results showed a restrictive pattern of ventilation, increased elasticity of the lung (more advanced than in 1978), and reduction of Dco to 30 percent of predicted and resting hypoxemia.

Therapy with prednisolone (60 mg) and azathioprine (100 mg daily) was given. Itching and jaundice disappeared, liver diminished and liver tests improved. Lung changes were progressing despite treatment. After five months of treatment the patient died of respiratory failure. Autopsy confirmed diagnosis of interstitial lung fibrosis and PBC.

Cocaine and MI

To the Editor:

Myocardial infarction is being reported in alarming numbers as a consequence of cocaine abuse. The pathogenesis of cocaine-induced myocardial infarction is as yet unknown, although coronary artery spasm may play a prominent role in some patients. This mechanism is suggested particularly in those patients who have nonobstructive coronary artery disease. Recent investigations have noted, however, that the association between coronary spasm and cocaine must be considered a temporal rather than causal one because the effect of cocaine in these patients has not been confirmed by rechallenge with the drug. We report an unusual patient with nonobstructive coronary artery disease who suffered two separate episodes of myocardial infarction related to abuse of cocaine.

A previously healthy 31-year-old man developed severe chest discomfort after freebase cocaine. He presented to the emergency room, where an initial electrocardiogram showed a right bundle branch block pattern with ST elevation in leads I, aVL, and V1 through V5. Serial electrocardiograms and cardiac enzyme tests were diagnostic of an acute anterior wall myocardial infarction. Maximal serum creatine kinase level was 2,820 IU/L (normal 0 to 125) with an MB fraction of 9.3 percent (normal 0 to 3). Echocardiogram demonstrated extensive anterior wall akinesis with an apical aneurysm. Left ventricular thrombus was not present. Coronary arteriography performed 20 days after admission demonstrated a 30 percent lesion of the proximal left anterior descending artery. The patient was prescribed coumadin with strong advice against further cocaine abuse.

Two weeks after discharge the patient again developed chest pain shortly after intranasal use of cocaine. Elevation of the ST segments in leads I, aVL and V4 through V6 recurred, with new ST elevation in leads II, III, and aVF. Additional myocardial necrosis was documented by cardiac enzyme levels. Peak creatine kinase was 586 IU/L with an MB fraction of 13.8 percent. Repeat echocardiogram showed the development of further segmental motion abnormalities of the inferior and posterior walls of the left ventricle. Diltiazem was added to the patient's regimen and advice to abstain from cocaine use was reinforced.

Recurrent myocardial infarction has been demonstrated in persons with significant coronary artery disease who repeatedly use cocaine. In such patients, myocardial ischemia may result from cocaine-induced elevation of heart rate and blood pressure. The mechanism of myocardial infarction in patients without critical coronary narrowing is less clear. We recently reported severe coronary artery spasm with superimposed thrombosis in a 29-year-old male with normal coronary arteries who suffered recurrent myocardial infarction after using cocaine. The course of the patient described herein lends support to the hypothesis that use of cocaine may precipitate coronary vasospasm sufficient to produce myocardial infarction in patients with nonobstructive coronary artery disease.

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Hpd-Pdt for Cancer Treatment in Bronchology

To the Editor:

The recent article by Kato et al of considerable interest to us since it reports the first complete tumor remission with follow-up more than five years after photodynamic therapy (Hpd-Pdt) for tracheobronchial cancer. In view of the fact that series published in the literature are mainly the work of only two teams, it would seem useful to report our results in a short preliminary series with Hpd-Pdt.

From May, 1984 to September, 1986, we treated and followed eight patients (seven men, one woman) selected according to the following criteria: tracheobronchial epidermoid carcinoma less than 40 mm in diameter inoperable because of respiratory failure or in a recurrent phase after conventional treatments, and no evidence of metastases as indicated by examinations. The exact sites of the lesions are given in Table 1. Lesion diameter (mean 26.8 mm) was assessed both by endoscopy (opened grip biopsy) and computed tomography. Endoscopically, it appeared as an irregular, vegetating area in three cases and ulcerated and infiltrating in five cases. All the patients (mean age 55-8 years, range 50 to 64 years) presented definite contraindications to surgical treatment: seven had undergone pneumonectomy for cancer, followed in three cases by chemotherapoy and supraclavicular mediastinal radiotherapy, and one had right superior lobectomy followed by chemotherapy.

