

The Effect of Hallux Valgus Surgery on Quality of Life

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Background: Health-related quality of life (QOL) is defined as a patient's subjective perception of his or her own health. Insufficient data exist on QOL of patients who undergo a hallux valgus (HV) operation. We used a 36-item short form survey (SF-36) to measure QOL of such patients. Our aim was to evaluate the effect of HV on QOL and to identify QOL determinants.

Methods: Fifty patients who underwent surgery for HV between 2015 and 2017 were included in the study. The SF-36 questionnaire was applied to the patients before and after surgery. Patients' medical records were examined to identify possible factors affecting QOL such as age, gender, body mass index, duration of symptoms, or smoking.

Results: The mean age of the patients was 55.6 ± 3.8 years, and 42 of the 50 patients were women. The mean duration of disease was 12 ± 3.7 years. The surgery improved QOL scores for general health, emotional well-being, role limitations due to personal or emotional problems, physical functioning and bodily pain. However, the changes in scores for vitality and social functioning were not statistically significant. Lower postoperative QOL scores for emotional well-being and bodily pain were significantly associated with age and duration of the symptoms. Compared to the mean QOL of healthy adult Turkish population, all scores in subdimensions were lower.

Conclusions: This study shows that HV in adults has a negative impact on general health, bodily pain, physical functioning, physical and emotional well-being rather than social well-being and vitality. (J Am Podiatr Med Assoc 110(5): 1-4, 2020)

The World Health Organization defines the quality of life (QOL) as an individual's perception of their position in life in the context of the culture and value systems in which they live.¹ Health-related QOL can be expressed as patients' subjective perception of dissatisfaction related to their own health.^{2,3} Health-related QOL has recently become a widely researched topic in orthopedic diseases and can be evaluated using different questionnaires.

Hallux valgus (HV) is an important health issue that causes lifestyle disturbances and lowers a patient's QOL as a result of chronic pain, physical and cosmetic problems, and in the long term, results in high treatment costs and loss of labor.⁴

Many studies have investigated the effect of HV on QOL. However, few studies have compared the preoperative and postoperative QOL in HV, although it is one of the most frequent orthopedic

diseases. Various surgical techniques can be used for the treatment of HV, which in turn would have a direct effect on QOL.⁵ The aim of this study is to compare the preoperative and postoperative QOL of patients who underwent surgery using the same type of surgery and to identify the effects of surgery on QOL.

We used a 36-item short form (SF-36) questionnaire to measure QOL. This questionnaire is a set of generic, coherent, and easily administered measures. It relies on patient self-reporting and is now widely used by health-care organizations for routine monitoring and assessment of outcomes in adult patients.^{2,6}

Materials and Methods

This study was conducted from July 1, 2015 to April 30, 2017, and included a total of 50 patients between 52 and 60 years of age with a diagnosis of HV (8 men and 42 women). Approval from the Ufuk University Local Ethics Committee, Ankara, Turkey, was obtained, as was written informed consent from the patients who participated in this study. The

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inclusion criteria were no degenerative findings on the first metatarsophalangeal joint, stabilization of chevron bunionectomy with a capsuloperiosteal flap as the surgical procedure, at least high school graduates, and employed patients. The exclusion criteria were refusal to participate in the study, history of previous surgery for the same indication, and degenerative changes on the first metatarsophalangeal joint.

All patients underwent surgery using modified Chevron bunionectomy with a capsuloperiosteal flap method.⁵ The surgical indications were failed conservative treatment, first to second intermetatarsal angle less than 15 degrees, hallux valgus angle less than 40 degrees, and the absence of degenerative changes of the first metatarsophalangeal joint.

The patients were given the SF-36 questionnaire before the surgery and 12 months after the surgery. An elastic bandage and a night splint were recommended for 6 weeks in the postoperative period. When the patients were able to tolerate walking on their heels with a hallux valgus shoe, which is a postoperative shoe that transfers the patient's weight to the heel, they were encouraged to walk. The second evaluation was planned at the 12th postoperative month in order to fully evaluate the benefit of surgery. The follow-up period was 18 months for all patients, and we did not observe any superficial infection, dysesthesia, hypoesthesia, avascular necrosis, recurrence of deformity, stiff joint, malunion, nonunion, or comminution of the fragments.

