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CASE REPORT

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Fracture-Dislocation of the Midtarsal (chopart) Joint with Tibio-Talar Subluxation. A Case Report and Literature Review

Amadou Ndiasse Kasse[1]*, Lo Faty Balla[2], Diouf Joseph Davy[1], Diao Souleymane[1] and Sané Jean Claude[1]

[1]Orthopedic-Traumatology Department Idrissa Pouye General Hospital BP 3270 Dakar-Senegal

[2]Surgery Department, Pikine-Senegal Hospital Senegal

ABSTRACT

Midtarsal dislocations, compared to the Lisfranc joint injuries, are considered rare in the literature with usually clinical reports. We report the case of a 16-year-old girl who suffered a closed ankle trauma following a fall from the 3rd floor with a talo-navicular fracture-dislocation associated with tibiotalar subluxation. The authors insist on the singularity of this observation due to the exceptional association of injuries as well as the inveterate character.

These dislocations still go underestimated, hence the need for a good radiological analysis of the lesions in the context of the emergency and adequate early management.

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Introduction

Mediotarsal or Chopart's dislocations, compared to the lesions of the Lisfranc joints, are considered rare in the literature with usually case reports [1-6].

The anatomical arrangements of this double joint (talo-navicular and calcaneocuboidal) explain the scarcity of these dislocations which are rarely pure [6]. Their association with tibiotalar joint dislocation seems exceptional. A good understanding of this anatomy and the biomechanical implications allow a better surgical management especially when the trauma is old. We report a neglected case that was managed one year after the trauma.

Case Report

It was about a 16-year-old patient who was admitted into our structure for the management of a closed right ankle trauma that had occurred a year earlier by accidental fall from the 3rd floor. She was received, in the immediate post-traumatism, in a secondary center where the x-rays performed showed, in addition to the fracture-dislocation of Chopart (Figure 1), fractures of the right transverse processes from L2 to L4.

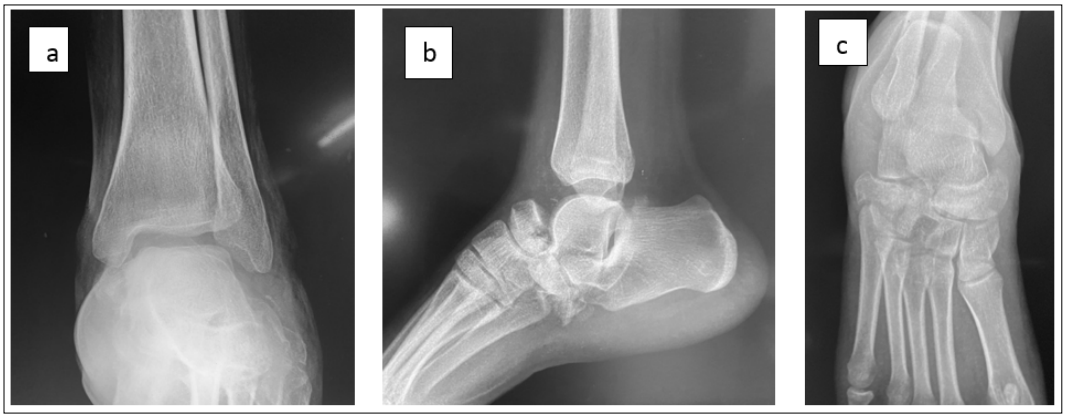

Figure 1: Widening of the tibiotalar joint space on the AP (a) and lateral view of the ankle (b) with the fracture-dislocation of the Chopart on the dorsoplantar view of the foot(c) with talo-navicular overlap

Contact Amadou Ndiasse Kasse ✉ amadoukasse@hotmail.com; Orthopedic-Traumatology Department Idrissa Pouye General Hospital BP 3270 Dakar-Senegal

A bandage boot was put in place without any attempt of reduction for 60 days and functional treatment for the lumbar spine. She was secondarily addressed to us because of the persistence of the pains, the deformity of the ankle and claudication in walking (Figure 2).

