

Medium-term results of Keller-Brandes operation in hallux valgus and hallux rigidus

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Objective To find out subjective and objective functional results of treatment in patients with hallux valgus and hallux rigidus

Methods 338 patients underwent 478 Keller-Brandes-operations in the Orthopaedic clinic of the St. Vincenz Hospital of Brakel. The results of 241 interventions in 163 patients were analyzed by means of a questionnaire.

Results After an average follow-up period of 11.3 years, predominantly good results were found in patients with a primary diagnosis of hallux valgus, 84.6 percent of the patients under fifty years being subjectively satisfied with the result and 92.6 percent of the patients above

fifty years. In the group of patients with the primary diagnosis of hallux rigidus the results in patients under fifty years were significantly worse with regard to walking capacity, movability and convalescence. While in the group of patients over fifty years, 85.7 per cent were satisfied with the result, the percentage in the group of younger patients was only 61.8 percent.

Conclusion Taken together, it can be said that Keller-Brandes operation must still be considered a state-of-the-art method to treat elderly hallux valgus- patients with arthrosis of the proximal joint.

Key words Hallux valgus, hallux rigidus, Keller-Brandes operation

Introduction

The various surgical approaches to treat deformities of the forefoot raise the question in how far the functional amputation of the forefoot can still be regarded a state-of-the-art- intervention (1).

Results with percentages of satisfied patients ranging from 76.5 to 96 percent have been reported in the recent literature (2,3). Substantial differences likewise exist for evaluations under the cosmetic and functional aspects (4,5,6).

Markedly diverging results are also reported as regards the hallux rigidus cases which give rise to the operation. Based on the literature, good and very good results range between 68 and 92 per cent (7,8,9).

Material and Method

Within the 15-year period from 1 January 1977 to 31 December 1992 338 patients underwent 478 Keller-Brandes operations in the Orthopaedic Clinic of the St. Vincenz Hospital of Brakel. The results of 241 interventions in 163 patients were analyzed using a questionnaire on the basis of an extended scheme of evaluation according to *Anderl* et al. (1991). No reply was received from 164 of the 338 patients and 11 patients had died when the survey was performed.

The indication of surgery was hallux valgus in 117 women and 4 men and the primary diagnosis of hallux rigidus in 26 women and 16 men. To analyze the data for age-dependency, as this factor could be expected to influence the surgical results, we divided the patients into age groups of age under 50 and age over 50 years.

Hallux valgus

In the group including the patients aged over 50 years - mean age 58.6 years (50 to 73 years)-, 76 patients underwent surgery of 122 big toes. A satisfactory postoperative result was reported in 92.6 percent of the cases. The walking capacity was said to be unlimited in 80.3 percent of the cases. The movability of the big toe was rated better in 59.8 percent.

Postoperative reddening, pain and swelling was seen in 67.3 percent of the cases during the patients hospitalization. Revisional interventions were necessary in 1.6 percent of the cases.

Using the foot without pain was possible after an average of 7.2 weeks and 83.6 per cent of the patients judged the cosmetic result to be good (Fig.1).

In the group of patients aged under 50 years, whose mean age was 40.4 years (9 to 49 years), surgery of 65 big toes was executed in 43 patients. Of the patients returning the questionnaire, 84.6 percent were satisfied with the surgical result. An unlimited walking capacity was stated to have been achieved in 89.2 percent of the cases. A better movability of the big toe was reached in 41.4 percent of the cases. Disorders immediately after the operation in the form of reddening, swelling and pain were reported in 66.2 per cent. Revisional operations were necessary in 3.1 per cent. Using the foot without pain was possible after an average of 7.82 weeks, the cosmetic result was rated good in 84.6 percent of the cases (Fig.1).

Discussion

While the overall acceptance of the method is high, the percentage of subjectively satisfied patients

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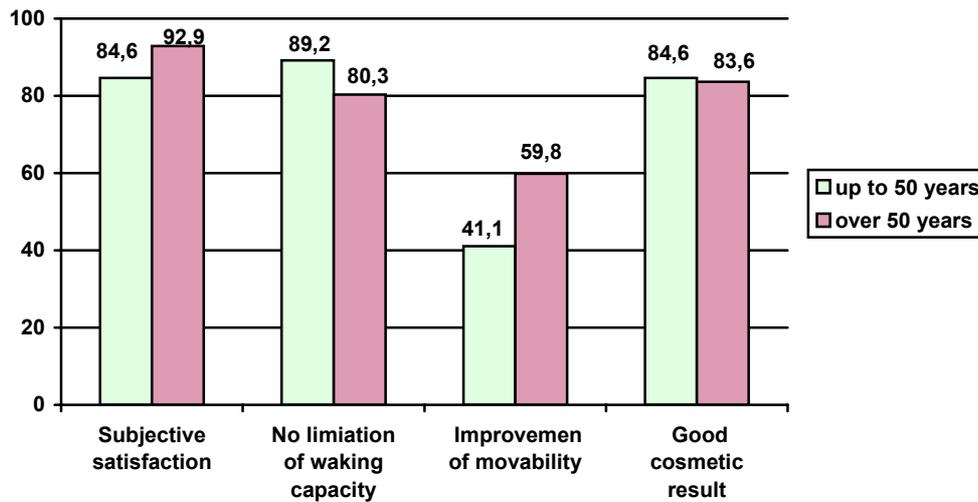


