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CHARCOT'S NEUROARTHROPATHY – A CASE REPORT

CHIDDHARTH VENKATESHAN I[1], BHARATH[2] AND V. CHITRA[3]

1: Junior Resident, Department of General Surgery, Sree Balaji Medical College and Hospital, Bharath University, Chrompet, India

2: Assistant Professor, Department of General Surgery, Sree Balaji Medical College and Hospital, Bharath University, Chrompet, India

3: Professor, Department of General Surgery, Sree Balaji Medical College and Hospital, Bharath University, Chrompet, India

***Corresponding Author: Dr. Chiddharth Venkateshan I: E Mail: chiddusangi@gmail.com**

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ABSTRACT

Charcot's neuroarthropathy is a chronic arthropathy involving foot and ankle. Mostly in patients with diabetic neuropathy causing severe deformity and loss of function.Treatment consists of glycemic control, amputation, calcium supplementation.

Keywords: Charcot's neuroarthropathy, osteomyelitis

INTRODUCTION

Charcot's neuroarthropathy is usually seen in patients with diabetes mellitus leading to destruction of joints and loss of function. Pathophysiology is inflammation produces increase in pro-inflammatory cytokines **[1, 2]** leading to receptor activation of factor Kb ligand pathway which leads to osteoclast activation and causing bone lysis. Here, we report a case of elderly male who presented with charcot's neuroarthropathy, and diabetes mellitus detected 10 years ago. He underwent below knee amputation and recovered.

CASE REPORT

A 81years old male presented to OPD with complaints of ulcers in the left foot extending till the ankle joint for 15 days. Ulcer was

initially small in size and progressed to attain the present size. It is associated with numbness of the feet, pus discharge and fever **(Figure 1)**. No history of bleeding from ulcers. Patient is known case of diabetes mellitus for 10 years on metformin and glynase. On examination, left foot-1st ulcer - 2x2cms ulcer in plantar aspect of left foot .pus discharge present, no bleeding, no tenderness **(Figure 2)**. Well defined margin. Sloping edge. 2nd ulcer - 6x4.5 cms ulcer extending from plantar aspect {hind foot} till 1cm above lateral malleolus. Pus discharge present. No tenderness, bleeding. Well defined margin, bone exposed, restriction of movement.

Power {all muscles} - 4/5 Sensation decreased on left foot. All base line investigation were done. FBS-382mg/dl, PPBS-464 mg/dl HbA1c -12.2%. Rest of the investigations were normal. Bilateral lower limb arterial doppler showed no abnormality. X-ray left foot showed 2nd metatarsal base fracture with lisfranc components. Nerve conduction velocity was done and suggestive of axonal neuropathy.

Radionucleotide bone scan showed increase tracer uptake in left plantar aspect of the foot in all three phases suggestive of charcot's neuroarthropathy.

Figure 1: Showing ulcer in the hind foot

Figure 2: Showing ulcer over plantar aspect of the foot

Figure 3: Showing stump of below knee amputation

Patient underwent left below knee amputation and Plaster of Paris slab was applied, patient achieved glycemic control **(Figure 3)**. Daily stump dressing was done. Phsyiotherapy adviced to prevent contractures. Suture removal was done on day 14. Psychotherapy was given. Followup was done after 2 months, patient improved and had good glycemic control and patient was able to mobilise with the walker.

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DISCUSSION

Charcot's Neuroarthropathy is a complication of Diabetes Mellitus. Midfoot is the site of maximum involvement. It is characterized by pathological features, dislocation and deformity.Etiology can be multiple sclerosis, alcoholic neuropathy, syringomyelia, cerebral palsy, leprosy, tabes dorsalis, amyloidosis, vitamin B12 deficiency. Charcot's neuroarthropathy - 3 stages.

1. Development 2. Coalescence 3. Remodelling.

It is associated with autonomic and peripheral sensory neuropathy. Most commonly affected joint metatarsophalangeal joint. Fractures heal poorly due to underlying neuropathy **[4]**. Autonomic neuropathy results in arteriovenous shunting which increases blood supply to the joint **[1, 5]** which increases bone resorption, fracture. Loss of soluble receptors of advanced glycosylation end products {sRAGE}**[3]**. These are pathogenic mechanism of charcotneuroarthropathy. Mid- foot, hind foot, fragmentation sclerosis, new bone formation, dislocation gives rise to the appearance of a bag of bones. Technetium 99 is more sensitive for bone pathology.

Treatment of charcots neuroarthropathy are Off loading-Weight bearing or non-weight bearing cast.8 weeks without weight bearing.cast to be changed every 1 or 2 weeks. Then changed to partial weight bearing to complete weight bearing in 4-5 months.Charcot restraint orthotic walker can be used **[7]**, total contact, laminated, bivalved, rocker-bottom-soled ankle-foot orthosis (TCAFO) **[8]**. Oral or intravenous bisphosphonates- anti-osteoclastic activity. Surgery - arthrodesis, osteotomies. Amputation if there is repeated infection and osteomyelitis as in our case. Early diagnosis and treatment can prevent deformity **[6]**.

CONCLUSION

Charcot's neuroarthropathy is complication of DM that leads to infection, osteomyelitis and fractures.

Hence early diagnosis, self-examination of foot, health education and infection control can prevent amputation and disability.

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