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Original Article

Comparison of the Functional and Esthetic Outcomes of Free Parascapular and Anterolateral Thigh Flaps for Ankle Reconstruction

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Keywords: Ankle reconstruction; free anterolateral thigh flap; free parascapular flap; lower extremity functional scale; Vancouver scar scale.

ABSTRACT

Objective: Microvascular tissue transfer, which is one of the last steps of the reconstruction ladder is often the preferred method in lower extremity distal 1/3 defects since the soft-tissue reserve is limited and the musculoskeletal system and neurovascular structures that are effective in ensuring the functional continuity of this region are superficial. There are no studies in the literature comparing the functional results of the free parascapular flap and the anterolateral thigh (ALT) flap in ankle reconstruction; therefore, we aimed to evaluate the functional results of these two different free flaps in the reconstruction of the ankle.

Methods: A retrospective study was undertaken of all patients who presented with soft-tissue ankle defects treated with either ALT or parascapular flap between October 2010 and January 2022. Patients demographic data, lower-extremity functional scale, satisfaction survey score, and Vancouver scar scale were recorded for both groups. The cross tables and Chi-square statistics were used to check the relationships; independent t-tests were used for comparisons between the two groups; and one-way ANOVA statistics were used for multigroup comparisons.

Results: In this study, 62 patients received free ALT flaps, and 58 patients underwent parascapular flap reconstruction. The function of the ankle was reported to be significantly better in patients who had a parascapular flap. Furthermore, when flap thicknesses were compared, it was found that the parascapular flap was significantly thinner than the ALT flap. The relationship between the donor artery and vein diameter and flap complications was statistically significant; there were significantly fewer complications in flaps with a vessel diameter over 3.2 mm.

Conclusion: The surgeon's experience, donor site morbidity, and the esthetic results of the flap often come to the fore in the selection of flaps in microsurgery. Although the ALT flap has become popular in recent years, the free parascapular flap can be preferred over the ALT flap because it provides better functional results and more advantages for ankle soft-tissue reconstruction.

INTRODUCTION

Lower-extremity injuries pose a significant challenge to reconstructive surgeons because these injuries are often traumas that severely damage soft tissue and bone. Microvascular tissue transfer, which is one of the last steps of the reconstruction ladder, is often the preferred method in lower extremity distal 1/3 defects since the soft-tissue reserve is limited and the musculoskeletal system and neurovascular structures that are effective in ensuring the functional continuity of this region are superficial. Thus, in extremity injuries with low salvage potential, the use of free flaps reduces the frequency of amputation and allows the extremities to be protected. Following the basic principles of microsurgery, more than 100 potential donor sites for free flaps that can be used for reconstruction have been described in the literature.[1] The anterolateral thigh (ALT) flap, which was defined by Song et al. in 1984, has grown in popularity over the past 40 years and has become a workhorse flap for lower extremity soft tissue reconstruction.[2] The ALT flap is based on the septocutaneous (13%) or musculocutaneous (87%) branches of the descending

branch of the lateral circumflex femoral artery.[3] However, because of the variation in the course of perforators and the need for intramuscular chasing of perforators, flap elevation can be complicated. The potential for use of the subscapular system in free tissue transfer was identified via basic anatomical research, originating with Saijo's dye injections into the circumflex scapular artery (CSA)[4] and Lucinda dos Santos's cadaver dissections.[5] The skin and subcutaneous tissue of the back may be harvested as a flap supplied by the cutaneous or superficial branches of the CSA. There are no studies in the literature comparing the functional results of the free PS (parascapular) flap and the ALT flap in ankle reconstruction; therefore, we aimed to evaluate the functional results of these two different free flaps in the reconstruction of the ankle, a complex anatomical region that carries body weight.

MATERIALS AND METHODS

A retrospective study was undertaken of all patients who presented with soft-tissue ankle defects treated with either an ALT flap or a PS flap between October 2010 and January 2022. The inclusion criteria were patients with a unilateral ankle injury with soft-tissue defects who had undergone a flap transfer with a follow-up of no <1 year. Deep fascia was included for all flaps to standardize the flap comparison; cases with thin or super-thin ALT flaps were excluded from the study. All procedures were performed in one institution by the same surgical team. All procedures were approved by the ethics committee of our hospital and were in accordance with the Helsinki Declaration (2023/514/254/40-July 19, 2023). All patients gave written permission for the use of their imaging and information in this research.