Measurements

The QOL was measured using the SF-36, which has been standardized to Turkish.¹ This questionnaire consists of questions to which the participants respond using a 1- to 6-point Likert scale.

There are eight sections that cover general health (GH, 5 items); vitality, energy, fatigue (VT, 4 items); physical functioning (PF, 10 items); bodily pain (BP, 2 items); physical role functioning (PWB, 4 items); emotional role functioning (EF, 3 items); emotional well-being (EWB, 5 items); and social functioning (SF, 2 items). We used a special online software to calculate the scores (<http://orthotoolkit.com/sf-36/>). In accordance with the manual, the subscales of these eight dimensions were combined to form a total score. A higher score corresponded to a higher QOL.

Additionally, the patients were asked to complete a second questionnaire to obtain demographic data and other information about concomitant diseases

such as diabetes, chronic obstructive lung disease, sleep disorders, etc. Hospital records of the patients were also examined to identify possible factors affecting QOL, including age, gender, body mass index, duration of symptoms, and smoking.

Statistical Analyses

The descriptive statistics were expressed as percentages or means and SDs. Total and sub-dimension QOL scores before and after surgery were compared. Correlation analyses were used to assess associations between medical determinants and QOL. All analyses were performed with SPSS software (version 21). *P* values of less than 0.05 were considered statistically significant.

Results

The mean age of participants was 55.6 ± 3.8 years; 42 patients were women and 8 were men. The mean duration of symptoms was 12 ± 3.7 years. Table 1 summarizes the clinical data of the patients.

Forty-eight (96%) patients returned to work before the 6th postoperative week, and 2 (4%) patients were able to work at the 8th postoperative week. The patients were able to wear conventional, wide shoes on the 6th postoperative week and fashionable shoes without any inserts or modifications around the 12th postoperative week (range 11–15 weeks).

Scores for each dimension are given in Table 2. Preoperative GH, PF, PWB, EWB, and BP scores were significantly lower compared to the postoperative scores ($P = 0.044$, $P = 0.048$, $P = 0.038$, $P = 0.045$, $P = 0.034$, respectively). There were no statistically significant changes in VT and SF scores. These results show that surgical treatment of HV increased QOL scores related to personal well-being and pain. Lower preoperative QOL scores in EWB

Table 1. Patient Characteristics

Characteristics	
No. of Patients	50
Women	42
Men	8
Age (years)	55.6 ± 3.8
BMI (kg/m ²)	33.1 ± 4.5
Duration of Symptoms (years)	12 ± 3.7
Smoker (yes/no)	3/47
Duration of Follow-up (months)	20.6 ± 2.3

Note: Values reported in mean \pm SD unless otherwise noted. Abbreviation: BMI, body mass index.

Table 2. Pre- and Postoperative Short Form (SF)-36 Scores Compared to the Healthy Turkish Population

Subdimensions of SF-36	Means of scores in SF-36		P value	Mean of healthy Turkish population
	Preoperative	Postoperative		
General Health	69.0 ± 9.5	82.7 ± 8.7	0.044	71.6 ± 16.1
Physical Health	65.7 ± 9.6	76.4 ± 7.6	0.048	83.8 ± 20.0
Vitality	66.5 ± 14.6	65.3 ± 12.6	0.076	64.5 ± 12.9
Social Functioning	78.2 ± 12.1	81.4 ± 14.3	0.065	91.0 ± 12.9
Physical Well-being	58.6 ± 9.7	78.2 ± 11.2	0.038	86.3 ± 24.9
Emotional Functioning	64.5 ± 10.8	67.3 ± 12.4	0.068	71.0 ± 11.0
Emotional Well-being	58.1 ± 11.2	65.3 ± 8.4	0.045	90.1 ± 19.4
Bodily Pain	60.5 ± 13.6	74.3 ± 10.7	0.034	82.9 ± 18.9

Note: Boldface *P* values indicate statistical significance.

and BP subdimensions correlated with older age and longer duration of symptoms. No other correlation was detected in other subdimensions such as gender, age, body mass index, or smoking.