Figure 2: Radiological appearance of the ankle and foot one year after the trauma with consolidation of cuboid lesions

At our initial exam, she presented a post-traumatic flat right static valgus foot. The radiological exam showed an inveterate dorsal mediotaral dislocation and fragmentary fractures of the navicular and cuboid associated with anterior tibiotalar subluxation. Ossifications were also noted around the talar head dislocated in plantar under the medial arch of the foot (Figure 3).

Figure 3: CT scans confirming tibiotalar and talo-navicular dislocations with subtalar joint integrity. Note the ossifications around the talar head

She underwent surgery one year after the trauma with an open reduction via a medial approach (Figure 4). A wide fibrosectomy in the tibiotalar joint and cuboid osteotomy were necessary to obtain a satisfactory reduction. The observed degradation of the cartilage of the talar head forced us to perform talo-navicular arthrodesis. Tibiotalar and talo-navicular pinning helped to stabilize this reduction. A plastered splint was made post-operatively for 6 weeks. Control radiographs showed good tibiotalar and midtarsal joints reduction (Figure 5).

Unfortunately, the patient was lost after the postoperative check at 12 weeks. At this control, the postoperative period was event free with a complete healing of the surgical wound, removal of the plastered splint and the hardware removal planed. The control radiographs showed a good reduction maintained by the pins with talo-navicular fusion (Figure 6).

Figure 4: Closure of the medial approach of the ankle performed for open reduction and arthrodesis. Note the good reconstruction of the medial arch of the foot

Figure 5: Post-operative x-rays with satisfactory reduction

Figure 6: Post-operative M3 radiographic control. Talo-navicular fusion

Discussion

Chopart dislocations are rare lesions in daily trauma [1,5]. High energy accidents are most often responsible as in our patient with a fall from the 3rd floor with reception on the tiptoes [1-5]. Low-energy traumas have been reported in these Chopart traumas with however fragmentary lesions [6,7].

These lesions are classified according to the direction of the foot block [1]. The displacement being usually dorsal as in our observation, it can, however, be in plantar, lateral or medial [2-3].

The diagnosis should be made urgently in front of the swollen ankle and careful radiographic analysis based on the AP and lateral ankle views, lateral and dorsoplantar views of the foot [1-8]. This analysis has unfortunately failed at the emergency room in our patient delaying the management.

The particularity of this observation lies in the association of the Chopart lesion with a tibiotalar subluxation. We think that the violence of the trauma in the movment of plantar displacement of the talo-calcaneal block, already dislocated of the midtarsal joint, induced an opening of the anterior and even posterior capsulo-ligament structures at the tibiotalar joint. The shortening of the foot here is related to both the recoil of the forefoot block and the advance of the talo-calcaneal block.

The neglected character is also singular and constitutes an additional difficulty in surgical management. The shortened foot makes it difficult to reduce due to retractions, ossifications, chondrolysis and bone demineralization. This makes many authors prefer arthrodesis to open reduction. Rammelt and Hosking consider that, in adolescents, the open reduction should be considered because of the high remodeling potential and resilience of the cartilage stock. Arthrodesis, in this case, seemed more reasonable because of the long waiting time and the large chondrolysis of the talar head discovered during the surgical exploration [10,11].

Osteoarthritis is, in these traumas, the most daunting complication that frequently requires secondary fusion [1-10]. Unfortunately, our patient's lack of follow-up did not allow us to assess the outcome of treatment. However, by the third post-operative month, consolidation had already been achieved.

The association of Chopart dislocation with other lesions such as a complex fracture of calcaneus or metatarsal fractures has already been described. The interest of this observation therefore lies in the association not yet described to our knowledge of a dislocation of the Chopart to a tibiotalar luxation in its neglected form [12-14].

Conclusion

Chopart dislocation is a rare lesion that unfortunately often goes unnoticed in an emergency. Its association with a tibiotalar dislocation is a new entity to be considered in classification of traumatic lesions of the hindfoot.

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