Surgical Procedure

All patients were debrided one or more times before applying the free flap for the distal 1/3 soft defect of the leg. An aggressive debridement approach was preferred, so devitalized tendon, soft tissue, and all periosteum were removed during debridement. Furthermore, all patients who needed it were admitted to the orthopedic clinic, where fracture stabilization was completed before soft-tissue reconstruction using the appropriate fracture fixation method. Starting 3 days before free flap application, both oral and intravenous hydration were given to the patients to ensure that they received approximately 2000–3000 cc of fluid per day. Lower extremity computed tomography angiography was performed preoperatively for all patients, and vascular problems were evaluated.

Free ALT Flap

The arterial inflow of the ALT flap is supplied by the descending branch of the lateral femoral circumflex artery. The lateral femoral circumflex has ascending and descending branches; the former supplies the blood flow of the tensor fascia lata muscle, and the latter supplies the perforators to the ALT flap. This descending branch trav-

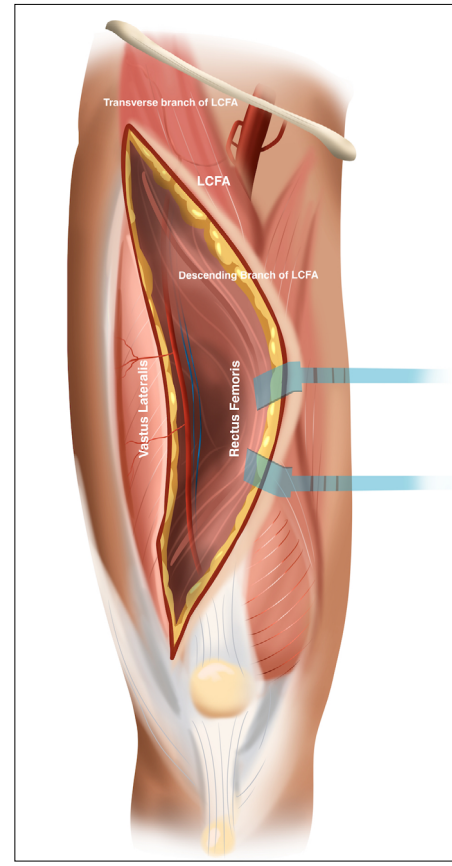

Figure 1. Medical illustration of LCFA ve LCFV. Perforators can be seen after the medial incision of the ALT flap.

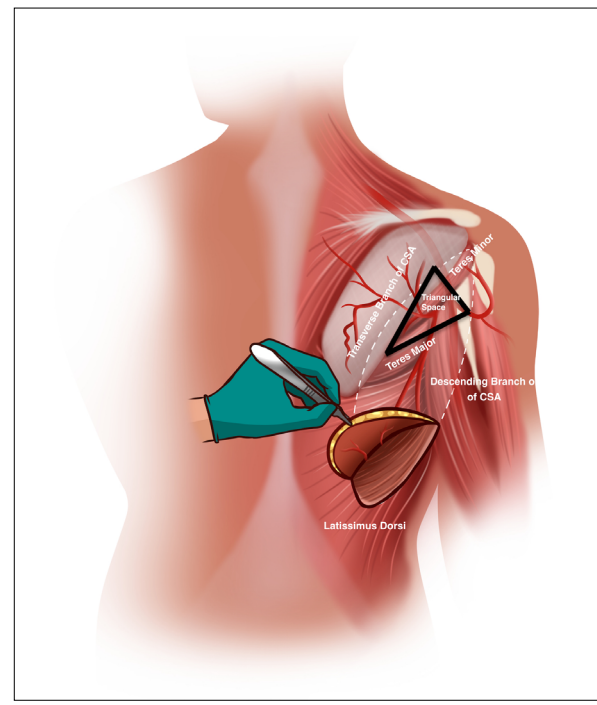

Figure 2. Medical illustration of parascapular flap elevation.

