

Guillain Barre Syndrome following Electrical Burn Injury: A Case Report

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Abstract

Guillain-Barre syndrome is an idiopathic acute or subacute inflammatory demyelinating polyneuropathy with ascending and often bilaterally symmetrical paralysis. The diagnosis is made on the basis of clinical presentation which is mostly acute flaccid paralysis, and electrochemical analysis. We present a case of electrical burn injury followed by GB Syndrome like features. Patient received the standard treatment of GB Syndrome that is I/V immunoglobulins and physiotherapy besides ventilatory support and supportive treatment of electrolyte and fluid management. He was discharged satisfactorily after two months of management in the hospital.

Keywords: Guillain-Barre, Electric Burn, Motor Neuropathy, Acute Flaccid Paralysis, Acute Inflammatory Demyelinating Polyneuropathy (AIDP).

Introduction

Guillain-Barre syndrome is idiopathic acute or subacute inflammatory demyelinating polyradiculoneuropathy with ascending and often bilaterally symmetrical paralysis with more preponderance in male^[1,5] It is more common in adult than in children^[2].

History: A 34 year old average built male patient came to the hospital with complaints of electric burn injury in right hand and left foot. He was managed conservatively with dressing and analgesics and was discharged on the same day. After 7 days of dressing,

he again visited the hospital with complaints of diminished sensations and discoloration in right hand. On examination, it was found that he had developed gangrene in right hand. He was advised for the amputation at the wrist joint. He underwent the surgery for the same under brachial plexus block and discharged on 7th post amputation day (fig. 2). He revisited hospital after 10 days of discharge with fresh complaints of gradual and progressive weakness of all four limbs, dysphonia, respiratory distress and mild grade fever. There was no history of tick bites, DM or TB. His symptoms slowly resolved with treatment.

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Local examination: Flash burn looking like deep thermal burn was present on right hand (fig.1) and an exit wound was seen on medial side of left foot (fig.3).

Physical Examination: There was weakness in all the four limbs, more on upper limbs than lower. Tone of muscles was decreased. All deep tendon reflexes were absent. There was no other significant positive finding. There was bilateral symmetrical involvement of VII, IX and X Cranial nerves. Other cranial nerves were found to be normal. In respiratory system, there were fine crepitation present on right side of chest.

Laboratory Examination: Routine blood counts and blood glucose level were normal. Urine examination was normal and revealed absence of glucose and ketone bodies. Serum potassium level was initially low but was corrected after IV infusion. CSF aspiration, done under aseptic precautions, was clear in color. CSF report showed increased proteins with normal glucose and cytology. CSF culture was sterile. Nerve conduction studies (NCS), ESR, rheumatoid factor and ANA were all normal. Antibodies against gangliosides (IgM) were also negative. CXR and chest CT were normal. CT head was normal. Campylobacter and Lyme serology were negative. MRI of brain and spinal cord was normal.

Differential diagnosis: The clinical presentations in favor of GB syndrome are ascending progressive paralysis and absent reflexes. Raised CSF protein with normal cytology and positive response to intravenous immunoglobulins and physiology are also in favor of GB syndrome. The clinical features may resemble other diseases like vitamin deficiency, neuroborreliosis, lyme disease, infectious mononucleosis, diabetes, hypothyroidism and hyperthyroidism^[3,4].

Hospital course: On his first visit, he was managed with dressings and analgesics and was discharged on the same day. On next visit after 5 days he underwent amputation of the right hand at the wrist joint and was discharged on 7th post-operative day. On subsequent visit after 10th days post amputation, he received the standard treatment of GB Syndrome like I/V immunoglobulins and physiotherapy besides ventilatory support and supportive treatment of electrolyte and fluid management. Remainder of the hospitalization was uneventful. He was discharged

after 2 months of hospital stay almost complete recovery.

Follow up: Patient was followed up for one month after the last discharge from the hospital. He was found to have regained complete power in all the four limbs.



Fig. 1: Deep burn in right hand

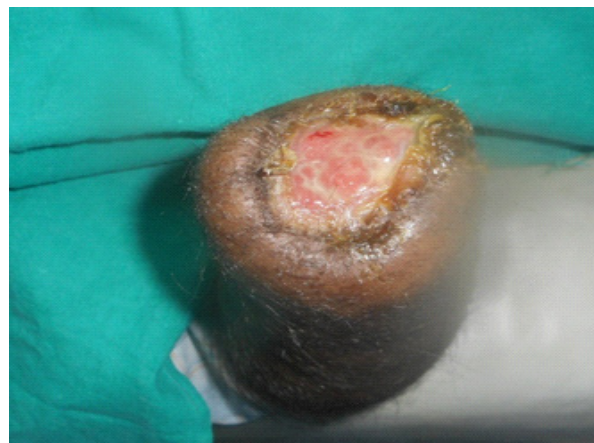


Fig. 2: Right hand after amputation



Fig. 3: Left foot with exit wound

Discussion

Guillain-Barré syndrome, also known as an Acute Inflammatory Demyelinating Polyneuropathy (AIDP) is an acute demyelinating polyradiculopathy of uncertain etiology which may present with facial nerve involvement in 27–50% of cases, often bilaterally. In many cases other cranial nerves may also be involved, with the possibilities of coexistent dysphagia and dysarthria. Diagnosis is made by cerebrospinal fluid analysis revealing a raised protein content in the absence of an increased cell count [5]. Presenting features are also suggestive for the diagnosis of the disease. In respiratory muscle failure cases, invasive ventilation may be needed. Treatment is usually supportive, with immunoglobulin infusions or plasmapheresis in appropriate cases [5]. Prognosis is generally good with the above measures. Recurrence can occur in very few cases after a very long asymptomatic period of several months or years [6]. Classically, GBS is attributed to antecedent upper respiratory and gastrointestinal infections in which campylobacter is commonly seen [7,8]. But still atypical cases have been reported. Shakuri-Rad et al reported a case of GBS syndrome after 4 days of Robotically Assisted Laparoscopic Prostatectomy [8]. Kacharu et al. (2015) presented a case of GBS in postpartum period. She recovered and regained full tone in all the limbs after receiving IVIG and physiotherapy [9].

Progressive ascending symmetrical paralysis and areflexia are two important diagnostic parameters for the diagnosis of GBS. Muktedir and Saem (2014) diagnosed atypical case of GBS with hyperreflexia in Bangladesh [10]. Jihyung Yoo et al. (2015) diagnosed a case of GB Syndrome associated with Bechet's Disease [11]. Though the cases of GB Syndrome associated with electric current injuries are reported but they are very few. My case showed the typical clinical presentation of GB Syndrome and fortunately complete recovery after 3 months of treatment at the hospital.

Medicolegal aspect: Most common accidental injuries occur by electric current either due to defective equipment or lack of care during their use.

Consent: The consent from the patient has been obtained.

Conflict of Interests: There is no conflict of interests.

Source of funding: There is no source of funding

Ethical clearance: This is a case report hence no need of ethical clearance needed

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