

**Randomized comparative study between
retrograde and antegrade intramedullary
K-wire fixation of metatarsal bone fractures :
Forefoot functional outcome assessment**

Thesis presented by

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SUMMARY

Metatarsal bone fractures represent a common cause of foot pain, accounting for about 35% of all foot fractures. Fortunately, the healing process of metatarsal fractures usually progressed well with good forefoot functional outcome provided that ensuring the acceptable reduction and the appropriate method of fixation. Most isolated minimally displaced fractures are treated conservatively, while fractures which is displaced more than 3 – 4 mm or angulated more than 10 degrees must be reduced and fixated to allow for equal weight distribution and movement on uneven surfaces.

Percutaneous K-wires fixation is the most popular method of fixation owing to be a simple less invasive technique achieving the appropriate fixation that allow the patient for early rehabilitation and return to his usual daily activities.

The aim of our study is to compare between retrograde and antegrade method of fixation. Thirty patients with displaced metatarsal fractures were participated in our randomized comparative study.

According to our results regarding the forefoot functional outcome using both ACFAS and EFAS, the antegrade technique preserves the metatarsophalangeal joints, thus showing superior results in allowing early and easy postoperative rehabilitation regarding range of motion of the joints and weight bearing. On the other hand, it is time consuming with much exposure to intraoperative radiations especially in cases with multiple metatarsal fractures. Retrograde technique is a simple popular one that allow for metatarsal fixation in shorter operative time and less exposure to intraoperative radiations. But major disadvantages of this technique are the possibility of postoperative metatarsophalangeal joint stiffness and pain due to interference with the capsuloligamentous structures of the joints.

Patients treated with the antegrade technique showed statistically insignificant higher (EFAS) and (ACFAS) scores with better forefoot functional outcome in the first three month after surgery compared to patients treated with retrograde one. However eventually at the follow up after six months, the scores from both techniques are almost the same.