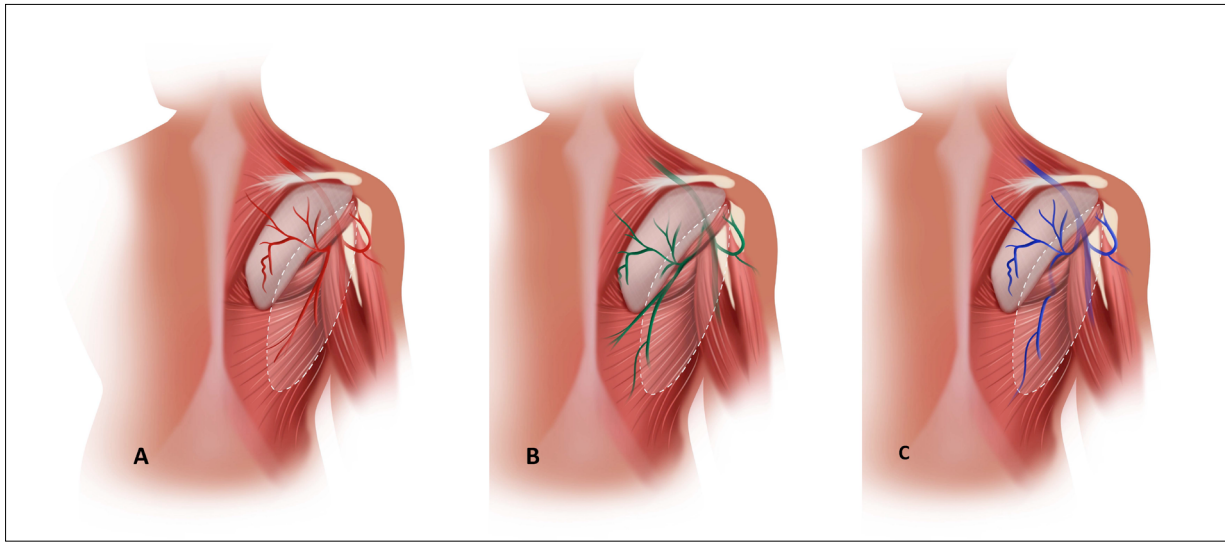

Figure 3. (a) It is the most common form of vascular supply. Within or just outside the traingular fossa, the CSA emerges close to the long head of triceps and bifurcates into transverse and descending (PS) branches. **(b)** It is the second common form of vascular supply. A more medial location, lower on the scapular border, was seen in children and older patients (less muscular individuals) **(c)** In <10% of patients, the descending branch sources from beneath the teres major muscle.

els deep between the rectus femoris and vastus lateralis muscles, often deep in the septal plane, and on occasion enters the substance of the vastus lateralis muscle as it travels distally. The septal plane can be used to identify the artery and flap perforator blood supply. In most cases, the descending branch distributes musculocutaneous perforators to the flap. The flap is outlined on the axis of the anterior superior iliac spine and the lateral patella. After the midpoint of this drawn line is determined, possible perforators within 3 cm of this area are marked with a hand Doppler (Figure 1). The preferred method for securing flap circulation is elevating the flap over two perforators. All operations were performed with the patient in a supine position. In all cases, the donor area was closed primarily with a split-thickness skin graft (STSG).

Free PS Flap

The CSA is the branch of the subscapular artery that originates in the third segment of the axillary artery. After the CSA pierces the triangular space, it sprouts as a transverse (scapular) branch and a descending (parascapular) branch. The circumflex scapular vessels are located lateral to the scapula as it exits the triangular space, two-fifths of the way along a line drawn from the midpoint of the spine of the scapula to the scapula tip (Figures 2 and 3). The planning and drawing were done before surgery with the patients standing. The PS flap on the contralateral side of the ankle was elevated. The operation was performed with the patient in the lateral decubitus position. After positioning the CSA in the triangular space by hand Doppler, the flap was elevated from its lateral border in the subfascial plane. After the teres major muscle was exposed, the triangular fossa was reached, and the pedicle was followed up to the source. Then, the flap was harvested, and primary closure, or STSG, was performed in all donor areas.

