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CASE REPORT

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Suicide by Pencil

ABSTRACT: We report an unusual suicide, committed with a common pencil. A 72-year-old male inflicted himself a penetrating thoracic wound while being hospitalized for a hip prosthesis operation. Although the patient was immediately operated, the cardiac injury appeared to be fatal. Cases of suicidal penetrating wounds of the anterior chest wall are rare and they are mostly inflicted by knives, glass fragments, or other sharp instruments. The potential danger of a pencil should be taken into consideration, especially in psychiatric hospitals and imprisonment facilities. We examined the legislation in Italy and Finland concerning the regulation of privacy in special care institutions.

KEYWORDS: forensic science, suicide, chest wound, pencil wound, cardiac injury

Suicidal penetrating wounds of the anterior chest wall causing cardiac injury are occasionally reported in the medical literature, but in most cases, they are inflicted by knives, arrows, glass fragments, or other sharp instruments. A review of the literature revealed no cases of penetrating chest wounds inflicted with a pencil. A suicide by intracranial penetration of a ballpoint pen leading to cerebellar injury has, however, been reported (1). Here, we describe the first documented case of a self-inflicted fatal thoracic penetrating wound with the usage of a pencil.

Case Report

A 72-year-old male was electively admitted to an Orthopedic and Trauma Surgery Center to undergo left hip prosthesis surgery. He had no previous psychiatric history, but according to relatives, he had recently appeared "somewhat depressed."

After three days of an otherwise unremarkable hospital course, he was found lying on his bed with a pencil protruding from his chest. On the thoracic wall, left of the sternum and below the nipple, a small wound around the foreign object was visible. The patient was transferred to the Emergency and Critical Care Unit. Upon arrival, he was in cardiogenic shock and was immediately transferred to the Operating Room to undergo emergency cardiothoracic surgery with extracorporeal circulation support. During the operation rupture of the pericardial sac was demonstrated without significant hemopericardium. Moreover, the anterior wall of the left cardiac ventricle had a penetrating lesion near the left anterior descending coronary artery, but the artery was intact. Within the wall of the left ventricle, a small foreign object was found, which was recognized on gross examination as the tip of a pencil. The surgical intervention was completed by removing the foreign object and suturing the pericardial and myocardial ruptures.

After the operation, the patient remained unconscious for several hours despite weaning from general anesthesia. Hemodynamically, he was in cardiogenic shock partially refractory to inotropic therapy. During the subsequent stay in the Intensive Therapy Unit, septicemia developed, resulting in the death of the patient due to multiorgan failure on the 11th postoperative day.

At the forensic autopsy performed on the third day postmortem, gross signs of the recent thoracic surgery were noted. On the thoracic wall, a sutured wound of 24 cm in length was seen. Two surgical Teflon patches surrounding the myocardial laceration were present on the anterior wall of the left ventricle. Hemorrhagic infiltration surrounded the laceration. In addition, all of the cardiac chambers were dilated and the pericardium was fibrotic. Other organs showed signs consistent with recent cardiogenic and septic shock. Furthermore, generalized arteriosclerosis was present. The cause of death was considered multiorgan failure secondary to a cardiac stab wound and cardiothoracic surgery. The death was classified as a suicide.

Discussion

We describe a case of suicidal penetrating cardiac injury inflicted with a commercially easily available 16-cm-long wooden pencil. To the best of our knowledge, no cardiac injuries with a pencil in either successful or attempted suicides have previously been reported. Published cases of thoracic stab wounds inflicted with unusual objects include those produced with a dagger-shaped fragment of glass (2), or a power drill (3).

Sharp force is a rare suicide method in modern times (4). Karger et al. reported the suicide rate among sharp force fatalities to be as high as 17%, with the corresponding rates for homicides and accidental deaths being 80% and 3%, respectively (4). Byard et al.

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in turn reported a suicide rate of only 1.6% due to incised or stab wounds in Australia over a 20-year period (1981 to 2000) (5).

On the anterior thoracic wall, the tissue most resistant to sharp instrument penetration is the skin (6). Only a stab falling in the middle of a rib or a cartilage would meet with significantly more resistance than that of the skin. Furthermore, stretched skin is easier to penetrate than lax skin. The chest wall, where skin tends to be intermittently supported by underlying ribs, is relatively easy to puncture with a sharp object (6). Thus, after penetrating the skin, the depth of a stab wound does not indicate the force used on impact. Firm tissues, like the myocardium, are easily traversed, and their resistance is far less than that of cartilage or skin (6).

The speed of approach of the instrument is particularly important in achieving penetration. A knife held against the skin, then steadily pushed, requires far greater force to penetrate than the same knife launched against the skin like a dart (6).

Cardiac tamponade or copious bleeding is often the cause of death in cases of penetrating cardiac wounds. Bleeding into the pericardial sac is more usual in wounds of the right ventricular wall (thinner than the left one), although the intraventricular pressure is relatively low (6). Superficial heart wounds can also result in bleeding into the pericardial sac, but the bleeding is typically slower than in wounds involving the cardiac cavities.

In our case, no critical cardiac tamponade or hemothorax was recorded. We therefore assessed the mechanism of cardiogenic shock as being the lesion in the myocardium with disturbance of contractile function. Our case shows that even a pencil can be used to produce a fatal injury. This example provides provoking background for serious discussion concerning the regulation of privacy in special care institutions. In psychiatric hospitals and in imprisonment facilities, in particular, the possibility of inflicting serious harm or even fatal injury to oneself or to others with the apparently innocuous pencil should be taken into consideration.

We examined the situation in two European countries, in Italy and in Finland, to determine whether such a risk has been considered. According to Italian legislation (7), patients residing in a psychiatric hospital must be constantly monitored by medical personnel and other members of staff to ensure that patients do not harm themselves or others; no specific directives exist regarding the use of pencils, or sharp items in general, during hospitalization. In Finland, restricting the use of pens, pencils, or other means of communication can be mandated by the psychiatrist, but such restrictions are permitted only if the patient is hospitalized against his or her will. These restrictions and the underlying reasons must be recorded in the patient's files, and the patient has the right to appeal (8).

An individual imprisoned in Italy has the right to retain personal items and the right to communicate. The means for communication must therefore be available. The prison administration can, however, restrict these rights when necessary (9). Similarly, in Finland, the prison warden can restrict a prisoner's right to a personal item if that item is construed as being potentially dangerous (10).

While decisions on restricted use of high-risk items should be made case by case, an explicit means of assessing subjects' safety to themselves and to others must periodically be employed to minimize the risk of harm.

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