Boney and Inflammatory Changes of the Ipsilateral Foot Following First Toe and Partial First Metatarsal Amputation: A Case Series

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Background:

First toe amputations, including those involving the first metatarsal, are frequently performed to manage complications such as infection, osteomyelitis, or non-healing ulcers. While these procedures aim to preserve foot function, they can disrupt biomechanics, leading to secondary complications. A red, hot, swollen foot in a high-risk clinic is often diagnosed as Charcot neuroarthropathy (CNA), but this symptomatology can also occur due to other factors, particularly following amputation (Gardner, Suhaimi, & Murphy, 2010).

Aim:

This case series investigates postoperative bone and inflammatory changes, addressing a gap in the current literature and provides insight into the causes of inflammatory symptoms after amputation

Method:

Retrospective case series (between Jan 2024 - Jan 2025) analysing 5 (out of 265) first toe amputations with or without partial first metatarsal resection

- New ipsilateral foot changes (e.g., pain, heat, swelling, erythema)
- Documented follow up with the Foot Procedure Unit (FPU)
- Diagnosis by clinical, imaging, and pathology results; with multidisciplinary team input

Result:

- Average 13 week post op symptom presentation
- None of cohort wearing supportive device
- 0 out of 5 red, hot, swollen feet diagnosed as CNA

Conclusion:

- Amputation can cause mechanical and inflammatory changes that mimic infection or CNA
- Consider non-infective bone complications in post-amp foot
- Altered gait and pressure distribution may contribute to these changes → potential role for targeted offloading strategies in prevention
- Small cohort with room for further investigation

2nd and 3rd met head stress fracture

2nd toe dislocation and 3rd met head avascular necrosis

2nd and 3rd toe dislocation w/ bursitis

No findings on imaging

Osteomyelitis (infection)

References: Gardner, M. J., Suhaimi, A., & Murphy, D. (2010). Charcot osteoarthropathy of the foot. *Australian Family Physician*, 39(3). https://www.racgp.org.au/getattachment/f15225c0-7d3d-4caa-9fee-8984612986ab/Charcot-osteoarthropathy-of-the-foot.aspx