The only statistically significant increase compared to the preoperative period were observed in GH, PF, PWB, EWB, and BP subdimensions. QOL scores in the preoperative period were lower than that of a healthy Turkish adult except for VT and GH scores. Postoperative scores were also lower than average health Turkish adults except for PF and SF, which had raised to the average levels.²

Discussion

Different types of surgeries will result in different outcomes and complications and thus, different QOL. The most important difference of this study is that all patients underwent stabilization of Chevron bunionectomy with a capsuloperiosteal flap.⁵ There are no previous studies on the effects of HV surgery on QOL with this level of homogeneity. A number of studies have reported that repeat surgery may lead to deterioration in QOL scores. We did not include in this study patients who underwent a repeat surgery.

Because only 8 of the 50 patients were men, we included high school graduates and patients who underwent surgery using the same technique in order to achieve homogeneity. A review of the literature reveals that QOL studies are performed mainly on women, which reveals that women undergo HV surgery more frequently than men. For example, Palomo- López et al⁷ reported that QOL of women who underwent HV surgery is lower than that of the general population. Another study showed QOL scores of patients with HV is lower regardless of the gender.⁸

Many studies have investigated QOL of the patients diagnosed with HV.⁹⁻¹¹ Health-related QOL

was found to be less than or equal to the general population, although these studies had a limited sample and/or assessment scale.^{9,10,12} Thordarson et al¹³ reported the QOL of patients who underwent surgery for HV, using the SF-36 questionnaire. The authors showed that mental health subscores such as VT, SF, EWB and GH were equal to or lower than the general population of the United States.

We compared the mean QOL scores of our patients to the mean scores of the healthy Turkish population, which was reported in 2006. In the preoperative period, all scores were lower than the healthy population except VT and GH. The surgery caused an improvement in all subdimensions in the 12th postoperative month evaluation. The improvement in PF and SF subdimensions was the main factor that helped the scores reach the average. However, the improvement in other areas did not cause the scores to reach the average except for VT and GH scores. Two studies have previously used the SF-36 questionnaire to compare to the general population.^{14,15} Saro et al¹⁵ have reported that only BP scores were lower than the general population in the preoperative period. Menz et al¹⁴ evaluated 2,831 symptomatic and asymptomatic patients and have reported all SF-36 subscores were lower in HV patients compared to the general population.

Our data show that overall QOL scores including GH, PWB, PF, EWB and BP were lower in the preoperative period compared to the postoperative period. This means that HV affects QOL of patients in a negative manner and psychological support is necessary in the follow-up period as the patients' physical and mental well-being is affected. Also, emotional subdimensions will be affected directly by better cosmetic results.

Environmental factors have not been taken into consideration in the previous studies. The effect of environmental and socioeconomic factors on QOL cannot be denied. Therefore, we minimalized the

confounding effect of sociocultural and economic factors by taking high school graduates and employed patients into the study.

We aimed to determine the impact of surgery and the influencing factors on the quality of life by using an overall QOL scale. GH, PWB, PF, EWB and BP subscores in patients with HV were found to be significantly lower than the postoperative period. Age, duration of symptoms, marital status, and smoking were also compared between the pre- and postoperative periods using correlation analysis. This analysis revealed that an increase in QOL was associated with age and the duration of the symptoms.

Our study has several limitations. In this study, our aim was to show the effects of HV surgery on QOL. All the participants were symptomatic and admitted to the orthopedic clinic for treatment. The most important limitations are the small sample size and the low number of male patients. We also did not evaluate the effect of different habits on the physical activity of the patients.

Conclusions

Our results emphasize the importance of choosing the best method of treatment in a timely manner and the necessity of psychological support throughout the follow-up. Additionally, further studies are needed to fully determine the effects of HV on a patient's QOL.

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