

# Complete Equinus Deformity after Chopart's Amputation for Diabetic Foot: A Case Report

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## ABSTRACT

Chopart's amputation is the ultimate gesture for the conservation of heel support. Post-operative complications are possible, among which deformities of the stump occupy a significant place. We report a case of complete equinus deformity after Chopart's amputation for diabetic foot. It was a 63-year-old patient, diabetic for 12 years treated by metformin. He was followed for diabetic arteriopathy of the lower limbs and had a Chopart's amputation of the left foot 7 years ago. He was admitted the 2<sup>nd</sup> time for an ulceration on the Chopart's amputation stump. In his history, we noted that the patient had no functional prosthesis for his left foot. The examination found superficial ulcerations of the anterior part of the ankle. We noticed also a complete equinus deformity of the stump. The patient refused surgical treatment and conservative management has been done. Equinus deformity is a common complication of Chopart's amputation. However, it must be prevented by other associated surgical techniques (Achilles tendon tenotomy, tenoplasty of anterior tibial tendon, or ankle arthrodesis). This can help to achieve beneficial long-term outcomes in properly selected patients.

**Key words:** Ankle, Chopart, deformity, diabetic foot, equinus

## INTRODUCTION

Chopart's amputation is the ultimate gesture for the conservation of heel support. It is considered as an excellent limb salvage surgical option and the main indications are soft tissue loss caused by trauma, infection, or vascular compromise.<sup>[1,2]</sup> In diabetic foot management, Chopart's amputation is the procedure of choice when extensive forefoot gangrene or infection is associated with an intact hindfoot.<sup>[2]</sup> Post-operative complications are possible, among which deformities of the stump occupy a significant place (27%).<sup>[3]</sup> We report a case of complete equinus deformity after Chopart's amputation for diabetic foot.

## CASE REPORT

It was a 63-year-old patient, diabetic for 12 years treated by metformin. This patient had a notion of alcohol and tobacco use for more than 20 years. He was followed for diabetic

arteriopathy of the lower limbs and had a Chopart's amputation of the left foot 7 years ago. He was admitted the 2<sup>nd</sup> time for an ulceration on the Chopart's amputation stump. In his history, we noted that the patient had no functional prosthesis for his left foot. The examination found superficial ulcerations of the anterior part of the ankle. We noticed also a complete equinus deformity of the stump bringing the forefoot back of the ankle [Figure 1]. The Achilles tendon was retracted and palpated just above the calcaneus. Mobilization of the tibiotalar joint was difficult because there was stiffness. The knee joint was normal. The lateral radiograph of the ankle showed complete equinus deformity [Figure 2]. The patient refused surgical treatment and conservative management has been done. The patient was lost in the follow-up.

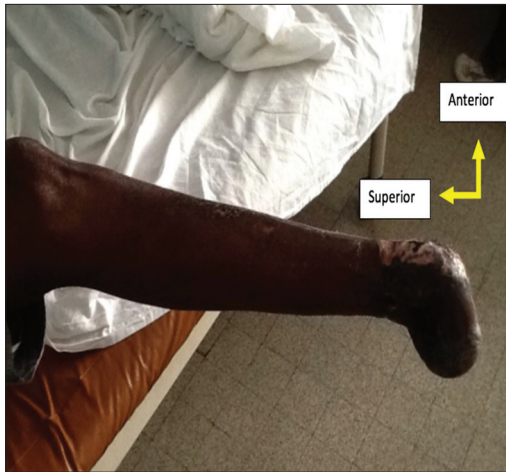
## DISCUSSION

Francois Chopart first described disarticulation at the midtarsal joint in 1792.<sup>[4]</sup> Chopart's amputation is indicated

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**Figure 1:** Medial view of the stump of the Chopart amputation with equinus deformity



**Figure 2:** Lateral radiograph of the left ankle with equinus deformity

in various conditions of the foot. It shares most of these indications with the Lisfranc amputation (transmetatarsal amputation). The main indications are infections of the bones and tissues, diabetic arteriopathy, or trauma.<sup>[1]</sup> Regarding our patient who was diabetic, the indication was an infectious gangrene of the left forefoot. Chopart's amputation is rarely used in our practice. Hence, in a series of 1308 patients in Saint-Louis (Senegal), <1% had a Chopart's amputation or other lower limb minor amputations.<sup>[5]</sup>

The deformities of the stump are multiple and varied, depending on the site of the amputation. It arises from the muscular imbalance between the agonist and antagonist muscles caused by the tendon sections in the amputation. The equinus deformity of the stump results from the continuous action of the triceps muscle when no longer balanced by the extensor muscles.<sup>[4,6]</sup> This effect is done through the Achilles tendon on the calcaneus.

This complication can be avoided by several techniques. Among these techniques, we have the subcutaneous section of the Achilles tendon on 2–3 cm (tenotomy).<sup>[7]</sup> We can also use a tenoplasty by the transfer of the anterior tibial tendon to the anterolateral portion of the talus.<sup>[2]</sup> DeGere and Grady suggested subtalar and ankle arthrodesis using a spinal nail.<sup>[2]</sup>

In our patient, the occurrence of the deformation could be explained by the absence of a preventive surgical procedure associated with the Chopart's amputation.

Furthermore, some authors have shown that the occurrence of this deformity could be prevented by other treatments. It consists of a landfill of the foot, then physiotherapy until complete mobilization followed by the placement of an adequate ankle prosthesis.<sup>[2,3]</sup> As our patient did not have a prosthesis, the deformation was, therefore, facilitated.

Hence, the occurrence of complications and the long-terms results depends on the use and the quality of the prosthesis in the follow-up.<sup>[3]</sup>

Treatment often involves amputation of Syme, Pirogoff, or even a leg amputation.<sup>[6]</sup> Correction of deformity is rarely mentioned. Rosa *et al.* proposed an arthrodesis of the tibiotalar and subtalar joints then allowing the use of an ankle prosthesis.<sup>[6]</sup> In our patient, we opted for conservative management. This choice is explained by the age of our patient and his refusal for surgical treatment.

## CONCLUSION

Equinus deformity is a common complication of Chopart's amputation. However, it must be prevented by other associated surgical techniques (Achilles tendon tenotomy, tenoplasty of anterior tibial tendon, or ankle arthrodesis). This can help to achieve beneficial long-term outcomes in properly selected patients.

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