Evaluation of Outcomes

Patient characteristics of age, gender, etiology, defect size, defect location, hospitalization time, need for positioning, need for reanastomosis after flap inset, diameter of recipient artery and vein, diameter of donor artery and vein, thickness of flap, closure of donor site, complication of donor site and flap, lower extremity functional scale (LEFS) score, satisfaction survey score, and Vancouver

Vascularity	Score
Normal	0
Pink	1
Red	2
Purple	3
Pigmantation	
Normal	0
Hypopigmentation	1
Hyperpigmentation	2
Pliability	
Normal	0
Supple	1
Yielding	2
Firm	3
Ropes	4
Contracture	5
Height (mm)	
Flat	0
<2	1
2-5	2
>5	3
Total score	

Figure 4. Vancouver scar scale.

Activites	Extreme Difficulty or Unable to Perform Activity	Quite a Bit of Difficulty	Moderate Difficulty	A Little Bit of Difficulty	No Difficulty
Any of your usual work, housework or school activites	0	1	2	3	4
Your usual hobbies, recreational or sporting activities	0	1	2	3	4
Getting into or out of the bath	0	1	2	3	4
Walking between rooms	0	1	2	3	4
Putting on your shoes or socks	0	1	2	3	4
Squatting	0	1	2	3	4
Lifting an object, like a bag of groceries from floor	0	1	2	3	4
Performing light activities around your home	0	1	2	3	4
Performing heaving activities around your home	0	1	2	3	4
Getting into or out of a car	0	1	2	3	4
Walking 2 blocks	0	1	2	3	4
Walking a mile	0	1	2	3	4
Going up or down 10 stairs	0	1	2	3	4
Standing for 1 hour	0	1	2	3	4
Sitting for 1 hour	0	1	2	3	4
Running on even ground	0	1	2	3	4

Figure 5. Lower extremity functional scale.

scar scale (VSS) score were recorded for both groups. The VSS, LEFS, and satisfaction survey are given in Figures 4-6. The ankle is divided into four regions, classified as anterior, posterior, medial malleolus, and lateral malleolus. The patients were operated on in the prone or lateral decubitus position, depending on the direction of the defect to be reconstructed. The deep fascia is included in both the ALT and PS flaps. Complications of the donor area were classified as detachment, delayed wound healing, infection, hematoma, seroma, and sensory changes. Flap complications were classified as partial and total flap necrosis, infection, hematoma, seroma, epidermolysis, and flap debulking needs. The need for reanastomosis was defined as the restoration of vascular patency due to venous or arterial insufficiency in the first 48 h after anastomosis.

Statistical Analysis

Data analysis was performed using SPSS 20.0. Mean±standard deviation values were used according to the distribution of the data for the quantitative variables as descriptive statistics. After checking the normality of the data, cross tables and chi-square statistics were used to check the relationships; independent t-tests were used for comparisons between the two groups; and one-way ANOVA statistics were used for multigroup comparisons. A $p \leq 0.05$ was considered significant for all tests.

RESULTS

In this study, 62 patients received free ALT flaps, and 58 patients underwent PS flap reconstruction. The mean age of the PS flap patients was 44.3 (25–68), and 86% (n=50) were male; the mean age of the ALT flap patients was 41.3 (16–68), and 91% (n=57) were male. Analyzing the etiology of the ankle defects revealed that the most common cause was dropping a heavy object on the ankle or falling from a height. In terms of defect localization, the data showed that the PS and ALT flaps were most frequently

Considering your experience with free flap surgery, would you like to have this surgery again?	No	0
	Neither no nor yes	1
	Yes	2
Can anything else be done to improve the free flap outcome?	No	0
	Neither no nor yes	1
	Yes	2
Are you aesthetically satisfied with the result of free flap surgery?	Very dissatisfied	0
	Dissatisfied	1
	Neither satisfied nor dissatisfied	2
	Satisfied	3
	Very satisfied	4
Are you satisfied with the result of the free flap surgery in terms of your ankle function?	Very dissatisfied	0
	Dissatisfied	1
	Neither satisfied nor dissatisfied	2
	Satisfied	3
	Very satisfied	4
Are you satisfied with the symmetry of your ankle with a free flap compared to your other ankle?	Very dissatisfied	0
	Dissatisfied	1
	Neither satisfied nor dissatisfied	2
	Satisfied	3
	Very satisfied	4
Are you satisfied with the appearance of your ankles when naked?	Very dissatisfied	0
	Dissatisfied	1
	Neither satisfied nor dissatisfied	2
	Satisfied	3
	Very satisfied	4
Are you satisfied with the appearance of your ankles when clothed?	Very dissatisfied	0
	Dissatisfied	1
	Neither satisfied nor dissatisfied	2
	Satisfied	3
	Very satisfied	4
Total score		

