Acute Fatal Allergic Myocarditis*

Report of a Case

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PARTICIPATION OF THE MYOCARDIUM IN generalized allergic reactions, manifested by electrocardiographic changes, has been reported resulting from tetanus antitoxin, 1,2 horse serum, 3,4 cincophen, 5 sulfonamides 6 and penicillin. 7,8 In these reports, the generalized reaction over-shadowed specific cardiac manifestations. A more recent report 9 suggests that on occasion, the myocardial reaction may be more prominent than the general systemic reaction. The ultimate degree of this disproportion would appear to be manifest in the following case of acute fatal allergic myocarditis with no other evidence of allergic reaction.

CASE REPORT

This 22-year-old white man was brought to the emergency room at 4:30 a.m. with a gunshot wound in the neck, allegedly inflicted in a bar room altercation. There was no past history of remote or recent illness.

Physical Examination: Blood pressure: 112/80; pulse: 94.

He was alert and in no distress. Pupils were equal and reacted normally. Neurologic examination revealed no significant abnormality. No abnormality of the heart, lungs, abdomen or extremities was noted. There were several irregular superficial lacerations of the scalp and forehead. On the left side of the neck at the mid-lateral portion was a small penetrating wound with irregular edges surrounded by blackish areas believed to be powder burns. Another larger irregular wound was present in the right posterior scapular area considered to be the wound of exit. A slight amount of subcutaneous emphysema was detected on the anterior surface of the neck.

X-ray films of the skull, neck and chest were normal except for some small fragments of radiopaque material in the right posterior scapular region.

Hospital Course: He was found reactive to the tetanus antitoxin skin test and was therefore given 1,200,000 units of penicillin intramuscularly, and ½ ml. of tetanus toxoid. An ice pack was applied to the wounded area after cleansing and minimal debrideement. Only sips of water were permitted orally. At 5:55 a.m., a physician was called to see the patient because of rapid development of shortness of breath and fall in blood pressure. His respirations were labored with blood-tinged saliva coming from his mouth. He was deeply cyanotic. Ten mg. of metaraminol bitartate (Aramine) was given intramuscularly. An emergency tracheostomy was performed without benefit. Heart sounds disappeared. He failed to respond to external cardiac massage.

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Presented at Fireside Conference, Southern Chapter, American College of Chest Physicians, November 16, 1964, Fouad A. Bashour, M.D., Moderator.
and he was pronounced dead at 6:20 a.m., one hour and 50 minutes after admission.

Pathologic Examination: This examination revealed that the path of the projectile had destroyed no vital structure and had caused minimal hemorrhage. There was no aspirated material in the air passages and no gross or microscopic evidence of brain damage. On microscopic examination of the heart, edema was apparent and there was infiltration between the fibers by eosinophils and occasional polymorphonuclear leukocytes (Fig. 1 and 2). Perivascular cuffing by these cells was also observed. There was, in addition, congestion of the myocardial blood vessels and some lysis of the red cells of the vessels of the right ventricle.

The lungs had the histologic appearance of pulmonary congestion and edema, and eosinophils were not prominent in the sections studied. There were no other significant findings. The cause of death in this patient was not considered to be a direct result of his wound. From the clinical course and the microscopic changes in the heart and lungs, death probably was the result of an allergic reaction localized in the heart with acute and fatal cardiac decompensation.

**DISCUSSION**

There is no way of estimating the incidence of this condition. A search of the literature indicates that it is extremely rare. It is quite probable that it is overlooked more often than it is identified. In this case, the heart appeared grossly normal. The medico-legal implications demanded postmortem study, without which the diagnosis would have been missed. Allergic myocarditis has been reported responsive to steroid therapy. It is doubtful whether this fulminating case could have been successfully treated with steroids, but patients with lesser degrees of the disease might very well be saved. In all probability, the cause of the reaction was penicillin. The possibility that the tetanus toxoid or the tetanus antitoxin skin test was responsible is extremely remote. With the continu-