

## Minimally Invasive Treatment of Pilon Tibial Fractures

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### Abstract

Pilon tibial fractures are polymorphic fractures and pose a therapeutic and prognostic problem. The purpose of this work is to demonstrate the place of minimally internal osteosynthesis of the pilon tibial through 3 clinical observations allowing anatomical reduction with good bone consolidation. Functional outcomes were assessed by the Ankle-Hindfoot score. Radiological results assessed consolidation. Thus, our functional results were considered very good.

**Keywords:** Pilon Tibial; Fracture; Minimal Surgical Treatment

### Introduction

Tibial pilon fractures are metaphyseal-epiphyseal joint fractures with a high potential for sagittal instability. Surgical treatment is the best option, the success of which depends on a very good anatomical reconstruction of the joint surface [1]. They are serious by their complexities, their therapeutic difficulties and the lack of muscular coverage with poor vascularization making the severe prognosis dominated by the risk of cutaneous necrosis, infection, vicious cal, pseudarthrosis or tibio-tarsal arthrosis [2]. The purpose of this work is to demonstrate the place of percutaneous tightening after reduction to avoid skin complications and obtain the consolidation provided to respect a protocol established by the patient.

### Methods

First case: 26-year-old patient, who following a sports accident (roller) had a joint fracture of the right tibial pilon with fracture of the external malleolus classified type A1 according to the AO classification (Figure 1).

Second case: 38-year-old patient with tibial pilon fracture type B2 associated with a fracture of the external malleolus following a fall on the stairs (Figure 2).

Third case: 50-year-old patient, sliding motorcycle (Figure 3).



**Figure 1:** Fracture type B2.



**Figure 2:** Fracture type B2.



**Figure 3:** Fracture type A1.

The treatment for our patients consisted first of the reduction and osteosynthesis of the external malleolus by malleolar plate then the reduction of the tibial pilon fracture through a small antero-medial incision using Kirschner pins and a square tip under scopic control. The fixation was then made by cortical and spongy canulated screws according to the size of the fractured fragments and their displacements (Figure 4). The skin closure was achieved by a resorbable suture thread without drainage. The assembly was stable at testing. The protocol was to keep a posterior plastered splint for 4 weeks until the first radiological check and then a boot when moving for 1 month date of the 2<sup>nd</sup> check. After just one crutch was prescribed to the patients until the end of the 3<sup>rd</sup> month. Functional rehabilitation was started after the removal of the plastered splint by a muscular awakening, proprioceptive work, mobilization and partial support. The result was very satisfactory with good bone consolidation in time, rapid resumption of professional and sports activity and especially lack of local complications (skin, infectious, etc).

## Results

According to the AO classification, our 3 patients were classified type A and B. The first chirurgial approach were external for external malleolus and antemedial of about 3 to 5 cm for tibial pilon.

The average consolidation time was 12 weeks. The average recovery time for partial support was 8 weeks. No complications were noted including skin necrosis, infection and later no vicious cal or pseudarthrosis. Clinical results according to the "AOFAS Ankle-Hindfoot Scale" score were very satisfactory.



**Figure 4:** Post-operative patient X ray control.

## Discussion

Tibial pilon fractures are rare and severe trauma. They account for 1 - 10% of the lower limb fractures and 5 - 10% of the tibia fractures [7,8]. Affecting a young and active population (mean age 41) [9,10]. CT scan is of interest in the evaluation of complex tibial pilon fractures [11,12].

The multitude of classifications reflects the difficulty of communicating between the mechanism of injury and the lesions observed. The OA classification remains the most widely used in the literature and is the classification we have adopted for our patients. The treatment of tibial pilon fractures is mainly surgical. This is the only method that can restore the Tibio-Talian joint congruence, guaranteeing good ankle function [4-6]. Our attitude followed the same protocol: osteosynthesis of the fibula to restore the length of the leg, anatomical reduction of the tibial articular surface under radiological control through a small antero-Medium incision and osteosynthesis considered solid by direct screwing (canulated or standard cortical and spongy screws). The average time between the trauma and the surgery was 12 hours, this is important to avoid immediate complications related mainly to the installation of blisters.

We have authorized the support within an average of 8 weeks, in fact the support is encouraged as soon as possible, partial from 6 to 8 weeks post-operative [13], it will subsequently be in charge. This support will also depend on the type of fracture and the quality of osteosynthesis [2,3].

In our series, which is mainly aimed at fractures with simple lines without sinking we have not found pseudarthrosis or vicious cal. With the quick turnaround time, the small incision and the protocol followed the results were found to be very satisfactory according to the "Ankle-Hindfoot Scale AOFAS score.

### Conclusion

Surgical treatment remains the treatment of choice of these fractures but of difficult realization, requiring an appropriate pre-operative planning, taking into consideration the type of fracture and the skin condition. It is internal osteosynthesis that gives the best overall clinical results.

### Conflicts of Interest

None.

### Bibliography

1. Dziejdz A and Wojtyczka R. "The impact of coronavirus infectious disease 19 (COVID-19) on oral health". *Oral Diseases* 27 (2021): 703-706.
2. Brandini DA, et al. "Covid-19 and oral diseases: Crosstalk, synergy or association?" *Reviews in Medical Virology* 31.6 (2021): e2226.
3. Marouf N., et al. "Association between periodontitis and severity of COVID-19 infection: A case-control study". *Journal of Clinical Periodontology* 48.4 (2021): 483-491.
4. Petrescu N., et al. "Oral mucosa lesions in COVID-19". *Oral Diseases* (2020).
5. Kamel AH., et al. "The impact of oral health status on COVID-19 severity, recovery period and C-reactive protein values". *British Dental Journal* (2021): 1-7.
6. Marchini L and Ettinger RL. "COVID-19 pandemics and oral health care for older adults". *Special Care in Dentistry* 40.3 (2020): 329.
7. Atukorallaya DS and Ratnayake RK. "Oral mucosa, saliva, and COVID-19 infection in oral health care". *Frontiers in Medicine* 8 (2021): 656926.
8. Warabi Y., et al. "Effects of oral care on prolonged viral shedding in coronavirus disease 2019 (COVID-19)". *Special Care in Dentistry* 40.5 (2020): 470-474.
9. Vanjani M., et al. "Repercussions of Covid-19 Pandemic on Dental Practice in Gujarat State – A Questionnaire Based Study". *EC Dental Science* 21.9 (2022).

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