Figure 6. Satisfaction questionnare prepared specifically for the study.

Table 1. Comparison of ALT ve PS flap by t-test

	Flap type	n	Mean	SD	t	p-value
Age	PS	58	44.345	10.233	1.601	0.112
	ALT	62	41.339	10.321		
Donor artery diameter (mm)	PS	58	3.603	0.252	16.440	0.000*
	ALT	62	2.700	0.340		
Donor vein diameter (mm)	PS	58	3.700	0.225	10.595	0.000*
	ALT	62	3.100	0.372		
LEFS Score	PS	58	59.586	10.361	4.205	0.000*
	ALT	62	51.145	11.543		
Satisfaction Questionnaire Score	PS	58	14.655	4.654	1.815	0.072
	ALT	62	12.871	5.979		
Vancouver Scar Score	PS	58	4.345	1.772	−0.073	0.942
	ALT	62	4.371	2.113		
Flap Thickness	PS	58	13.080	1.261	−17.050	0.000*
	ALT	62	19.270	2.480		

*$p<0.05$.

applied to the anterior ankle, and no patients required positioning while harvesting the flap. Reanastomosis was required within the first 48 h for three PS flap patients and seven ALT flap patients. For the seven ALT patients who needed reanastomosis, it was due to arterial insufficiency in two and venous insufficiency in five. For the three PS patients in the same circumstance, one had arterial insufficiency and two had venous insufficiency. The mean diameters of the CSA and the accompanying vein, which form the pedicle of the PS flap, were 3.6 (2.9–4) mm and 3.7 (3.1–4.1) mm, respectively. The mean diameters of the LSF artery and vein, which form the pedicle of the ALT flap, were 2.7 (2.3–3.5) mm and 3.1 (2.4–3.9) mm, respectively. The mean PS flap thickness was 13.0 mm, and the mean ALT flap thickness was 19.2 mm. While a partial-thickness skin graft was preferred for closure of the donor area of the PS flap in only eight cases (13%), a partial-thickness skin graft was used in the donor area for 33 of the ALT flap cases (53%). While the most common donor area complication for the PS flap was wound detachment, the most common complication observed in the donor area of the ALT flap was sensory change (hypo/hyperalgesia). Detachment was the most common flap complication in patients who underwent PS, while total or partial flap loss was most commonly observed in patients who underwent ALT flap. The mean LEFS score, used to evaluate the functional change of the ankle, was 59.5 (46–78) for the PS flap and 51.1 (27–76) for the ALT flap. The mean satisfaction score, obtained from our customized survey, was 14.6 (6–20) for patients who received a PS flap and 12.8 (5–26) for those who had an ALT flap. Finally, VSS was calculated for the flap scars 1 year after surgery; the mean was 4.3 for both the PS and ALT flaps. According to the statistical analysis, the mean age, satisfaction survey score, and VSS score of the patients showed no statistically significant difference ($p>0.05$), and the LEFS scores of the patients were significantly different between the groups ($t=4.205$, $p<0.05$). In other words, the function of the ankle was reported to be significantly better in patients who had a PS flap. Also, when flap thicknesses were compared, it was found that the PS flap was significantly thinner than the ALT flap ($t=-17.050$, $p<0.05$). When the mean donor artery and vein diameters were compared, the mean diameters of the donor artery and vein were significantly larger for the PS flap procedure ($p<0.05$) (Table 1). No statistically significant difference was observed between the groups in the cross-table comparing the flaps applied in terms of defect direction ($p>0.05$). When the relationship between mean LEFS score and defect direction was examined, it was found to be statistically insignificant for both flap groups ($p<0.05$) (Tables 2 and 3). However, the relationship between the donor artery and vein diameter and flap complications was found to be statistically significant; there were significantly fewer complications in flaps with a vessel diameter over 3.2 mm ($p<0.05$).

