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Surgery for hallux valgus. The expectations of patients and surgeons

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Abstract Two-hundred patients who had undergone surgery for hallux valgus were interviewed in an attempt to study the different variables which may have contributed to the success of their surgery. These data were compared to the results obtained by using clinically applied scores. To obtain data on surgeons' expectations, 186 members of two national orthopaedic foot societies were interviewed in order to quantify the importance and value of these variables in prognosis. The main interest of the patients is a painless great toe which, when wearing conventional shoes, gives no problems. They also wish to have their bursitis and bunion treated in order to regain their ability to walk as much as they wish. Surgeons are not only specially interested in pain and shoe problems but also in restoring an adequate range of motion in the metatarsophalangeal joint (MTP), removal of the bunion and the treatment of tender callosities. We found that the correction of footwear problems, alleviation of pain and restoration of adequate walking are the most important factors influencing the outcome of surgery. It was surprising that these expectations are only partly revealed by using clinical foot scores.

Résumé Nous avons demandé à 200 patients d'apprécier des variables différentes par rapport à la chirurgie pour Hallux Valgus. Nous avons comparé les réponses aux résultats des scores cliniques appliqués aux mêmes patients. Enfin 186 chirurgiens orthopédistes qui étaient aussi membres de sociétés orthopédiques du pied ont été interviewés pour répartir l'importance des variables. L'intérêt principal des malades est un premier orteil indolore, sans problème avec des chaussures conventionnelles. Les malades désiraient le traitement de la bursite et de l'oignon pour retrouver une capacité de la marche illimitée. Les chirurgiens se sont intéressés à la douleur et au problème du port de la chaussure, mais aussi

à la mobilité de l'articulation MP, la disparition de l'oignon et des callosités plantaires. Résumer ces données et la corrélation de variables simples aux scores cliniques avec les problèmes de la chaussure, les douleurs et la distance de marche ont le plus haut impact sur le résultat de la chirurgie du premier orteil. Ces attentes sont reflétées seulement en partie dans les scores cliniques du pied.

Introduction

Standardised grading techniques are considered to be important when assessing the outcome of foot surgery [9, 11, 14, 15]. Patient interviews in which different criteria are recorded are used as the basis of most clinical scoring systems. On the other hand, surgeons prefer more 'objective' methods which are based mainly on physiological variables measured clinically and radiographically. While exact data have been published for radiographic assessments in hallux valgus surgery [7, 18, 19], there is little information available about the expectations of patients [2] and of surgeons. The expectations of patients are especially important when considering hallux surgery. The aim of our study was to assess retrospectively the expectations of patients with respect to the result of their hallux surgery, as well as to determine the relative importance of different variables to surgeons. The relationships between the results of these two surveys and any possible associations with the postoperative assessment were analysed using different scores [1, 3, 4, 5, 6, 8, 10, 11, 12, 13, 16, 17, 20]. The frequency of the variables in these scores was compared to their importance for patients and orthopaedic surgeons.

Materials and methods

This study is based on the pre- and postoperative data of 200 consecutive hallux valgus operations, comprising 115 Keller-Brandes type resection arthroplasties, 64 Chevron osteotomies, 12 distal sole soft tissue procedures and six other hallux valgus procedures

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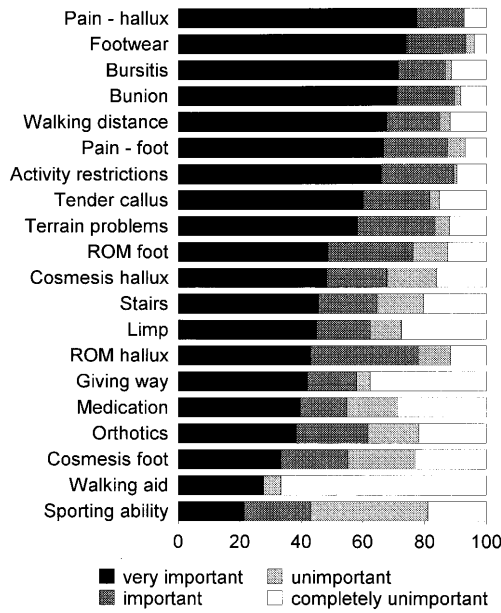


Fig. 1 Patients' ranking of variables

in 175 female and 25 male patients with a minimum follow-up of 5 years and a maximum follow-up of 7.6 years (mean: 5.7 years). The average age at the time of surgery was 55.6 years (range: 21.7–79.1 years).

The data were obtained by personal interview, clinical examination and standardised radiographs. Apart from the data needed for calculation of the 13 different scores that we have previously published [14], the patients were also asked for their opinions about the contribution made by each single variable included in these scores to the success of surgery. The data were obtained at a follow-up examination with grading of each variable on a four-part scale from 'most important' to 'completely unimportant'.

