Unusual Etiology of Cystic Lesions in the Lung*

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A 57-year-old man was admitted because of cystic lesions on his chest x-ray film (Fig 1). Eight months earlier, transitional cell carcinoma of the bladder, grade 3, was diagnosed, for which he received local irradiation, followed by radical cystectomy. There was no evidence of metastatic disease. On admission, the patient denied increased cough, sputum production, dyspnea, fever, weight loss, hemoptysis, or exposure to tuberculosis. The findings from his pulmonary examination were normal. A test with intermediate-strength purified protein derivative of tuberculin (PPD) was nonreactive, and fungal serologic studies were negative. A transthoracic needle aspiration was performed.

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Diagnosis: Metastatic transitional cell carcinoma

The most common causes of multiple cavitary lesions in adults are infectious agents, either pyogenic, granulomatous, or opportunistic. Other causes include vasculitis such as rheumatoid arthritis or Wegener's granulomatosis, cystic bronchiectasis, trauma, or, rarely, congenital cysts.

Pulmonary metastases cavitate infrequently. In one series, only 16 of 398 patients with pulmonary metastases had cavitary lesions. While pulmonary metastases arise commonly from cancer of the breast, kidney, lung, uterine cervix, or unknown primary sources, up to two thirds of cavitary metastases are squamous cell carcinomas originating from the larynx, pharynx, esophagus, or uterine cervix, and up to one third may be adenocarcinomas arising most commonly from colon or rectum.

Most of our patients' cavities were thin-walled. Such lesions usually indicate a primary tumor of the head or neck. Cavitary metastases from the genitourinary tract usually have thick nodular walls, but a minority of our patients' lesions had thick walls. Pulmonary metastases were seen on autopsy in 36 (20 percent) of 177 patients with transitional cell carcinoma. The incidence of cavitary metastases in such tumors is unknown.

Why pulmonary metastases cavitate is not clear. A plausible explanation is that the tumor outgrows its blood supply, either through rapid growth or by vascular invasion. Either process leads to thrombosis and results in necrosis of the lesion. This may explain why cavitary metastases are more common in the upper lobes, where blood flow is normally low so tumors more readily outgrow the supply of blood.

Because of the bladder's rich lymphatic system, the majority of metastases in transitional cell carcinoma of the bladder are to pelvic lymph nodes. Blood vessel invasion also occurs, and the frequency of distant metastases increases as the histologic grade of the tumor worsens. Our patient's grade 3 carcinoma indicated a rapidly progressive tumor, and he died two months after metastatic disease was diagnosed.

REFERENCES

FIGURE 2

Roentgenogram of the Month (Margolis, LJ)