
Pneumothorax Followed By Atelectasis After Severe Electrical Burn

To the Editor:

Advancements in fluid replacement formulas, systemic antibiotherapy, topical antibiotics, and wound care have considerably reduced fatality from shock and sepsis in burned patients, but now, the high incidence of pulmonary complications in severely burned cases is still an important challenging problem, usually resulting in respiratory insufficiency and death of the patients.¹⁻⁶

A 13-year-old boy who had suffered from burn injury was admitted to our clinic a few hours later the accident. After passing around his chest and body, high-voltage current had resulted in severe deep burn on 70% of BSA, damaging the skin extensively and deepening to the chest wall. On examination, there was no severe respiratory distress, tachypnoea, fractures of the clavicle or the ribs, any signs of communication between thorax cavity and air because of the penetration of the current, or any findings of pulmonary damage in the way of organ perforation.

On the fifth day after the injury, although breathing sounds were decreasing on the right side, respiratory distress, tachypnoea, and tachycardia developed in a few hours, suggesting a pulmonary complication. A chest x-ray revealed clearly a right-sided pneumothorax with significant mediastinal shift to the left

thorax. Closed, intercostal tube drainage was applied, and then, regression of the pneumothorax developed in a few days. On the fourth day after the occurrence of pneumothorax, some respiratory distress was observed again, although intercostal tube drainage was in place. A chest x-ray and CT illustrated nearly complete regression of the pneumothorax, but there was atelectasis on the left lung.

When dealing with this experience, it seems that for the development of atelectasis, the main reason, besides other causes such as extensively burned chest wall, pain, and altered mental status, is significant mediastinal shift to the left thorax leading to severe compression over the left lung, and it is clear that high-voltage current can damage thorax wall and lungs severely when crossing through the chest, leading to severe injury and rarely pneumothorax; but if a pneumothorax becomes apparent, some other pulmoner complications of the burn injury such as atelectasis may also be triggered by it.

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