In addition, 186 members of two national foot societies (Austria and Germany) were asked to grade the importance they gave to these patient-related variables as well as to the clinical variables (e.g. range of motion of different joints) and radiographic angles according to their importance for the pre- and postoperative assessment of hallux surgery.

Spearman's rank correlation index was used to calculate the correlation between single variables and the overall result [14].

Results

The patients considered the most important variables to be a decrease of pain and footwear problems, improvements in bursitis and bunions and increased walking distance. Restriction of sporting activities, the use of walking aids, cosmesis of the foot (excluding the hallux), the necessity of using orthotics and the use of medication were noted to be less important (Fig. 1).

Surgeons rated pain in the hallux, overall satisfaction, shoe problems, range of motion of the hallux and presence of a bunion as most important. Sporting ability, cosmesis of the foot (excluding the hallux), problems on stairs, range of motion of the foot and instability problems were judged to be only of minor interest (Fig. 2). Among variables that are only sought by surgeons, meta-

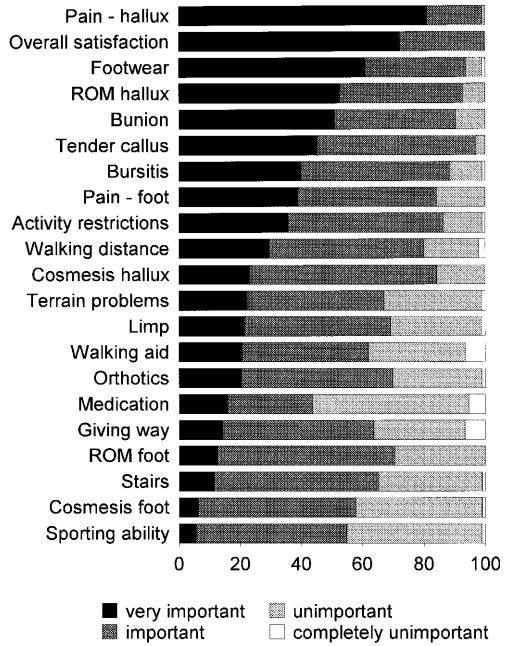


Fig. 2 Surgeons' ranking of variables

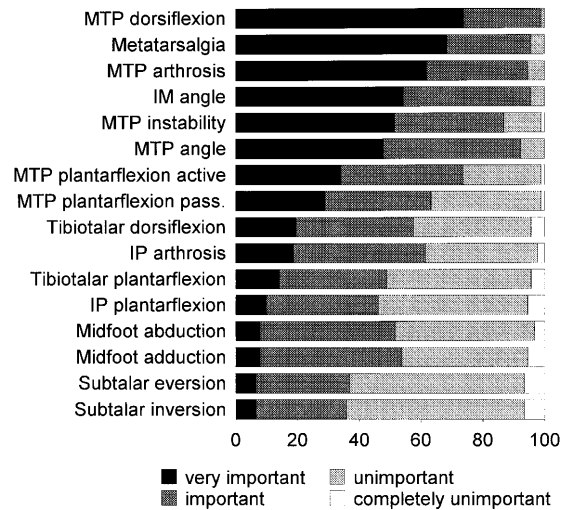


Fig. 3 Surgeons' ranking of the "radiographic" and "range of motion" variables

tarsophalangeal (MTP) dorsiflexion, metatarsalgia, MTP arthrosis, the radiographic intermetatarsal (IM) angle and MTP instability were rated highest. Subtalar inversion and eversion, midfoot adduction and abduction and IP plantar flexion were considered to be less important (Fig. 3).

All these new data allowed comparison with previously published data of the same 200 patients [14] where we had assessed the correlation between single variables with the overall outcome placing equal emphasis on each single variable. We had found that footwear problems, the presence of other deformities, walking and instability problems on uneven terrain, pain and cosmesis were im-

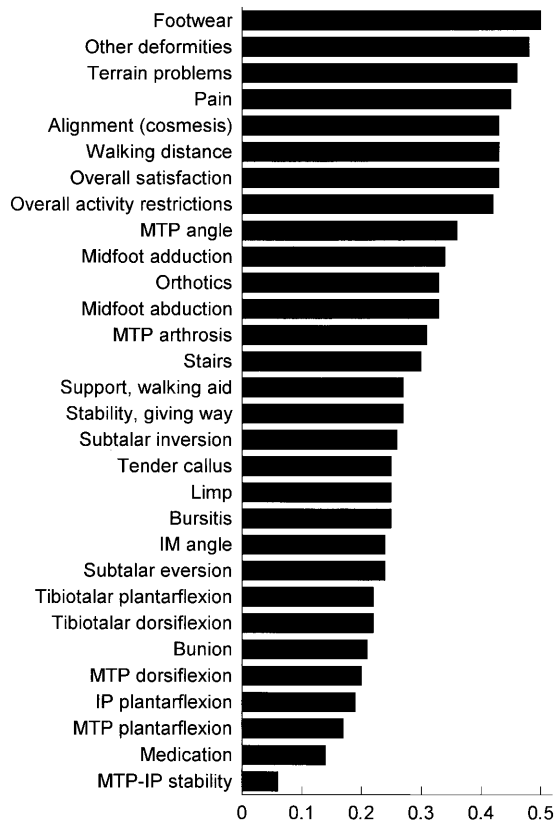


Fig. 4 Correlation between single variables and overall surgical result (Spearman's rank correlation index of "1" means maximum agreement, "0" indicates no correlation at all)

portant while MTP-IP stability, medication, MTP and IP plantar flexion and MTP dorsiflexion were less important (Fig. 4).