DISCUSSION

Lower-extremity soft-tissue injuries caused by high-energy impacts are often prone to complications and are difficult to manage.[6] With the development of plastic surgery, the reconstructive ladder was defined, and a continuum of approved surgical procedures was created from the simplest to the most complex (primary closure-free flap).[7] Accordingly, free tissue transfer is indicated for covering tissue defects that contain large, complex surface areas and that cannot be covered with the use of local or pedicle flaps.[8] The traditional rule of thirds recommends the pedicled gastrocnemius for proximal third leg defects, the soleus for middle third defects, and free flaps for distal third defects.[9] The success of free flaps continues to increase with improved microsurgical techniques, but free flaps require technically demanding, costly, and time-consuming operations, and they have significant complication rates,

Table 2. Anova table of LEFS score and defect site (ALT)

	n	Mean	SD	F	p-value
right cruris anterior	19	53.368	10.812	1.096	0.379
right cruris posterior	3	53.333	13.650		
right lateral malleol	4	56.500	11.733		
right medial malleol	7	46.429	8.121		
left cruris anterior	15	52.333	12.860		
left cruris posterior	4	43.250	6.448		
left lateral malleol	3	40.333	5.507		
left medial malleol	7	52.429	14.886		
Total	62	51.145	11.543		

Table 3. Anova table of LEFS score and defect site (PS)

	n	Mean	SD	F	p-value
Right cruris anterior	18	56.389	9.8407	1.697	0.131
Right cruris posterior	3	54.000	10.5830		
Right lateral malleol	3	63.000	15.7162		
Right medial malleol	6	59.833	8.9759		
Left cruris anterior	14	58.643	9.9970		
Left cruris posterior	3	66.000	14.1774		
Left lateral malleol	3	75.000	1.7321		
Left medial malleol	8	60.875	8.2017		
Total	58	59.586	10.3619		

donor-site morbidity, failure rates, and risk at anastomosis.[10] The flap options for the ankle are limited because the ankle requires the use of a thin, pliable contour for resurfacing. In 1986, Godina conducted a study on the timing of the use of free flaps in lower extremity reconstruction, and three-time periods were defined for the use of free flaps: early (in the first 72 h), delayed (72 h to 3 months), and late (after 3 months).[11] Godina suggested that free flaps applied in the early period are less successful, but more recent studies have shown that flap success may be higher in the early period compared to the late period.[11] There is no clear consensus on this issue, and the most important factor affecting the success of the free flap for the reconstructive surgeon is to work closely with other disciplines. In this study, the mean time between the patient's injury and the application of the free flap was 22.7 (5–49) days, and the relationship between delayed free tissue transfer and the success of the reconstruction was not statistically significant. Three different vessels (the tibialis anterior, tibialis posterior, and peroneal arteries) can be used as recipient arteries for free tissue transfer in ankle reconstruction. In this study, the peroneal artery was not preferred as a recipient vessel in any of the cases. However, the tibialis posterior was preferred most frequently for the PS flap procedure, and the tibialis posterior was preferred most frequently for the ALT flap procedure. The important factors in choosing a vessel are the patency of the donor vessel or whether the pedicle runs a long distance until reaching the anastomosis. Stranix et al. suggested that double venous anastomosis increases the success of free flaps in lower extremity free tissue transfer.[12] While a double vein accompanying the artery was detected in all cases with the ALT flap, a single vein accompanying the artery was detected in approximately 81% (n=47) of cases with the PS flap. Two PS flap patients could not be included in the study because the absence of a vein of appropriate calibration accompanying the artery in the flap was observed after the flap was elevated. In these cases, the PS flap was repositioned in its original location, and the ALT was harvested. While double anastomosis was performed for all ALT flaps in this study, single vein anastomosis was performed for PS flap cases with a single vein in the flap and no venous insufficiency. Many factors play a role in the selection of a free flap to be applied to the lower extremities. One of these factors in opting for a free flap is whether the tissue to be reconstructed needs sensory innervation.[13] The PS flap has no single nerve that innervates the flap, so it is not used as a sensitized flap.[14] In contrast, the ALT flap, with its neurovascular pedicle, can be used as a sensitized flap thanks to the lateral femoral cutaneous nerve coming from the dorsal division of the lumbar nerves.[15] In terms of its anatomical structure, the ankle lacks muscle tissue, its neurovascular structures are superficial, the soft-tissue covering its skeletal structure is thin, and unlike the heel or plantar region, its sensory innervation is not prioritized. Therefore, although the PS

