11:23 am

Management of Severe Bunion Deformity

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The treatment of Hallux Valgus (HV) is full of crossroads and traps but it is specially challenging when involves severe deformities. As masterly stated by Mann and Coughlin, there is no perfect classification and its main purpose is to facilitate the decision-making process on how to treat the deformity. According to them, the severe Hallux Valgus deformity shows more than 40 degrees of great toe lateral deviation with some degree of hallux pronation (moderate to severe). The First-intermetatarsal angle is greater than 16 to 18 degrees and the fibular sesamoid is usually 100% dislocated. Other common findings are the cross over of the second toe with painful transfer lesion under the second metatarsal head. The authors also emphasize the importance of the DMAA, the incongruence of the 1st MTP joint, the interphalangeal hallux valgus angle, the tarsal-metatarsal angle and the first ray hypermobility in the genesis of severe Hallux Valgus deformities.

Because of the pliable limits between the moderate and severe HV deformities a great variety of surgical procedures are used to treat both grades.

Several techniques have been proposed to treat moderate and severe deformities and one of the most frequently recommended is the distal soft tissue procedure combined with a proximal crescent osteotomy of the first metatarsal. Many authors have reported good results with high patient satisfaction rates with this procedure with no correlation between the severity of the deformity and the outcome scores.

Okuda and co-workers, using more strict cutoffs to define Moderate and Severe deformities, found that the correction of the moderate HV deformity is more satisfactory than those of the severe deformities according to the AOFAS score. They also found that the corrections of the HV and IM angles in patients with moderate HV deformities are more satisfactory than those in patients with severe cases. The recurrence rate was associated with greater IM angles and they discovered that this association was not due to undercorrection of the HV deformity but to post-operative loss of angular correction.

These findings calls our attention to the multiplicity of adjunct factors in the genesis of the bad results in the more severe HV deformities.

Different proximal opening or closing wedge and diaphyseal osteotomies were designed to treat moderate and severe HV deformities. Some authors recommend the tarso-metatarsal joint arthrodesis as a safe and stable procedure to deal with this problem based on the belief of the participation of the first ray hypermobility in the genesis of the HV deformity. Others
consider the hypermobility as a consequence of the severe HV deformity and do not include the TM arthrodesis in their surgical options\textsuperscript{15-16}.

In a prospective randomized trial, Faber and co-authors\textsuperscript{17} found that the hypermobility had no influence in the outcomes of 63 feet treated with the Hohmann and Lapidus techniques for HV deformities after 10 years of observation.

Based on these concepts and following the algorithm proposed by Mann and Coughlin\textsuperscript{1}, we treated 41 patients (70 feet) with severe HV deformities through a proximal opening-wedge osteotomy of the first metatarsal using low-profile plates in order to reduce the first intermetatarsal angle. According to the co-existence of other altered radiological parameters, complementary osteotomies were proposed: DMAA > 8° = biplanar distal chevron osteotomy / Interphalangeal HV angle > 15° = Akin osteotomy. Eight feet (11%) had a proximal opening-wedge osteotomy of the first metatarsal without additional procedures. Ten feet (14%) underwent proximal opening-wedge osteotomy of the first metatarsal with the Akin procedure. Thirty-nine feet (56%) had proximal opening-wedge osteotomy associated with a distal biplanar chevron and 13 feet (19%) received all three procedures – proximal opening-wedge, distal biplanar chevron and phalangeal Akin.

With these procedures, all radiological parameters were significantly reduced to normal values. The positioning of the sesamoids improved in 80% of the feet and only 4 (6%) of the MTP joints were considered as incongruent at the post-operative evaluation.

Only 11% of the patients had fair results with AOFAS scores below 70 points. On the other hand, 59% of the patients presented over 80 points and 28% over 90 points of the AOFAS scores. No AVN were found in our series. Major complications were 2 (3%) undercorrection, 2 (3%) nonunion of the basilar osteotomy site and 1 (1%) TM joint late subluxation. We conclude that (1) the proximal opening-wedge osteotomy of the first metatarsal using low-profile plates is an effective, secure, and reliable method for the treatment of moderate or severe Hallux Valgus deformities and (2) additional distal osteotomies – distal biplanar chevron and/or Akin procedure – are advisable and improves the HV complex correction\textsuperscript{18}.

With this information in hands, we can suggest that the best choice for the treatment of the severe HV deformities depends on a careful physical examination, the valorization of all radiological measurements and the use of a wide treatment algorithm that embody this great number of variables.

REFERENCES


