi. These fragments were extracted by suctioning during the course of the upper lobectomy.

The preoperative diagnosis of BAC was confirmed on pathologic sections, and bronchial and vascular margins were clear. The pleura was not involved, and all 21 sampled lymph nodes were negative for tumor. Postoperative CXRs demonstrated reexpansion of the left lower lobe. The patient had an uneventful postoperative course.

A follow-up CT scan (Fig 4) obtained seven months after surgery revealed multiple small ill-defined nodules, located anteriorly in the left lower lobe. The distribution of the nodules directly corresponded to the location of the blood clots seen preoperatively, and were in direct relationship to small bronchi. No lesions were present elsewhere in the chest and there was no adenopathy.

A CT-guided fine-needle aspiration biopsy of the lesions was positive for malignant cells consistent with BAC. A left lower lobectomy was performed.

**Discussion**

Diffuse, infiltrating BAC was characterized in 1903 by Musser et al. following earlier descriptions by Malassez. Only in 1953 was the solitary nodular form of this entity recognized as a different manifestation of the same disease. In 1960, Liebow et al. defined BAC as well-differentiated adenocarcinomas arising in the peripheral lung "beyond a grossly recognizable bronchus" with local spread through the air spaces; the lung stroma is used as a framework, but direct invasion or destruction of pulmonary tissue is a late mani-

**Case Report**

A 50-year-old woman was admitted to the hospital for a dilatation and curettage for menometrorrhagia. A 4 x 3-cm mass was present the course of a year, with conversion of a solitary nodule into a diffuse, multinodular lesion.
Bronchioloalveolar cell carcinoma constitutes between 1 and 9 percent of primary pulmonary malignant neoplasms. Unlike other primary lung cancers, BAC occurs as frequently in men as in women, and it has the weakest association with smoking, occupational exposure, or chronic lung disease. The average age at diagnosis is similar to that of adenocarcinoma of the lung, but patients are less likely to complain of constitutional symptoms (such as weight loss, fevers, and malaise) than with other lung tumors.

Its myriad manifestations—solitary pulmonary nodule, lobar consolidation, multiple nodules, diffuse infiltrate—continue to intrigue clinicians, radiologists, and pathologists. The solitary and diffuse forms certainly display dichotomous prognoses; recent studies have shown stage I BAC to have a prognosis more favorable than that of stage I adenocarcinoma (with five-year survival of 75 percent and 50 percent, respectively), whereas the survival times of stages II and III BAC are significantly shorter than that for stage III adenocarcinoma.1,2

When it was realized that BAC demonstrated both solitary and diffuse forms, the natural assumption was that the former was the predecessor of the latter, and that earlier detection of BAC would assure a better prognosis. Thus, speculation as to whether solitary foci of BAC have the capability to spread and implant throughout the bronchial tree, thus giving rise to diffuse involvement, has been a source of discussion for decades but has never led to clear demonstration of such a case. Late development of local and distant metastases due to hematogenous and lymphogenous spread in patients who have undergone resection of a solitary BAC has been clearly documented similar to the typical metastatic spread of adenocarcinoma; but multiple studies following patients over various numbers of years have failed to identify any such patients with focal disease who have progressed to diffuse involvement by BAC in a manner suggesting rapid endobronchial spread.7,8

The alternative hypothesis, advanced most notably by Miller et al.,9 is that solitary and diffuse BAC may (or may not) share a common histology, but are in reality different clinical entities and should be treated as such, has therefore received favorable support.9,10 A review by Hill in 1984 directly contradicted this theory by asserting that in the absence of “surgical intervention, there was a transition from a solitary lesion to diffuse disease in every patient.” Tracking of 45 patients in their study demonstrated “progression” in these patients from a nodule to a mass, to diffuse nodules, and to localized and diffuse consolidations. Other patients reportedly demonstrated progression from masses to consolidations and to diffuse nodules.11 The lack of convincing radiographic documentation in the review article hindered resolution of the debate, and there has been a significant lack of corroboration of Hill’s11 stance in the literature in the years since his report appeared. The current case offers rather convincing evidence of endobronchial spread of BAC from a solitary focus, resulting in diffuse pulmonary involvement. Although the blood aspirated from the left lower lobe bronchus postoperatively was not sent for cytologic study, the short time span between the initial procedure and BAC recurrence in the lower lobe, its radiologic and pathologic appearance, and postoperative stage I of the patient, make endobronchial spread of BAC the most likely explanation.

References

Needle/Wire Lung Nodule Localization for Thoracoscopic Resection*

Philip A. Templeton, M.D., F.C.C.P., and Mark Krasna, M.D.

Small lung nodules undiagnosed by percutaneous needle biopsy have traditionally gone to thoracotomy for diagnosis. We describe a technique using computed tomographic needle/wire lung localization of these nodules, to be resected using video-assisted thoracoscopic. This is less invasive and less painful than thoracotomy and provides for cost-effective definitive diagnosis.

*From the University of Maryland Medical System, Baltimore. Reprint requests: Dr. Templeton, Department of Radiology, University of Maryland Hospital, Baltimore 21201

Thoracoscopy is a surgical technique enabling lung resection without thoracotomy and its associated complications.1 The lung is collapsed and three small incisions are made in the chest for insertion of a video thoracoscope, biopsy forceps, and a stapling and/or laser device. Peripheral lesions visible on the surface of the lung can be resected under direct vision. A wedge biopsy specimen 3×3 cm is obtained, and successive applications can be performed to obtain a specimen 9×9 cm. To allow resection of lesions deep to the surface of the lung, we report a system for needle/wire lung localization.

Case Report
A 57-year-old man with a history of resected bladder carcinoma and an 80 pack-year smoking history had a small left upper lobe

CHEST / 104 / 3 / SEPTEMBER, 1993

Downloaded From: http://journal.publications.chestnet.org/pfaccess.ashx?url=/data/journals/chest/20382/ on 06/26/2017