

### Rigid hallux valgus correction to reduce detrimental plantar pressures causing a recurrent malum perforans

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**Introduction:** Neuropathy, peripheral vascular disease and supervening trauma are the main causes of malum perforans in diabetes mellitus [1]. Hallux valgus (HV) leads to foot deformities resulting in ill-fitting shoes and abnormal biomechanics [1-3]. Therefore, HV can be an important cause of recurrent ulceration. Metatarso-phalangeal arthrodesis of the first ray is one of the techniques that realigns best a severe HV with a durable result [4]. The aim of this report is to illustrate the ominous effect of localised high pressures due to severe HV, and to underscore the need to restore a balanced loading of the forefoot by stable realignment. **Methods:** We report on 2 patients with an identical medical history. Both developed a severe hallux valgus after amputation of the second toe, resulting in high pressures underneath the first MTP joint and subsequent recurrent ulceration. Notwithstanding state of the art treatment (total contact casting and bespoke shoes), the ulcer continued to recur several times. Surgical correction was performed by means of an MTP1 arthrodesis with internal fixation. **Results:** The surgical procedure and the aftertreatment were uneventful. At 13 and 9 month follow up respectively no recurrent or other new ulcer did develop at the ipsilateral or contralateral side. The involved skin resulted supple without calluses. Pedobarography showed a balanced distribution of the pressures at the forefoot. **Conclusion:** MTP1 arthrodesis has shown to provide a stable and durable realignment, avoiding further re-ulceration. However, the exact mechanism of this load redistribution needs further investigation as mostly HV causes an increased loading of the lesser metatarsals, where re-alignment, especially MTP1 arthrodesis, increases loading of the first ray [2-3, 5-6].

#### REFERENCES

1. International Working Group on the Diabetic Foot, Time to Act, IDF communications, Brussels, Belgium, 2005
2. Mueller MJ, et al. J. Biomechanics, 36(7), 1009-1017, 2003
3. Dereymaeker GEPH, Doctoral Thesis HNC-agency medical publishing, Leuven, Belgium, 1996
4. Robinson AHN, et al. J Bone Joint Surg, 83-B, 1038-1045, 2005
5. Budhabhatti SP, et al. J Biomech Eng, 129(5), 750-756, 2007
6. Dhukaran V, et al. J Foot Ankle Surg, 45(6), 400-409, 2006