Successful Management of Penetrating Injury to the Aortopulmonary Window

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A previously healthy 35-year-old man presented with penetrating injuries to the left hand and anterior chest after an assault with a nail gun. The nails entered along the lateral left palm and left parasternal border (Fig 1). The patient remained hemodynamically stable and demonstrated no respiratory distress, hemoptysis, tachypnea, or hypoxia. Computed tomographic angiography demonstrated a 7.7-cm nail protruding through the left aspect of the manubrium with the nail tip projecting into the aortopulmonary window, under the aortic arch and above the main pulmonary artery, with no evidence of vessel injury. Given the location and length of the nail, the decision was made to evaluate the patient using transesophageal echocardiography (TEE) in the operating room to ensure vessel wall integrity. Intraoperative TEE revealed that the nail tip had penetrated the pulmonary artery at the junction of the main and left pulmonary artery. A median sternotomy was performed. Because of the location of the injury, cardiopulmonary bypass was required to repair the defect safely. A vent was placed in the proximal pulmonary artery for decompression during repair. The nail was then removed under direct vision, and the residual defect was repaired in the superior wall of the main pulmonary artery. The patient had adequate hemostasis upon closure and was transferred to the intensive care unit. The patient was extubated that evening and discharged on postoperative day 4 after an uncomplicated course.

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