

Case reports

A suicidal death by explosives

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Summary. A 23-year-old man committed suicide by detonating an explosive substance clutched to his abdomen. The face was singed, the hands were lacerated and the chest and the upper part of abdomen were badly mutilated. The death was due to the destruction of several vital organs. The injuries had a directional nature. Only the consideration of all the facts of the case in relation to the situation, nature, distribution and extent of wounds and the preceding medical and social history allowed a reconstruction of the circumstances.

Key words: Suicide – Explosive death

Zusammenfassung. Ein 23 Jahre alter Mann beging Selbstmord, indem er eine explosive Substanz zur Detonation brachte, welche an seiner Bauchwand befestigt war. Das Gesicht war versengt, die Hände waren zerrissen und der Brustkorb und der obere Teil der Bauchhöhle waren schwer verstümmelt. Der Tod war auf die Zerstörung mehrerer vital wichtiger Organe zurückzuführen. Die Verletzungen waren gerichtet. Nur die Berücksichtigung aller Anknüpfungspunkte im Verhältnis zur Situation, zur Art und Verteilung und zum Ausmaß der Wunden sowie die vorhergehende medizinische und soziale Anamnese erlaubten eine Rekonstruktion der Umstände.

Schlüsselwörter: Suizid – Explosionstod

Introduction

Explosions are infrequent events except in wartime and in the areas of terrorist activity [5, 7]; other fatal explosions are mostly due to occupational or other accidents. Explosions with suicidal intent are not frequent and are rarely documented; for example there are only about 4 cases reported every year in Sweden [8]. Explosions may result in complete disruption and mutilation of the body, mangle of parts of the body, discrete bruises, abrasions, powder tattooing, burns, "blast" effects causing bleeding into the lungs, ears and intestinal walls or a combination of all such injuries [6, 10]. The anatomical

localization of suicidal explosive injuries is rather regular and symmetrical while accidents and terrorist injuries show great variations [1, 2, 3, 4, 9]. The forensic pathologist could be faced with several problems at autopsy, i.e., identification of the deceased, reconstruction of the circumstances, determination of the actual cause of death, especially when victims are numerous and bodies are badly injured.

Case report

A 23-year-old porter at a loading station committed suicide by making use of stolen explosive. The explosive had been in use at a freight transport station to loosen frozen coal, sand and gravel etc. in wintertime. According to the producer's (Nitrokémia Füzfő Hungary) description, 80g of the explosive with no tradename contains potassium chlorate and a pyromixture, a compound of sulphur and antimony and could be exploded by attaching it to a detonating cord. Before his suicide this man expressed an intention to commit suicide. He was known to be a depressed, lonely man but had no psychiatric record. He had made no previous attempts and did not leave a suicide note. He fixed the charge to the right side of the upper part of his abdomen with sticking plaster. The charge exploded 15 seconds after ignition and death was instantaneous. His body was found beside his parents' house in which he lived. There were no eye-witnesses. The police investigation reported the case as suicide and a forensic autopsy was ordered. Not even after the investigation did the police or the victim's family find any reason to believe the case to be anything other than suicide.

Autopsy findings

Destruction and deficiency of the upper part of the anterior wall of abdomen and the chest caused by explosion was seen (Fig. 1). The face, the hair and the skin in the vicinity of the explosive injuries on the hands and chest were singed and soiled by soot indicating the positioning of the explosive and the posture of the deceased (Figs. 2 and 3). The skin and soft tissues of both hands were lacerated (Fig. 4). The heart was crushed and avulsed from its vessels and small fragments of heart tissue and ribs were found in the left thoracic cavity. The liver and the diaphragm were mangled. Portions of the liver were scattered along the line between the liver and the apex of left lung showing the directional nature of the blast. The



Fig. 1. The body of the suicidal death caused by an explosive device



Fig. 2. The singed hair and the face soiled by soot

lungs were penetrated by fragments of broken ribs and were severely damaged by the direct effect of the blast, and not only from the barotrauma through the air passage. The spleen, the kidneys, the empty stomach and the duodenum were not injured. The anterior surfaces of the small bowel in the upper part of the abdomen and the transverse colon were lacerated. There were no injuries in the abdominal cavity below the umbilical level. Generally, the viscera were pale and anemic. The cardrums were intact. There were neither haemorrhages in



Fig. 3. The lacerated left hand of the victim



Fig. 4. The lacerated right hand of the victim

the middle ears nor barotrauma to the eyes. Brain injury caused by acceleration or deceleration was not found. Somatic diseases, handicaps or cerebral alterations were not found. The death was caused by destruction of vital organs. Histologically there were few, barely apparent vital tissue reactions. Pulmonary capillary vessels in the interstices were torn and bled but there was no serious intra-pulmonary bleeding. There were no haemorrhages in the limbi of wounds of viscera. The postmortem blood alcohol and drug determinations were negative. As the face was relatively intact there was not identification problem at autopsy.

Discussion

Explosive-related deaths are only sporadic and mostly occupational accidents except in wartime. Since the explosive can mangle or mutilate the body the autopsy on such victims can give rise to a number of problems. Identification may be particularly difficult when a number of bodies are involved in the explosion and are also badly mutilated. Care must always be taken not to overlook a death from other causes (e.g. shooting before the explosion). The directional nature of blast – if it can be deter-

mined – can help with a reconstruction of the circumstances.

We carried out a medicolegal autopsy of a suicidal explosive victim. Based on the explosion injuries it is generally impossible – as was in our case – to form an opinion about the size of the explosive charge [8]. Small differences in distance between the body or body parts and the charge lead to considerable differences in the size and seriousness of the injuries. An explosive used may be small and not very efficient [5], but may cause fatal injuries if positioned on the chest or abdomen or head [8]. Our case showed similar pattern of injuries to the front aspect of the chest and hands sustained while making a bomb [9]. The anterior wall of the chest and part of the abdomen were destroyed and vital organs were mangled. The hands were also injured. The injuries, the singed face and the direction of dislocation of the fragments of the mangled organs referred to the position of the explosive and the victim's posture at the time of the explosion. We did not find the two types of specific injuries of accidental and homicidal explosive deaths, the triads of small discrete bruises and abrasions along with puncture lacerations and great variations of discoloration of the exposed body surfaces due to dust tattooing [5]. Lesions of the respiratory system seem to be characteristic of explosion cases [9] but this is only true in cases where the thorax is relatively undamaged. Owing to the destruction of the anterior wall of the chest, however, such lesions could not be observed in our case. The mostly regular and symmetrical distribution of injuries as in our case support the theory of suicide [9]. The lack of apparent vital reactions make the estimation of the time of explosion in relation to the time of death difficult. In our case the circulation stopped immediately at the moment of explosion as the heart was avulsed and haemorrhages did not occur. The breathing also stopped at the same moment so blood could not penetrate the larger air

passages. The rupture of lung sacs, as observed histologically, was due to the inability of the lungs to empty themselves of air fast enough on rapid compression by the impact of explosion.

Only the complex evaluation of all the facts of the case in relation to the situation, nature, distribution and extent of the wounds and the preceding medical and social history allows a reconstruction of explosive deaths. Forensic pathologists have generally little practice in dealing with explosion cases and the forensic literature helps them with only few basic facts. As there are no two identical cases it is important that each case should be judged carefully and individually.

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