The Importance of Searching for Incidental Radiation Exposure

**Synchronous Carcinoma and Soft-Tissue Sarcoma**

**The Importance of Searching for Incidental Radiation Exposure**

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A 68-year-old woman was found to have synchronous soft-tissue sarcoma of the anterior chest wall and adenocarcinoma of the breast. During her initial interview, she denied prior radiation therapy. Upon further questioning, it was learned that the patient had been treated for tuberculosis, as a young woman, by the induction of a pneumothorax that was monitored by repeated chest fluoroscopies. Biologically important doses of ionizing radiation can be given as an incidental part of a variety of medical treatments. The importance of searching for atypical radiation exposures, particularly in patients with unusual tumor presentations, is stressed. *(Chest 1993; 103:970-71)*

The relationship between exposure to ionizing radiation and the development of cancer is well known. Obtaining a history of such exposure may, on occasion, be difficult because of lack of patient awareness (as in treatment given during childhood), forgetfulness, or because the physician does not appreciate that potentially carcinogenic amounts of radiation are involved in certain, perhaps now obsolete, forms of treatment.

**CASE REPORT**

A 68-year-old, gravida 2, para 2, woman noted a lump on her anterior chest wall, just to the left of the sternum, at about the third intercostal space. Examination showed a poorly defined 2-cm subcutaneous mass. There were no skin changes or regional lymphadenopathy. Results of the remainder of the physical examination were unremarkable.

She was specifically asked about, and denied, exposure to radiation. She did say that she was hospitalized for about a year in 1947, in Germany, for tuberculosis. Further questioning revealed that the tuberculosis was managed with a pneumothorax, and she underwent repeated fluoroscopies to monitor the treatment.

Chest roentgenogram showed chronic obstructive pulmonary disease and scarring in the apex on the right. A computed tomographic (CT) scan of the chest showed the mass in the subcutaneous tissues just lateral to the sternum. Thickening of the left pleura was noted, as well as fibrosis and calcified granulomata in the right apex. Routine mammograms showed a 2-cm ill-defined mass in the upper outer quadrant of the left breast. **Microcalcifica**

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sarcomas following radiation therapy alone (without chemotherapy) for a variety of tumors, clear-cut epidemiologic data are lacking.

The case presented herein represents the simultaneous occurrence of two separate neoplasms in which ionizing radiation, from multiple fluoroscopic examinations, may be implicated as a causative factor. The physician must be aware of conditions for which ionizing radiation may have been used, either as part of the treatment itself or to evaluate the patient's condition during treatment. Such conditions include, among others, ankylosing spondylitis, tinea capitis, thymic enlargement, spinal tuberculosis, tonsil or adenoid enlargement, acne, postpartum mastitis, and infertility.

REFERENCES

Noncardiogenic Pulmonary Edema Associated with Accidental Hypothermia*

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The pulmonary system may be significantly affected by hypothermia. The association between NCPE and hypothermia is controversial. A 59-year-old man with mild hypothermia presented with NCPE after passive external rewarming following accidental immersion in water. The patient's course was uneventful after 48 h, allowing immediate withdrawal of assisted ventilation and supplemental oxygen.

Hypothermia appears to have a small effect on pulmonary mechanics and gas exchange. As compared to eugonic patients, lung volumes, airway resistance, compliance and PA-aO2 disclose no significant differences. Blunting of the ventilatory response to an increase in carbon dioxide tension has been described, although the hypoxic drive appears to be unaffected. The development of NCPE related to hypothermia is controversial. A previous case report associated with severe hypothermia has been described. The following case is one of NCPE associated with mild hypothermia in the setting of accidental water immersion.

CASE REPORT

A 59-year-old man was admitted to the medical intensive care unit with a diagnosis of acute respiratory failure after stabilization in the emergency department. This occurred during the month of April, local temperature was 66°F. The patient was caught in his automobile by flooding waters and had experienced accidental water immersion for 2 h. To avoid drowning, a nearby tree was used as support allowing unrestricted water flow below the level of his chest. Upon rescue, the patient was alert, oriented and denied aspiration of water. Initial pulse was regular at 130 beats per minute; blood pressure, 150/90 mm Hg; respiratory rate, 28 breaths per minute; and rectal temperature, 34°C measured by a low-reading thermometer. He complained of being cold and his physical examination disclosed a shivering patient with cold, pale skin that was otherwise normal. At the time of admission, the hematocrit was 43.9 and the white blood cell count was 20,500/cu mm with 88 percent neutrophils, 8 percent lymphocytes and 4 percent monocytes. The platelet count was 300,000/cu mm. The serum electrolytes, creatinine and blood urea nitrogen values were within normal limits. The serum creatinine kinase was elevated to 446 IU/L, with normal MB bands; serum amylase was 141 IU/L; serum albumin was normal; and the blood alcohol level did not reveal any alcohol being present. The urinalysis was normal. An electrocardiogram showed sinus tachycardia at a rate of 106 beats/min without J-point elevation. The chest roentgenogram on arrival at the hospital was

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