

# Case of the Month

September 2024



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## Presented by:



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## Learning Points:

- © Rheumatoid arthritis commonly presents with the forefoot deformities.
- © The surgical management is indicated due to the pathology progression, high level of severity, and severe soft-tissue condition of the patient.
- © Proximal osteotomy of a metatarsal bone for the hammer toe and MTP deformity corrections can be the procedure of choice for the powerful correction and less MTP joint stiffness.

## Title:

**Severe Hallux valgus with crossover toe correction by 1<sup>st</sup> Metatarsophalangeal joint arthrodesis, proximal osteotomy of 2<sup>nd</sup> metatarsal bone and 2nd PIP joint arthrodesis**

*Upcoming Case of the Month  
October 2024*

## Presented by:



**Prof. Chua Yeok Pin**  
Sunway Medical Centre,  
Kuala Lumpur, Malaysia

## Title:

**Ankle Deformity with the Treatment using Circular External Fixation**

Want to present a case? Write to...



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## Severe Hallux valgus with crossover toe correction by 1<sup>st</sup> Metatarsophalangeal joint arthrodesis, proximal osteotomy of 2<sup>nd</sup> metatarsal bone and 2nd PIP joint arthrodesis

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### Background

65 % of rheumatoid arthritis (RA) patients have the disability with metatarsophalangeal (MTP) joint in the first three years and then the incidence and severity are increased because of chronicity of disease that affects patients' quality of life. Regarding severe hallux valgus, it is problematic with bunion pain, nerve irritation, difficulty with shoe fitting and walking. When pathology has progression, the conservative treatment may fail and end up with a surgical treatment. First metatarsophalangeal joint fusion is a reliable treatment procedure with good results in rheumatoid arthritis.

Regarding the lesser toe pathology of RA, this can occur with and without complete dislocation of MTP joints. These can be treated using bone shortening, elevation of the metatarsal head and soft tissue rebalancing of MTP joint area. When we compare between the proximal and distal osteotomies. Proximal osteotomy comes with the advantage of more powerful correction. It is also an extra-articular osteotomy resulting in less MTP stiffness. However, the disadvantage of this technique is high risk of nonunion and malunion with longer periods of protected weight-bearing.

Our article is to demonstrate the management of an RA case with hallux valgus, first MTP arthritis and lesser toes deformity.

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## Case

A 67-year-old female with RA suffered pain with barefoot walking and difficulty with shoe fitting. She underwent the shoe modification and medical treatment, her symptoms did not improve. Then she decided to undergo the surgical treatment to correct her disabilities. **Figure 1** showed the clinical and radiographic images with the deformities such as severe hallux valgus and second to fifth hammer toes.



(Fig. 1)

Preoperative clinical and x-ray images



(Fig. 2)

Intraoperative image after correction and fixation

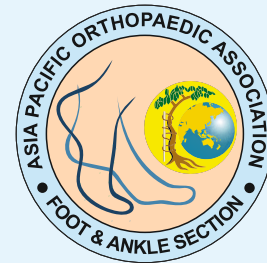
## Operative technique

### 1st MTP arthrodesis (fusion)

The skin incision was created at the dorsal side of 1st MTP joint and then meticulous dissection through subcutaneous tissue with taking care to elevate full thickness flaps with adequate mobilization of the extensor hallucis longus (EHL) tendon and protection of the neurovascular bundles. A joint capsule was opened with a blade. Joint preparation with curettage and multiple 1.6-mm K-wire. Realignment to 10°-15° and a physiologic valgus position of 5°-25°. An MTP fusion plate and screw (2.7-mm) were placed.

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## Proximal dorsal closing wedge of 2nd Metatarsal bone

A 3-cm longitudinal skin incision was made just distal to the 2nd TMT joint. Meticulous soft tissue dissecting with tendon protection. Bone cutting started at 1-1.5 cm proximal to 2nd TMT joint in dorsoproximal to plantodistal direction at 60 degrees of angulation. A piece of bone about 1-2 mm of dorsal wedge was removed. A temporary K-wire was placed and a 3-mm cannulated screw was placed. In some patients with osteopenia, bone fixation can be augmented with a miniplate (screw size: 2-mm) on the dorsal aspect of osteotomy.

## Proximal interphalangeal joint fusion

After closed manipulation at 2nd MTP joint was done for soft tissue release. Longitudinal skin incision was made on the PIP joint. Dissection was made direct to joint, then joint surface preparation. Reduction and K-wire insertion were done. Subcutaneous tissue and skin were closed. A short leg slab was applied.

## **Postoperative protocol**

A patient was immobilised with a short leg slab and non-weight bearing for a couple weeks then stitches were removed. Non-weight bearing on the surgical foot was ongoing around four weeks after surgery. She used a controlled ankle motion walker in the fourth week after surgery then she was permitted to bear weight on that foot as tolerated until three months after surgery. The range of motion exercise was introduced for her at the non-surgical part of body. A K-wire was removed four weeks after surgery. Figure 4 showed her clinical and radiographic images at the postoperative period.

Our patient was satisfied with the surgeries' results including deformity corrections and less stiffness of the second MTP joint.



**(Fig. 3)**

*Post-operative x-ray*



**(Fig. 4)**

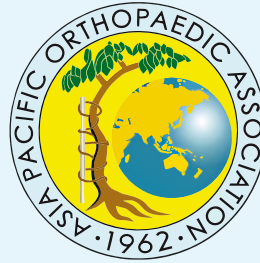
*Clinical and radiographic outcomes*



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