Figure 1. **Hallux Valgus**

Satisfaction, walking capacity, movability and cosmetic results (in percent)

in the group of patients aged over 50, being 92.6 percent, was better than the result obtained in the group with patients aged under 50 (84.6 percent). The limited satisfaction of the younger patients was paralleled by an unchanged or worse movability of the proximal joint of the big toe in 58.9 per cent, while the corresponding figure in the older patients amounted only to 40.2 per cent. As to limitations in walking capacity, however, the younger patients reported such limitations in 10.8 per cent, as compared with 19.7 per cent of the older patients. The cosmetic result was rated satisfactory by more than 80 per cent of the patients of both groups.

The analysis of our data shows that the *Keller-Brandes*- Operation produces the best results in patients suffering from arthrosis of the proximal joint. Depending upon the congruence of the joint and the situation of the joint axes, surgical techniques allowing to save the joint should be considered in younger patients.

Results

Hallux rigidus

In the group of patients over 50 years of age - mean age 58.4 years (50 to 69 years) -, 22 patients underwent 28 *Keller-Brandes* operations of their big toes. Subjective satisfaction with the postoperative result was stated by 85.7 per cent of the patients. No limitation of gait could be confirmed in 75 per cent of the cases. Postoperative swelling, reddening and pain was reported by 60.7 per cent of the patients of this age group. The cosmetic result was satisfactory in 75 per cent. One revisional intervention, in the form of an additional resection, was necessary. Walking

without pain was possible after an average of 6.2 weeks. The group of patients under 50 years of age - mean age 43.3 years (37 to 49 years) -, comprised 20 patients with 26 big toes requiring surgery. Of those only 61.8 per cent were satisfied. No limitation in walking capacity was reported by 53.8 per cent. Postoperative disorders such as have already been listed above, were seen in 88.5 per cent of the cases, and revisional surgery was necessary 4 times. The patients could walk without pain only after 11 weeks. Satisfaction with the cosmetic result was stated by 80.8 per cent of the patients filling the questionnaire (Fig. 2).

Discussion

As has already been stated in detail, *Keller-Brandes*- Operation leads to definitely better functional results in older patients as to walking capacity, improvement of the preoperative range of movability and convalescence. The better results are reflected in the - expected - higher rate of subjective satisfaction. The unproportionately high rate of postoperative disorders, such as temporary swelling, pain and reddening, that was seen in the group of patients aged under 50 is relativized by the analysis of the individual cases that shows that 5 of the 20 patients had undergone prior surgery.

Taken together, it can be said that *Keller-Brandes*- Operation must still be considered a state-of-the-art method to treat elderly hallux valgus- patients with arthrosis of the proximal joint. The method is also of importance for treating elderly patients suffering from hallux rigidus, as has been shown by the fact that more than 85 per cent of the

patients in our study were subjectively satisfied with the result.

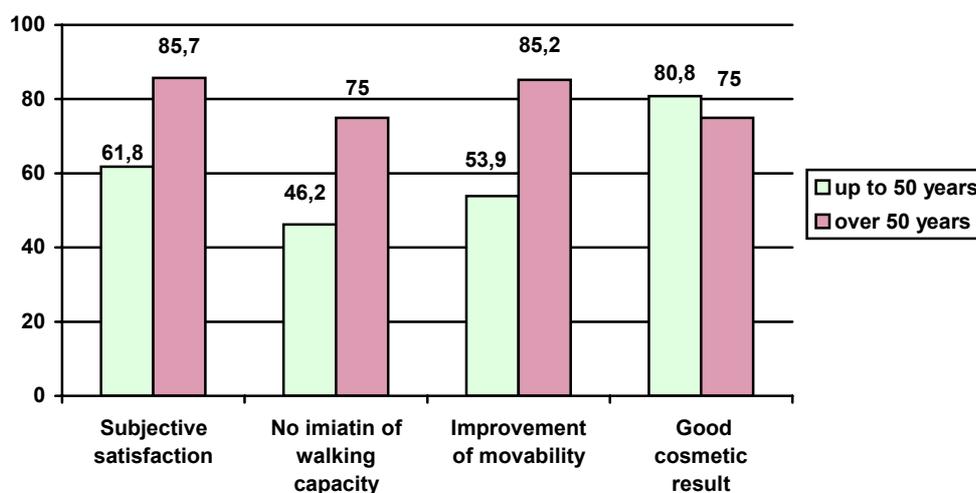


Figure 2. **Hallux Rigidus**

Satisfaction, walking capacity, movability and cosmetic results (in percent)

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