

## Commentary

This is an excellent paper that expounds the two most widely used techniques for treating *hallux valgus* at the time it was written (1960): Mc. Bride's procedure and Keller-Brandes' hemiarthroplasty. For over a decade, these two techniques were widely used in the surgical treatment of *hallux valgus* by the overwhelming majority of Spanish orthopedic surgeons. In those days, people either defended or attacked one of the techniques depending on whether they were under Anglo-American or French influence – the latter coming from the school of Lelievre, which in Spain was continued by A. Viladot who preconized Keller-Brandes' resection-arthroplasty as the leading indication for these deformities.

The paper deals with what the author calls "typical constitutional hallux valgus" and is divided into three parts, all of them having a therapeutic approach.

In the first, the main elements making up the condition are defined:

1. First metatarsal deviation
2. Prominence of the head
3. Outward deviation of the big toe
4. Secondary deformities in the neighboring toes

Four therapeutic options are presented to address the first metatarsal deviation. The first is to harness the action of the abductor hallucis muscle by means of an unmodified Mc Bride technique. This is recommended as the procedure of choice for young patients with no osteoarthritis and a reducible deformity. The second is a fibrous fixation, i.e. Lelievre's fibrous cerclage, which is described as a supplementary procedure performed to bring the first metatarsal closer to the second. The main surgical steps of the technique are carefully described. The author also points out that the procedure also addressed «outward dislocation of the sesamoids», a notion used at the time by many authors when describing the pathology of the condition. We now know that the sesamoids do not dislocate; they are always in the same position. It is the metatarsal that moves, thereby altering its relationship with the gleno-sesamoid complex. In the third place, Dr. Cañadell mentions osteotomies, which are indicated in cases of exaggerated deviations that are absolutely irreducible. He recommends that osteotomies that delay the weight-bearing of the metatarsal heads should not be indicated since they could overload the neighboring heads (this is what is now known as transference metatarsalgia) and specifically favors Hohmann osteotomies since they displace the head inwards and «slightly downwards» with the caveat that they should not be used in elderly patients. Fourth, as far as the metatarsocuneiform arthrodesis is concerned, he states that it has the same indications as osteotomies, although he admits that he

does not have enough experience of its performance. The prominence of the head, «incorrectly-called exostosis», must be resected, but he qualifies this statement by adding that «we must not limit our procedure just to that because if we did we would merely be correcting the esthetic problem».

For the outward deviation of the big toe, he recommends either creasing or tensioning the internal aspect of the capsule or resecting one third of the base of the proximal phalanx (Keller-Brandes) or more if required, but he is not in favor of a resection hemiarthroplasty of the metatarsal head (Hueter-Mayo technique). He claims that the latter is a procedure that should be abandoned since it involves removing a vital point of support, which would overload the second and third metatarsal heads leading to persistent pain. As regards the secondary deformity of the neighboring digits, the author argues that it must be corrected without resecting any of them, although he does not mention any therapeutic procedure to achieve that purpose.

In the second part of the paper, Cañadell analyzes the causes of pain and their treatment. For him, the most frequent causes of pain are bursitis, metatarsophalangeal osteoarthritis and second and third metatarsal overload. In this respect, he makes therapeutic recommendations, both of an orthopedic and of a surgical nature, speaking for the use of insoles with metatarsal pads and against the surgical resection of the metatarsal heads.

In the third part, Dr. Cañadell expounds his therapeutic preferences according to the patient's age, indicating the Mc. Bride procedure for young patients and the Keller-Brandes technique for adults with osteoarthritis. He subsequently provides a detailed account of both surgical techniques, illustrating them with three drawings or diagrams that represent them. At the end, he mentions the use of continuous traction which, applied through the nail or the ball of the big toe by means of a steel wire can be attached to the plaster. This technique is currently in disuse.

The paper ends with a discussion of bandaging and postoperative care. Here, a few additional technical indications are given. In the bibliography are listed the papers by Brandes, Esteban Mújica, Sanchis Olmos, Vaquero González, Keller, Mc. Bride, etc., which in those days were consulted by the whole of the Spanish orthopedic community.

As we said at the beginning, Dr. Cañadell's paper reflects the standard procedures of the time as well as indications and contraindications. Nevertheless, the paper does not include any case report with x-rays or pre- or post-operative

imaging or any description of the potential complications and sequelae that could come about. The two procedures described were useful at time the paper was written but are a far cry from what is indicated at present; indeed, nowadays the age factor has ceased to be a contraindication with the focus being placed on sparing the metatarsophalangeal joint and allowing the use of normal footwear. With those criteria in mind, we indicate the most appropriate technique for each type of foot making a point to correct all deformities presented by the patient.

As in Dr. Cañadell's time, the goal of treatment nowadays is not only to correct the deformity and suppress pain but also to spare the morphology and the function of the foot as well as to preserve the balance necessary to for lifting off during gait. In short, the surgery should not alter the forefoot biomechanics, which is something which the author clearly wanted to convey to us.

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