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Non-Specific Peritonitis due to High-Voltage Electrical Shock: Case Report

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Case Report

Abstract An electrical burn is a burn that results from electricity passing through the body causing rapid injury. Electrical burn differs from thermal or chemical burns in that they cause much more sub dermal damage. They can exclusively cause surface damage, but more often tissues deeper underneath the skin have been severely damaged. As a result, electrical burns are difficult to accurately diagnose, and many people underestimate the severity of their burn. In extreme cases, electrical injury can cause damage to the brain, heart, and injury to other organs like abdominal viscera and lining peritoneum causing aseptic peritonism and peritonitis.

Keywords peritonitis, electrical shock, burn

Introduction

An electric shock occurs when a person comes into contact with an electrical energy source. Exposure to electrical source can cause a variety of injuries from a very nil to very serious devastating injury or to death. Young adults are more prone to high electrical current voltage shock caused by mischievous exposure at work [1,2]. Many variable scans determine what type of injury can occur, if any. These variables include the amount of the current (affected by the resistance of the involved organs and the type of current whether it is AC or DC) and the electrical pathway through its course [1-3]. Low voltage electricity usually its harmless but high electrical voltage (greater than 500 volts) have very serious and significant injury [4-6]. A victim who has fallen from a height or sustained a severe shock causing multiple jerks may have a serious spinal cord injury and should not be moved without protecting the spine. A person who has suffered an electric shock may have very little external evidence of injury or may have obvious severe burns. The person may die immediately from cardiac standstill. In addition, other than organ can be injured like, abdominal viscera, pulmonary system urinary system [7-9] and so on.

Case report

The condition started on 7th of December 2012 where 34 years old patient presented in emergency department as a case of very high tension electrical shock (direct contact of both hands with very high tension voltage). It resulted in severe burn of both hands, with thrombosis of the main vessels of forearm ended in bilateral amputation from elbow joint and because he thrown very fast at the moment of accident he developed paraplegia due to fractured last dorsal vertebra with spinal cord injury. During first few days of injury the patient was fully conscious, all investigation done at moment of injury where within normal limit. He had soft abdomen,

normal vital signs, he passed his bowel motion beside that he had normal appetite. Three weeks later he started to complain of mild abdominal discomfort, mild abdominal distention, and infrequent vomiting. An US examination had showed a lot of clear ascetic fluid in peritoneal cavity.

The Patient was kept on conservative therapy but his abdominal tenderness increased, with unhealthy look. Plain abdominal X-ray didn't show any feature of intestinal obstruction. The patient was operated upon and more than 3 liters of ascetic fluid was drained out. It was turbid in color, odorless no bile or intestinal fluid was seen; culture and biochemical analysis of ascetic fluid show high protein content with no bacterial growth; all small bowel was matted together with slimy fibrinous adhesions and edematous wall that easily separated but in some areas there were multiple areas of coagulative adhesions with difficulty in adhesiolysis. In some other areas there where a white particles like boiled egg due to passage of high voltage currency that caused protein coagulation, all loops intestine were checked out to exclude any perforations. The abdomen closed with tube drain in pelvis and in the second day, he resumes oral fluid diet

Discussion

The outcome of electrical burn, determine the severity and degree of burn beside the type of current, voltage and the resistant, the severity of damage also depends on the pathway of the current through the body and which it usually takes the pathways of least resistance in the body [1-3]. At the first start in the vascular system then nervous system then internal viscera muscles, skin, fat and lastly the bone which is the most resistant tissue in the body [1-3]. As the body comes into contact with an electrical source, it becomes part of the electrical current. As such, the current has two points, an entry and an exit at two different points on the body. The entry point tends to be leathery and depressed whereas the exit wound is typically more explosive and extensive [1-5]. It is hard to accurately diagnose an electrical burn fully like this case because only the entry and exit wounds are visible and the internal damage is not. For this reason his abdominal complain is not clear at the moment of accident it may appear latter with other serious visceral injuries like colonic perforation, sold organ burn or even thrombosis of the internal organ vessels. The most accepted explanation for his problem is that, the high voltage current burn cause coagulation of peritoneal fluid protein, this in turn stimulated peritoneal membrane to secreted ascetic fluids.

In conclusion, the health provider must take in his consideration that many serious complications related to burn patient that may developed later on.

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