flap cannot be given sensation in ankle reconstruction, it can be used and is not disadvantageous for the soft tissue reconstruction of the ankle. The soft tissue of the ankle is 1.5–2.0 cm thick on average,[16] and the use of very thick flaps for the reconstruction of this region poses a problem for the ankle function of the patient. Since the ALT flap may form bulky tissue in patients with excess subcutaneous adipose tissue, the use of thin and super-thin modifications has been reported to have successful results.[17] However, thinning the flap carries the risk of damage to the vascular network in the subdermal area and requires greater surgical experience. The PS flap was significantly thinner than the ALT flap, which makes the PS flap more advantageous, especially in ankle reconstruction requiring thin, soft tissue. Free flap transfer can be challenging because of discrepancies in vascular diameter during microsurgery. The literature describes numerous techniques to overcome vascular diameter discrepancies, such as expanding the vessel with forceps and making oblique cuts to the vessel to increase the surface area for small discrepancies. For large-diameter discrepancies, end-to-side anastomosis, vascular grafts, variably shaped vessel cuts, and vessel invagination can be used.[18] In the 2018 study conducted by Lorbeer et al. to measure the diameters of the lower extremity vessels, the diameters of the tibialis anterior and tibialis posterior arteries were found to be 3–4 mm on average.[19] In our study, the mean diameter of the ALT donor artery was 2.7 mm and that of the PS donor artery was 3.6 mm, which is a statistically significant difference. There were no anastomosis problems due to diameter incompatibility in any of the PS flap cases, but there were 16 ALT flap cases where the artery was cut obliquely or followed proximal to the source to increase the vessel diameter and prevent a diameter mismatch. Accordingly, we evaluated the relationship between the diameter of the recipient artery and flap complications. A recipient artery with a diameter less than 3.2 mm is statistically correlated with flap complications. This situation has been associated with flaps becoming prone to ischemia and anastomotic failure as it creates donor and recipient artery mismatches. In a study conducted on patient satisfaction and scar scores for the donor area of the PS and ALT flap procedures,[20] the PS flap had the lowest donor area morbidity and the highest patient satisfaction. However, in the present study, donor area satisfaction and VSS scores were compared and showed no statistically significant difference between the two groups. This can be explained by the fact that both inquiries were made in the first postoperative year, and both flaps had similar late results. It has been stated that the biggest disadvantage of the PS flap is that the patient should be positioned.[21] However, positioning of the patient was not required in any of the cases in this study because the PS flap contralateral to the defect was elevated, and the entire operation was completed in the lateral decubitus position. The alleged short pedicle, especially compared with the ALT flap, is relativized by the skin island, which can be extended cranially, covering the whole pedicle, and the enormous length to which the flap can safely be harvested. Almost every distance can thereby be bridged, and soft-tissue tension over the pedicle is reduced. In addition, unlike that of the ALT flap, the pedicle of the PS flap does not require intramuscular follow-up, resulting in a faster harvest and inset. As a condition-specific, valid patient-rated outcome measure, LEFS has a great capacity to detect changes in lower-extremity function, so it is a good choice for evaluating function throughout treatment and recovery.[22,23] In this study, LEFS scores were compared for ankle reconstruction with two different free flaps, and the results were found to favor the PS flap. The diameter mismatch for the anastomosis, the frequency of complications, and the formation of bulky tissue are all factors that explain the lower (worse function) LEFS score for the ALT flap. However, one limitation of this study is that LEFS data cannot be generalized to the general population. This is because LEFS provides patient-based evaluation of low-intensity physical activities, and the scoring system is insufficient for individuals who do professional sports. LIMB-Q, a recently developed tool, gives more generalizable results due to its verified content. The surgeon's experience, donor site morbidity, and aesthetic results of the flap often come to the fore in the selection of flaps in microsurgery. Another important variable that determines surgical success after free flap application is the functional improvement of the reconstructed anatomical region. Although the ALT flap has become popular in recent years, the free PS flap can be preferred over the ALT flap because it provides better functional results and more advantages for ankle soft tissue reconstruction.

