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A Case Report on Charcots Neuroarthropathy of Right Foot Managed with Choparts Amputation

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Abstract: ***Charcot foot, originally described by Jean-Martin Charcot in 1868, is now most commonly associated with diabetes and affects individuals typically aged 50 to 60 years with a history of diabetes for at least 10 years. This case report presents a 49-year-old male with Type 2 Diabetes Mellitus (T2DM) who developed Charcot neuroarthropathy in the right foot, complicated by ulcers and infections. The patient underwent Chopart amputation and was treated with antibiotics and below-knee immobilization. Follow-up revealed successful recovery with the patient able to walk with full weight-bearing and no complications, demonstrating the effectiveness of early surgical intervention in managing Charcot foot with associated osteomyelitis and septic arthritis.***

Keywords: Charcot foot, diabetes, Chopart amputation, neuroarthropathy, osteomyelitis

1. Introduction

Charcot foot was first explained by Jean - Martin Charcot in 1868 he was french pathologist and neurologist. He described it in the patient of Tabes Dorsalis (myelopathy due to syphilis) [1]. Now diabetes is the commonest cause of neuropathic joint in Europe [2] and in India.

Most common age group being 50 to 60 years having diabetes for atleast 10 years. [3]

Pathology is multifactorial and polyneuropathy is the almost always associated with charcot joint Commonly affected joint foot but other sites affected are knee [4] [5] [6] [7] wrist [8] [9] [10] hip [11]and spine [12] clinically it presents as swelling near the joint with reddish color and temperature being higher than normal joint [13]

2. Classification

Charcot foot can be classified in 4 stages [14] [15]with active and inactive phase

1) Inflammation
2) Fragmentation
3) Coalescence
4) Consolidation

According to Clinical stage by modified eichenholtz classification [16] [17] eichenholtz classification
Stage 0 – prodromal
Stage 1 – Developmental
Stage – 2 Coalescence
Stage – 3 Reconstruction

Brodsky anatomic classification for charcot joint. [18]

1) Midfoot
2) Backfoot
3) (A) Ankle
   (B) Calcaneus
4) Multiple regions
5) Front foot

3. Case Presentation

49 M complained Ulcer over the sole of the right foot since 7 month with difficulty in walking since last 3 months. Patient had history of fall of iron rod in right foot which got infected followed by burn injury with incense sticks and thorn pick injury over the same ulcer in the plantar aspect of the right foot now the patient complains of difficulty in walking. Patient was known case of T2DM since last 8 years on irregular medication.

Figure 1: Clinical picture of the wound

Figure 2: Preoperative X - ray

Local examination revealed 2 ulcers on the plantar aspect with dimension 2x2x1cms and 0.5x3x0.5 cm having purulent discharge with tethering of the skin around the ulcer. Discharge was found to be Klebsiella Pneumoniae sensitive to cotrimoxazole and gentamycin. CT reported Bony destruction involving the articular surface of metatarsal head and base of proximal phalanx of first meta tarsal phalangeal joint with surrounding soft tissue component and air pockets, Widened joint space with multiple bony fragments in the first meta tarsal phalangeal joint, likely septic arthritis. MRI was performed and was reported as Charcots neuroarthropathy involving mulitple joint with secondary osteomylities of 1st Metartsal, Proximal Phalanax of Great toe and 1st MTP Joint septic artherities with foot ulcer.

Figure 3: CT with 3D reconstruction

Chopart amputation was performed with fish mouth Dorsal incision and plantar incision was made over the tarsometatarsal of 1st to 5th, Disarticulation made at the level of tarso navicular junction and calcaneo cuboid junction. Plantar flap was raised, EHL Tenodesis was done with talus. Below Knee slab applied with ankle dorsiflexion

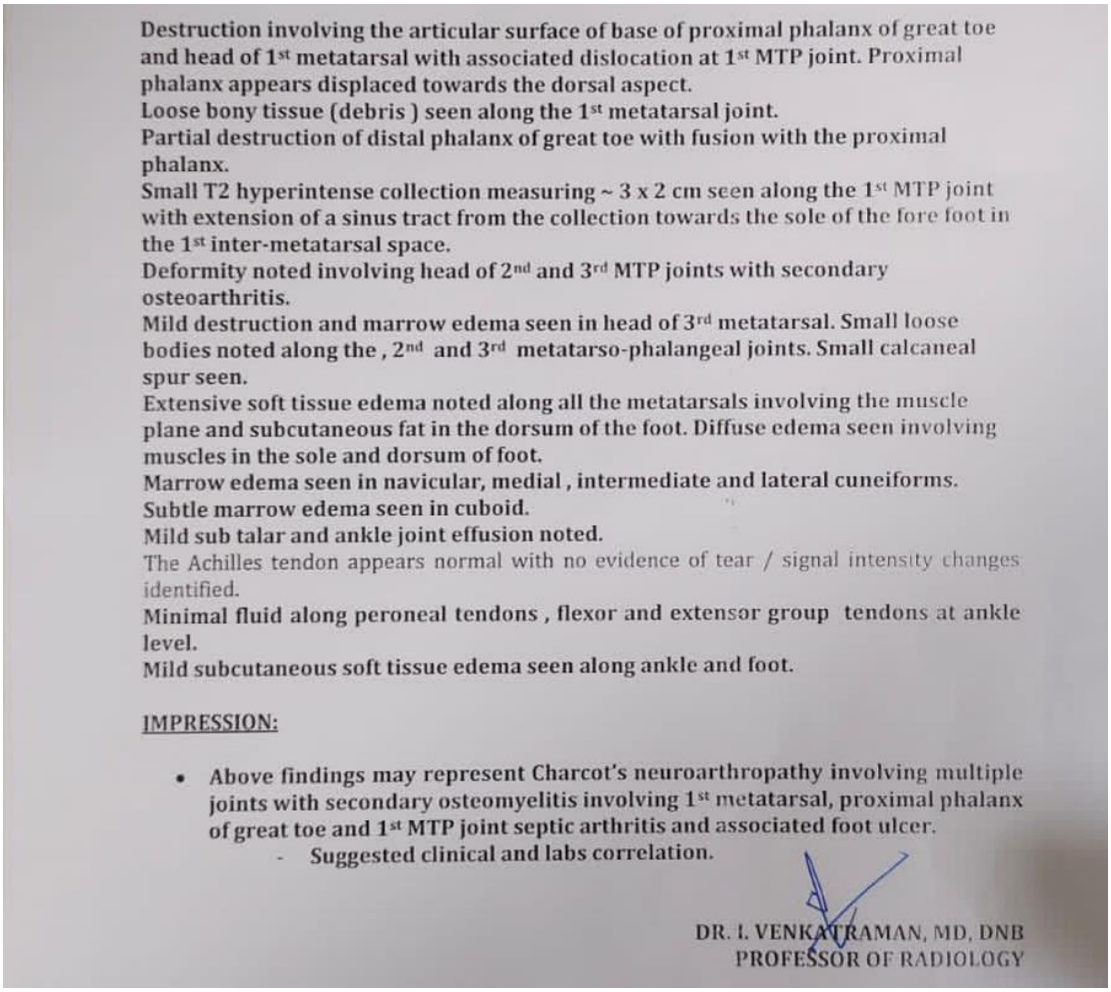
Post op was uneventful IV antibiotics started and no complication occurred 12 weeks follow up pt was able to dorsiflex ankle and was able to weight bear and walk without difficulty

