



Case Report

## Coverage of Chest Wall Defect in a Case of Electric Burns by Pedicled Omental Flap: A Case Report

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### Abstract

Electrical burns are the most devastating of all thermal injuries on a size for size basis with a tip of iceberg effect having dreaded outcomes. Electrical burn is a common problem in our society and needs special attention because of its various modes of presentations, the numbers of organ systems involved, and the mortality associated in spite of few percent of burns. We present a case of electrical burns with chest wall defect associated with blunt abdominal trauma that was successfully managed by debridement of the posterolateral chest wall defect and coverage by pedicled omental flap over synthetic prolene mesh.

### Case Report

A 25 year old male presented to our institution after sustaining accidental high voltage electrical burns of approximately 38%, while climbing a tree he came in contact with a high tension live wire. Patient was immediately resuscitated and evaluated. The patient had sustained entry wound over right posterolateral chest and exit wounds over both lower limbs with associated flash burns. The patient complained of pain abdomen, and was hemodynamically stable. Per abdominal examination revealed tenderness over left hypochondrium without guarding or rigidity. Computerised tomography of the abdomen revealed splenic laceration in the midpole of spleen, with right lobe liver contusion and mild free fluid for which he was managed conservatively. A bilateral below knee amputation was done for lower limb gangrene along with debridement of the chest wall 3 days from admission. The general condition of the patient improved. Five days following the first procedure, the patient was planned for coverage of the chest wall defect which was of size 20 × 20cm approx in right postero-lateral chest wall with devitalised muscles and exposed ribs and pleura that necessitated immediate coverage. Local flaps (muscle and myocutaneous) were not possible to cover the defect. We opted out of free flap option in this morbid patient with as the vessels nearby might be damaged and might not be suitable for vascular anastomosis. The Debridement and excision of the devitalised muscles and ribs was done and a laparotomy was performed in association with the



Figure 1: Chest wall defect, prolene mesh after debridement and excision of devitalized ribs and muscles, an omental flap covered with a split thickness skin graft and final result.

Department of Surgical Gastroenterology splenic laceration in the midpole of spleen was confirmed, but there was no active bleeding. The omentum was mobilised from transverse colon based on both, Right and Left Gastroepiploic vascular pedicles, and tunneled to reach the defect. No intervention was done for the splenic injury. The defect was covered with prolene mesh and omental flap was inset over the mesh and was covered with split thickness skin graft. Fifteen days later split thickness skin graft was done to cover the burn raw areas. One month after injury, the defect over chest wall had completely healed. The patient is on regular follow up for 16 months and no complications were seen. there are no abdominal or chest complaints or herniation and is well rehabilitated.

### Discussion

Omental flap is one of the oldest and versatile options in plastic and reconstructive Surgery, also called Policeman of the abdomen has wide range of uses its versatility is related to large amount of pliable tissue, the long and reliable vascular pedicle, the associated lymphoid tissue (milky spots) [1] and the angiogenic factors which stimulate neovascularisation make it ideal for controlling infection and obliterating dead space. It is harvested both at open laparotomy or laparoscopically [2], first described by Kiricuta in 1956 [3], it has been advocated in a wide variety of extra-abdominal sites. To the best of our knowledge, coverage of chest wall defect following electrical burns, by an omental flap has not been published in literature.

### Conclusion

The omental flap, though an age old procedure is a useful option for coverage of chest wall defect in a morbid patient of electric burns.

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Received: April 19, 2013 Accepted: May 20, 2013 Published: May 30, 2013


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