The most important complication in Hallux Valgus surgery is recurrence. Within the factors which may explain recurrence, the most probable and important one is an under powered surgical correction. When correcting hallux valgus deformities, we should always try to achieve the most “normal” alignment to each patient individually. In order to do so, we recommend to measure hallux valgus deformities using a new angular measurement called “the angle to be corrected” (1). This angle is obtained drawing a line through the first metatarsal axis and then drawing a second line from the same starting point on the base of the first metatarsal but going distally through the middle of the sesamoid complex. This angle represents the amount of degrees we have to move the metatarsal in order to center the head over the sesamoids. We have been using this angle for the last 10 years and it has driven us to perform more powerful techniques in order to obtain better angular corrections.

In order to improve the power of our correction, we can combine methods of treatment. There are two ways of combining treatments; one is simply using a mix between the available techniques, i.e. a biplanar chevron after a proximal osteotomy or lapidus, akin osteotomy and diaphyseal osteotomies, etc. The other way is to combine concepts of treatment, i.e. combine displacement and rotation. Every chevron or scarf like osteotomy uses lateral displacement of the distal fragment as method to obtain correction, and therefore, its limit is given by the width of the bone. Every rotational osteotomy, as the Ludloff, or proximal crescentic osteotomies use medial to lateral rotation of the distal fragment to obtain correction, and therefore, its limit is given by the alteration of the distal metatarsal articular angle and the ease of its fixation (2,3).

In an effort to improve the correction power combining displacement and rotation, we have added rotation to the Scarf osteotomy (4). Described already in 1992, the rotational scarf uses rotation in relation to the most proximal lateral aspect of the metatarsal bone, keeping the general shape of the scarf osteotomy, thus maintaining a broad bone contact between the fragments. In this way better angular corrections with more than 50% of lateralization of the distal fragment can be achieved keeping at least 50% bone contact (5). Recent clinical articles suggest that the rotational scarf decreases the risk of troughing (6) and the need of an akin osteotomy (7). Geometrically it has been shown that the rotational scarf osteotomy can achieve correction through a proximal center of rotation, and has the power of correcting up to 9 degrees of intermetatarsal angle maintaining bone contact in 50% (8). The rotational scarf has been our workhorse technique for the last years, and we use it for hallux valgus deformities with an angle to be corrected between 5 and 10 degrees.

Using the same concept of combining methods of treatment, we added displacement to a proximal lateral closing wedge osteotomy. This latter type of osteotomy achieves rotation of the distal fragment after removing a lateral wedge of bone, as the distal fragment will rotate in relation to the medial cortex. If we add lateral displacement to this closing wedge technique, we will combine the advantage of proximal displacement osteotomies which is the maintenance of length not altering the distal metatarsal articular angle, and the correction power of rotational osteotomies which can correct as many degrees as wanted depending on the rotation imposed to the metatarsal. A modification of a proximal closing wedge technique was designed and named proximal oblique slide closing wedge osteotomy (Poscow) (9). It has been our choice since many years, and we
indicate it for hallux valgus deformities where the angle to be corrected is more than 10 degrees (10). This technique is powerful enough in order to avoid extensive lateral releases (11), which in our thinking, is not needed in the vast majority of cases.

In summary, combining methods of treatment is an additional concept we have to manage in our armamentarium when dealing with hallux valgus deformities. Either we can mix known methods and use them as needed, or we can increase the correction power of each individual technique, and in doing so, the idea of combining displacement and rotation makes a difference in our hands. We think that a correct metatarsophalangeal reduction, in which the final position of the hallux is dictated mainly by the skeletal alignment and not soft tissues is of paramount importance.

References

2.- Nyska, M; Trnka, HJ; Parks, BG; Myerson, MS. Proximal metatarsal osteotomies: a comparative geometric analysis conducted on sawbone models. Foot Ankle Int 2002: 23:938-945
3.- Wagner, E; Ortiz, C. Osteotomy considerations in Hallux Valgus Treatment. Improving the correction power. Foot and Ankle Clinics 17:481-498, 2012.
4.- Barouk, LS. Scarf osteotomy for hallux valgus correction. Local anatomy, surgical technique, and combination with other forefoot procedures. Foot and Ankle Clinics 2000, 5(1) 525-558.
8.- Wagner E; Ortiz, C; Keller, A. Modified diaphyseal osteotomy with a proximal center of rotation for moderate to severe hallux valgus. Techniques Foot Ankle Surg 2007 6(2):113-117.