Ethics Committee Approval

This study approved by the Kartal Dr. Lütfi Kırdar City Hospital Clinical Research Ethics Committee (Date: 19.07.2023, Decision No: 2023/514/254/40).

Informed Consent

Retrospective study.

Peer-review

Externally peer-reviewed.

Authorship Contributions

Concept: Ç.Ç.; Design: Ç.Ç.; Supervision: Ç.Ç.; Fundings: Ç.Ç.; Materials: Ç.Ç.; Data: Ç.Ç.; Analysis: Ç.Ç.; Literature search: Ç.Ç.; Writing: Ç.Ç.; Critical revision: Ç.Ç.

Conflict of Interest

None declared.

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Ayak Bileği Rekonstrüksiyonunda Serbest Paraskapular ve Anterolateral Uyluk Fleplerinin Fonksiyonel ve Estetik Sonuçlarının Karşılaştırılması

Amaç: Alt ekstremite distal 1/3 defektlerinde, rekonstrüksiyon merdiveninin son adımlarından biri olan mikrovasküler doku transferi, yumuşak doku rezervinin sınırlı olması sıklıkla tercih edilen bir yöntemdir. Literatürde ayak bileği rekonstrüksiyonunda serbest paraskapuler flep ile anterolateral uyluk flebinin fonksiyonel sonuçlarını karşılaştıran çalışma yoktur; bu nedenle bu çalışmada iki farklı serbest flebin ayak bileği rekonstrüksiyonundaki fonksiyonel sonuçlarının değerlendirilmesi amaçlandı.

Gereç ve Yöntem: Ekim 2010 ile Ocak 2022 arasında serbest anterolateral uyluk flebi veya paraskapular flep ile tedavi edilen ayak bileği yumuşak doku defekti ile başvuran hastalar retrospektif değerlendirildi. Hastaların demografik verileri, alt ekstremite fonksiyonel skala skoru, memnuniyet anket skoru ve Vancouver yara izi skorları her iki grup için kaydedildi. İlişkileri kontrol etmek için çapraz tablolar ve ki-kare istatistikleri, iki grup arasındaki karşılaştırmalar için bağımsız t-testleri ve çoklu grup karşılaştırmaları için tek yönlü ANOVA istatistikleri kullanıldı.

Bulgular: Serbest paraskapular flep uygulanan hastalarda ayak bileği fonksiyonunun istatistiksel olarak daha iyi olduğu anlaşıldı. Ayrıca flep kalınlıkları karşılaştırıldığında paraskapuler flebin anterolateral uyluk flebine göre anlamlı olarak daha ince olduğu görüldü. Donör arter ve ven çapı ile flep komplikasyonu arasındaki ilişki istatistiksel olarak değerlendirildi; damar çapı 3,2 mm'nin üzerinde olan fleplerde anlamlı olarak daha az komplikasyon görüldüğü anlaşıldı.

Sonuç: Mikrocerrahide flep seçiminde cerrahın tecrübesi, verici alan morbiditesi ve flebin estetik sonuçları sıklıkla ön plana çıkmaktadır. ALT flebi son yıllarda popüler olmasına rağmen, daha iyi fonksiyonel sonuçlar ve ayak bileği yumuşak doku rekonstrüksiyonunda daha fazla avantaj sağladığı için serbest paraskapuler flep anterolateral uyluk flebine tercih edilebilir.

Anahtar Sözcükler: Alt ekstremite fonksiyonel skalası; ayak bileği rekonstrüksiyonu; serbest anterolateral uyluk flebi; serbest paraskapular flep; vancouver yara izi skalası.