Discussion

Algorithms of use when selecting appropriate surgical procedures include mainly objective radiographic variables such as the MTP and the IM angle, MTP arthrosis and congruency of the MTP joint. To these objective variables must be added an assessment of the patient's 'functional expectations', although this term remains poorly defined. It is essential to assess the functional and overall expectations of each single patient preoperatively and therefore it is helpful to know the patient's expectations and the importance given to each single variable.

When selecting which score to use in order to determine the preoperative status and probable postoperative outcome in hallux surgery, it is important to appreciate the objective importance of each variable. This can be done either by statistical correlation of single variables with the overall outcome of surgery [14], or by a survey among patients to quantify their expectations [2] as well as among surgeons in order to assess all the factors contributing to a good result.

Pain is the most important variable to both patients and surgeons. This is well reflected in clinical practice, as only pain is included in all scores. In addition, many scores attach great importance to pain, giving more points for a pain-free patient than for any other variable [5, 8, 10, 11, 12, 13].

Alignment or cosmesis of the great toe is the second most often used variable, but in the patients' opinion the appearance of the hallux seems to be only of minor importance. Surgeons also considered cosmesis to be of little importance.

The third most common variable in clinical scores is dorsiflexion and plantar flexion of the metatarsophalangeal joint. This variable is even less important to patients than alignment, but both of these are graded as very important by surgeons. It is interesting that surgeons rate MTP dorsiflexion as a most important variable.

Footwear problems are assessed in only eight of 13 scores, but we found them to be very important to the patients who rated difficulties wearing shoes as second only to pain. Surgeons also confirmed this problem to be very important.

Comparing these five most often mentioned variables with the relationship to the overall outcome after hallux surgery that we have previously published [14], confirms that footwear problems, pain and cosmesis are directly related to the overall surgical result. Sporting ability was not considered important either by patients or surgeons although it can be of great importance to a small group of highly active patients in whom it has to be decided whether to fuse or to resect a joint with severe deformity or arthritis.

Other variables that were rated of little importance to patients and surgeons were the necessity of using walking aids, the appearance of the foot excluding the hallux, the use of orthotics, medication, problems on stairs and instability related to the foot. Of these single variables the use of medication showed a poor correlation to the overall result, and for the other variables Spearman's rank correlation index ranged in the midfield. The necessity of using walking aids, medication and problems on stairs are often influenced by problems which do not arise in the foot and so in most cases of hallux surgery these variables apparently do not play a part and therefore are graded as irrelevant by most patients. Nevertheless, if these problems do appear after surgery, they can then be quite disabling for the patient.

Comparing the surgeons ranking of more detailed radiographic and clinical variables to their relation with the overall result reveals that MTP dorsiflexion, MTP arthrosis and the IM angle, although rated highest by foot surgeons, only range in the midfield when they are correlated with the clinical result [14]. For example, MTP-IP instability, which was assessed to be very important by more than 50% of surgeons, had in fact virtually no correlation with the clinical result. It was the MTP angle, which was assessed to be very important by nearly half the surgeons, that was found to be associated with the final result.

Although the scoring systems of Gainor et al. [5], Kitaoka et al. [10, 11] and Kitaoka and Holiday [8] appear to be applicable clinically [14], the limited clinical relevance of some variables together with the fact that some important variables are not recorded are shortcomings of these scores.

Regardless of whether a score is used for pre- and postoperative assessment of forefoot surgery the following variables should be recorded from the patient, and from the examination: from the patient – pain, footwear, walking distance, terrain problems, cosmesis, bunion and bursitis; by the surgeon – MTP plantar- and dorsiflexion, the MTP angle and the IM angle. In general, the ‘subjective’ opinion of patients is of greater value than the ‘objective’ rating by surgeons as variables obtained from patients showed a higher correlation with the overall result than variables recorded by surgeons.

Foot surgeons pay most attention to pain, shoe wear problems, range of motion of the metatarsophalangeal joint, bunion and tender callosities but these are not always included in foot scores. The patients’ main expectation from hallux surgery is a painfree great toe without problems when wearing conventional shoes. Furthermore, the successful treatment of bursitis and bunion is essential to achieve unrestricted walking ability. These variables have to be respected in decision-making and when selecting which surgical procedure to use for the correction of hallux valgus deformity. Assessment of these variables should be mandatory in the practice of forefoot surgery.

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