Endoscopic treatment with argon-pumped dye laser was preceded 72 h by intravenous infusion of hematoporphyrin derivative (HpD) in doses of 2.5 to 5 mg/kg prepared from hematoporphyrin dichlorhydrate according to the method of Gregorie et al and Lipson et al. The patients were advised in writing of the risks of photosensitivity relative to HpD. Laser emission power at the tip of the optical fiber ranged from 300 to 400 mW at 632 nm (checked by a JY-20 monochromator). In five cases, irradiation was interstitial (implantation every 8 mm during 5 min), and in three cases only defocused irradiation was performed according to the same parame-
Table 1—Results after HpD-PDT in Eight Patients

<table>
<thead>
<tr>
<th>Patient no.</th>
<th>Diameter (mm)</th>
<th>Site</th>
<th>HPD (mg/Kg)</th>
<th>Sessions</th>
<th>Result (+ 2 months)</th>
<th>Follow-up</th>
<th>Contraindications</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>20</td>
<td>Lob sup (L)</td>
<td>2.5</td>
<td>1</td>
<td>RC</td>
<td>20</td>
<td>PN (R) chemical (-1 yr)</td>
</tr>
<tr>
<td>2</td>
<td>20</td>
<td>MSB (R)</td>
<td>2.5</td>
<td>1</td>
<td>RC</td>
<td>19</td>
<td>Lob sup (R) (-6 m)</td>
</tr>
<tr>
<td>3</td>
<td>25</td>
<td>Carena</td>
<td>2.5</td>
<td>1</td>
<td>RC</td>
<td>30</td>
<td>PN (R) Chem Rx (-2 yr)</td>
</tr>
<tr>
<td>4</td>
<td>15</td>
<td>Lob Inf (L)</td>
<td>5</td>
<td>2</td>
<td>RP</td>
<td>(+8 months)</td>
<td>PN (R) (-6 m)</td>
</tr>
<tr>
<td>5</td>
<td>40</td>
<td>Carena</td>
<td>5</td>
<td>2</td>
<td>NC</td>
<td>(+16 months)</td>
<td>PN (R) (-2 yr)</td>
</tr>
<tr>
<td>6</td>
<td>20</td>
<td>Lob sup (R)</td>
<td>5</td>
<td>1</td>
<td>RC</td>
<td>9</td>
<td>PN (L) (-1 yr)</td>
</tr>
<tr>
<td>7</td>
<td>40</td>
<td>Nelson (R)</td>
<td>5</td>
<td>2</td>
<td>RC Regrowth</td>
<td>(+5 months)</td>
<td>PN (L) Chem Rx (-1 yr)</td>
</tr>
<tr>
<td>8</td>
<td>35</td>
<td>Lob sup (L)</td>
<td>5</td>
<td>1</td>
<td>RC</td>
<td>4</td>
<td>PN (R) (-9 yr)</td>
</tr>
</tbody>
</table>

Lob = lobar; Sup = superior; Inf = inferior; PN (R) = right pneumonectomy one year before PDT; Chem = chemotherapy; Rx = radiotherapy. Date from treatment in brackets.

Endoscopic and histologic control was carried out simultaneously by two physicians every two months. The results (summarized in Table 1) were scored according to CR (complete response), PR (partial destruction) and NC (no change). Complete response at two months was observed in six of eight cases, PR in one case and NC in one case. Five of the six CR patients are presently free of recurrence (mean follow-up 16 months), and in one case there was a recurrence at four months. Three patients (one PR, one regrowth and one NC) have had a second PDT session and are currently being evaluated. The results subsequent to this second treatment have not been taken into account here.

Complications were transient respiratory distress (one patient) and a photosensitivity accident (one patient), which occurred less than a month after HpD infusion.

Although this is a short series without control subjects for comparison, our results may be compared with those obtained by Hayata et al. or Cortese and Kinsey in selected patients (notably with respect to tumor size) since our criteria for results are the same as those. The percentage of complete tumor remission (RC) is also quite similar to those published (30 to 50 percent according to author), confirming their results. However, multicenter clinical studies involving comparison with conventional treatments, and even with Nd-YAG laser treatment, should be carried out to determine the true role of HpD-PDT as part of the therapy for tracheobronchial cancers.

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Inferior Vena Caval Defects and the Venous Circulation

To the Editor:

We have read with interest the article of Reinus et al in Chest (1986; 98:916). We wish to report a similar case that recently occurred in our institution. A 28-year-old woman was admitted to our hospital because of recurrent acute pulmonary thromboembolism, ten years after the first episode. The diagnosis had been established 20 days before in another hospital, where the patient was admitted complaining of a suddenly ensuing severe chest pain and hemoptysis, followed by syncope. Perfusion photoscan demonstrated lack of perfusion at the whole left lung and at the lower right lung. Subsequently, the patient's condition became progressively worse, with increasing dyspnea, persistent chest pain, right heart failure and severe hypoxemia despite promptly instituted treatment with both heparin and urokinase.

A complete angiographic study was then performed. The pulmonary angiogram confirmed a remarkable defect of the lung perfusion, while the inferior vena cava (IVC) appeared completely obstructed below the renal veins, showing stenosis with duplication just over the renal veins (Fig 1). The patient died four days later because of a new fatal incident of lung thromboembolism, after a successful disconnection of the right pulmonary lower branch had been achieved by urokinase perfusion through an indwelling catheter.

This case report confirms the possibility of apparently congenital IVC abnormalities in patients with recurrent pulmonary thromboembolism which might play a role in promoting stasis of the lower