CASE REPORT

AN UNUSUAL CASE OF THORAX COMPRESSION

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A 33-year-old man was found 20 Cm upper of the floor, compressed by rubbish container in the elevator in an unusually awkward position. The scene investigation corresponded exactly with the localization of the injuries found in the victim. This is a case of death by thorax compression without other fatal factors in which the force causing the chest compression was distinctly determined by the autopsy and scene investigation as accidental traumatic asphyxia.

Keywords: Thorax compression, Traumatic asphyxia, Autopsy

INTRODUCTION

Traumatic asphyxia is a form of mechanical asphyxia where respiration is prevented by external pressure on the body: a heavy weight compressing the chest or abdomen, wedging of the body within a narrow space death in large crowds have been reported.[1-3] Autopsy findings are consisting of intense facial congestion and swelling with florid petechiae of the conjunctivae, face and upper chest.[1,3] We present a case of death by thorax compression without other fatal factors. The force causing the chest compression was distinctly determined by the autopsy and scene investigation.

CASE REPORT

A 33-year-old man was found compressed by rubbish container in the elevator in an unusually awkward position (Figure-1) of the block of flats where he was working as doorkeeper. The victim was taken to the Forensic Council Bursa Morgue Department for further examination. The victim was (170 Cm in height and 70 Kg in weight).

Figure-1: Victim compressed by rubbish container in the elevator

On gross physical examination; the face, neck and upper part of the chest were congested and many petechiae were observed on the conjunctivae and skin around the eyelids, but not in low extremities. Ecchymotic bruises on anterior left shoulder, 7×1.5 Cm ecchymose on right shoulder, 6×0.5 Cm abrasion on the right arm, 3×2.5 Cm ecchymotic abrasion on right low abdomen, on anterior superior iliac spine line, 6.5×2 Cm abrasion on left scapula, 7.5×1.8 Cm abrasion area on lumbar region and right glutea upper part were detected. Subcutaneous haemorrhages were observed in the chest wall during autopsy. Intramuscular bleeding without subcutaneous haemorrhage was observed in the inferior part of the left sternocleidomastoid region. The left third rib was fractured adjacent to the spine, the fracture was accompanied with bleeding in the surrounding soft tissues and muscles, ecchymoses without fracture on the left seventh rib was also observed. The brain appeared normal on gross and in histopathological examination. Macroscopic examination of both lungs revealed congestion and sub pleural superficial bleeding areas (Figure-2); histopathological examination showed interstitial and hemorrhagic alveolar oedema of the lungs.

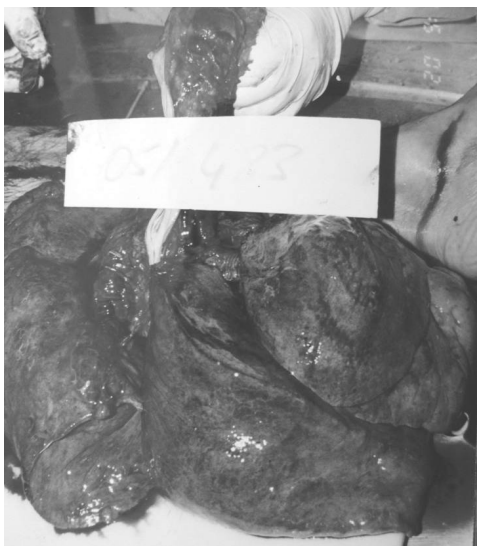

Figure-2: Congested lungs, sub pleural bleeding areas

Tracheal mucosa was hyperaemic. The heart weighed 350 g. There were petechial areas behind the atria; the aortic arch and valves appeared normal. All organs were severely congested. Analysis of the blood and organ specimens revealed none of the substances screened for in systematic toxicological methods. In the crime scene investigation victim was found in elevator, compressed by rubbish container on the elevator wall, in the position where legs were 20 Cm from the floor hanged, death was reported as accidental traumatic asphyxia due to blunt chest trauma. The scene investigation corresponded exactly with the localization of the injuries found in the victim. The explanation-hypothesis of, how the deceased came to such an unusually awkward position is related to the fact that accident originated in the constricted elevator. We suppose that the rubbish container slipped during placement, pushed deceased, while he tried to escape the situation, fixated him on the elevator wall.

DISCUSSION

Traumatic- crush asphyxia is caused by compression of the chest by heavy objects, preventing respiratory movements, restricting venous return from the head.[1] Causes of crush asphyxia have varied and have included entrapment beneath or within motor vehicles, heavy machinery, also. deaths in large crowds, wedging of the body within a narrow space when there has been some reason to cause the members of the crowd to panic, surge or try to move quickly from a scene crush asphyxia has been described.[1-3] Miyashi *et al* reported that restraint with several individuals attempting to overcome an individual by lying or sitting on the victim's body, may also cause lethal crush asphyxia.[4] Perthes who described the characteristic features is responsible for the German term for crush asphyxia—'Perthes' pressure congestion'.[5] The typical pathological features of crush asphyxia include intense purple congestion of the head and neck with petechial haemorrhages of the face, neck, upper chest and conjunctivae, features seen in our case.[1-3,6] In a study from New Mexico all three signs were present in 58% of cases, and at least two of the three in 88%.[1] Congestion of the conjunctivae may be so pronounced that the conjunctivae are bulging, diffusely hemorrhagic and oedematous.[3] Neuropathological evaluation of victims does not demonstrate any definitive features. Mechanisms of neurological injury in traumatic asphyxia include a combination of cerebral hypoxia, ischemia and venous hypertension.[1] Upper body petechiae in crush asphyxia resulted from a 'fear response' with the victim realising that a problem was about to arise and reflexively taking a deep breath and closing the glottis just before the incident occurred.[6] Closure of the glottis with tightening of chest accessory muscles just before impact was thought to result in marked increase in intrathoracic pressure on compression, with transmission of this pressure into the valve less veins of the head and neck.[1] The lack of petechiae in the lower body may be due to the protective effects of valves in leg veins and possibly because of compression of the inferior vena cava in the chest.[7] Alternatively it has been proposed that head and neck petechiae develop simply because of venous obstruction in the face of continued arterial flow.[8] Torso compression has been found to be the most common mechanism of asphyxiation of victims within vehicles.[2] Although it has been suggested that the mortality in crush asphyxia may be influenced by the presence of other injuries, concomitant injuries may, however, be useful as markers for the severity of compression.[1] Besides Byard *et al* stated that the pattern of pathological findings of crush asphyxia was not influenced by the presence or absence of concomitant serious or lethal injuries.[3] As alcohol may have impaired a victim's ability to judge a situation or to extract him or herself from unsafe circumstances it is important to detect in toxicological examination, but only crush asphyxia cases following vehicle accidents have been significantly associated with alcohol use.[1] It has also demonstrated that on occasion fatal crush asphyxia may have to be a diagnosis of exclusion, made only when there are characteristic death scene findings, and no evidence of lethal natural diseases or injuries at autopsy, with negative toxicological screening.[3]

The cause of death in the present case was determined to be accidental traumatic asphyxia without other fatal factors. The general findings of asphyxia and injuries traced to the external force were clearly revealed at the autopsy. No evidence of neck compression, use of drugs, alcohol, or other causes that could lead to death were found.

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