4. Discussion

Rigorous and active management is needed for the charcot foot with osteomyelitis and septic arthritis having risk of Septicemia & the end result sepsis compromising the life of the patient. In our condition the patient was in an early stage of infection being limited to forefoot acting as nidus which was managed by Chopart amputation followed by Below Knee immobilization in ankle dorsiflexion and Crow orthosis enabled the patient to wait wear and walk without difficulty.

5. Conclusion

We reported a case of charcot's arthropathy which was managed by choparts amputation followed by dorsiflexed ankle with below the immobilization followed by crow ankle orthosis as a result patient was able to walk independently which full weight bearing which and without foot orthosis which no complications.



Destruction involving the articular surface of base of proximal phalanx of great toe and head of 1st metatarsal with associated dislocation at 1st MTP joint. Proximal phalanx appears displaced towards the dorsal aspect.
Loose bony tissue (debris) seen along the 1st metatarsal joint.
Partial destruction of distal phalanx of great toe with fusion with the proximal phalanx.
Small T2 hyperintense collection measuring ~ 3 x 2 cm seen along the 1st MTP joint with extension of a sinus tract from the collection towards the sole of the fore foot in the 1st inter-metatarsal space.
Deformity noted involving head of 2nd and 3rd MTP joints with secondary osteoarthritis.
Mild destruction and marrow edema seen in head of 3rd metatarsal. Small loose bodies noted along the , 2nd and 3rd metatarso-phalangeal joints. Small calcaneal spur seen.
Extensive soft tissue edema noted along all the metatarsals involving the muscle plane and subcutaneous fat in the dorsum of the foot. Diffuse edema seen involving muscles in the sole and dorsum of foot.
Marrow edema seen in navicular, medial , intermediate and lateral cuneiforms.
Subtle marrow edema seen in cuboid.
Mild sub talar and ankle joint effusion noted.
The Achilles tendon appears normal with no evidence of tear / signal intensity changes identified.
Minimal fluid along peroneal tendons , flexor and extensor group tendons at ankle level.
Mild subcutaneous soft tissue edema seen along ankle and foot.

IMPRESSION:

- Above findings may represent Charcot's neuroarthropathy involving multiple joints with secondary osteomyelitis involving 1st metatarsal, proximal phalanx of great toe and 1st MTP joint septic arthritis and associated foot ulcer.
  - Suggested clinical and labs correlation.

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PROFESSOR OF RADIOLOGY

Figure 4: MRI report

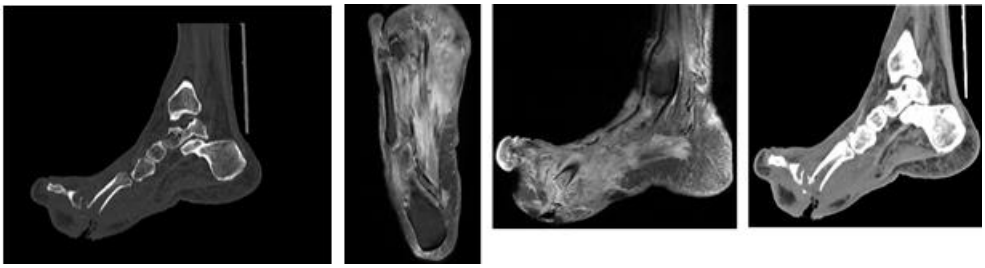

Figure 5: Post top image

Figure 6: Post op X – ray

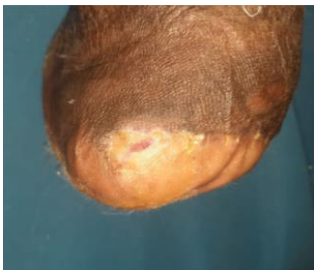

Figure 7: 12 weeks follow up

Patient walking with full weight bearing walking with crow orthosis

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