

Burial under Sand– A Case Report

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Abstract

The present case showed a death of a 32 year old male individual due to suffocation cum traumatic asphyxia. No external injuries were noticeable over the external surface of the body. Few asphyxial signs like petechial hemorrhages over the interfaces of the lungs were present and the absence of classical signs of traumatic asphyxiation in our case is due to soft consistency of the sand particles. Sand, gravel or dirt aspirations are rare but potentially lethal incidents in emergency medicine. Most of the cases reported share the common mechanism of being buried accidentally under sand, dirt, or gravel masses at construction sites, as the result of the collapse of sand tunnels, sand castles and sand piles or in the course of a vehicle accident. Although extensive deep aspiration of sand, gravel, or dirt is a very rare incident, its consequences may be severe ranging from the necessity of immediate intensive care to death. The fatalities due to sand aspiration reported so far were ascribed to extraneous causes. Here we present one such case of accidental burial at construction site with inhalation of sand particles causing suffocation and mechanical fixation of chest wall. This case represents the simultaneous occurrence of two causes of mechanical asphyxiation i.e, suffocation and traumatic asphyxia.

Key words: Suffocation, traumatic asphyxia, sand particles.

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Introduction:

Suffocation means exclusion of air from the lungs by any means other than ligature.¹ Burial in earth following the collapse of an excavation is a common cause, and may kill workmen even where heads remain above the fallen soil. Similarly, burial in grain, sand, coal, or minerals, may have the same effect and is usually encountered in industrial, marine, or agricultural accidents. Similar restrictions of chest movements may be caused by the victim being pinned under an overturned vehicle or by falling timber, or masonry.² The displacement of the blood into the valveless veins of the head and neck causes the rupture of distal venules and

capillaries. These ruptures produce numerous petechial hemorrhages into the skin, eyelids, conjunctivae, mucous membrane of the mouth and usually bleeding from the nose and ears.³ Suffocation due to accidental burial is a very rare event. Absence of external injuries in such cases is attributed to the soft consistency of sand. The presence of sand particles inside the eyes, ear canals, mouth and nostrils arouses suspicion of suffocation with sand. This can occur in situation like burial in an excavation can be fatal either by inhalation of sand particles or by pressure on chest wall thus interfering with respiratory movements causing traumatic asphyxia.

Case details

A 32 years old male individual school van driver by occupation, on Saturday afternoon

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after dropping children from the school, he had consumed alcohol and slept over the heap of sand nearby the construction site. The workers who were involved in unloading the sand for construction purposes, unloaded the heap of sand on the same spot without noticing the person sleeping over there. The victim was asphyxiated, suffocated by the sand particles and died on spot (Figure 1). The people residing nearby construction site noticed the lower extremities which were protruding from the heap of sand. Then it was informed to the nearby police station. The investigating officer and the panchas arrived at the scene of occurrence and interrogation was done. The workers were actively involved in excavating the sand and the deceased was recovered from the sand by manual excavation. The deceased was brought to KIMS mortuary, Hubballi for post-mortem examination.



Fig 1: Scene of crime picture Showing burial alive under sand

Autopsy findings:

Dead body is that a male, moderately build and nourished. Post-mortem stiffening present all over the body. Post-mortem staining present over back of the body. On external examination of the dead body, sand particle present all over the clothes at places, same was present in an around the eyes, inside the nostrils and oral cavity which is showed in Fig No.1 & 2. Internal examination revealed frothy fluid mixed with sand particles in the tracheal lumen



Fig 2: Sand particles in the upper aero Digestive tract.

which is showed in Fig No.3. Both lungs were edematous and congested and petechial hemorrhages noted in the interlobar fissures of both the lungs which is showed in Fig No.4. Brain showed subarachnoid hemorrhage over bilateral frontal lobes and basifrontal lobes.



Fig 3: Tracheal lumen showing frothy fluid with Sand particles.



Fig 4: Petechial hemorrhages in interlobar fissure

Cause of death:

The cause of death was opined as death is due to asphyxia as a result of combined effects of suffocation and traumatic asphyxia.

Discussion:

In a case reported by Benomran et al, a person was accidentally buried alive when a wheeled loading shovel emptied its load of sand over him at construction site. No visible external injuries visible over the body. Sand particles present over the upper aero digestive tract and same was present in the tracheal lumen, bronchi and bronchioles.⁴

In a case reported by Prateek Rastogi et al, Yellowish brown colored mud particles were present over the entire body, clothing and stuffed inside the oral cavity and both nostrils. No external injuries were present on the body. Larynx and trachea showed yellowish brown mud particles mixed with mucus. Bilateral pleural adhesions were present. Post-mortem fracture of 2nd to 12th ribs in the mid axillary line was present bilaterally.⁵

In a case reported by K.A. Hanson, similar incident of accidental fall into mud - no external injuries noted. Face, forearm and upper airway studded with the sand particles, petechial hemorrhages present over the anterior chest.⁶

This case represents a unique accidental death at the work site due to burial with sand unloaded from a lorry. Burial with sand may be described as smothering, but the introduction of material inside airways doesn't comply with the exact mechanism of smothering, which is defined as suffocation by blocking external air passages.

Conclusion

Accidental burial alive at construction site is a negligence. It is therefore necessary to take precautions before unloading the sand particles and thereby such incidents are preventable.

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