

Can the length of the first metatarsal predict risk of reulceration in patients that underwent metatarsal resection?

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Introduction: A discrepancy in the metatarsals length occurs after metatarsal head resection that may lead to an increase of the plantar pressures beneath the rest of the metatarsal heads. This situation might facilitate the risk of reulceration.

Aims: To analyze the relationship between the first metatarsal length and the risk of reulceration under any metatarsal head, in patients that underwent diabetic foot surgery that included metatarsal head resection. **Methods:** Between March 2010 and December 2012, 64 patients with Diabetes mellitus underwent metatarsal head surgery in our centre and were analyzed prospectively during 6 months. Metatarsals length was calculated through a dorsoplantar weight-bearing radiographic view, taken just after surgery. Receiver operating characteristics (ROC) curves were employed for selecting the optimal prognosis cut-off points for the first metatarsal length. **Results:** A total of 20 patients (31,3%) suffered a reulceration. The first metatarsal showed a median of length of 0.6 [0.3-1.4] cm equal to or longer than the following longest metatarsals in 33 patients (51.6%). The first metatarsal was smaller than the longest metatarsal in 31 patients (48.4%) with a median difference of length of 0.6 [1.2-0.1] cm. The ROC curves showed cut-offs of 1.1 cm in the longest first metatarsal group and 0.32 cm in the group where the first metatarsal was not the longest. Demonstrating a sensitivity of 87.5% and 83.3% and a specificity of 88% and 63.2% ($p=0.001$; $p=0.041$) respectively. **Conclusions.** The length of first metatarsal in relation to the following longest lesser metatarsal represents a predictive value of risk of reulceration in individuals with a history of metatarsal amputation. We suggest to preserve a safety interval between -0.32 and 1.2 cm of the length of first metatarsal to avoid risk of reulceration.

