

초고령 암환자에서 미세수술적 유리피판: 결과 및 환자, 보호자 인터뷰

성균관대학교 삼성서울병원 성형외과학교실

고주영 · 문구현

— Abstract —

Microsurgical Free-tissue Transfer in Super-Elderly Patients with Cancer: Outcomes and an Interview Study of Patients and Their Caregivers

Ju Young Go, M.D., Goo-Hyun Mun, M.D.

Department of Plastic Surgery, Samsung Medical Center, Sungkyunkwan University School of Medicine, Seoul, Korea

Background: Increasing numbers of super-elderly patients (>80 years old) with cancer now require microvascular-free tissue transfer. The objectives of this study were to evaluate potential applications of microvascular tissue transfer in this patient population, and post-surgical changes in quality of life.

Methods: The records of cancer patients 80 years or older who had undergone microsurgical tissue transfer were retrospectively reviewed. Structured interviews were conducted with patients and family caregivers after surgery, and the patients' quality of life was qualitatively assessed.

Results: The study cohort consisted of seven patients with a mean age 87.6 years (range, 81 to 95). Wound and medically-related complications were minimal. During the patient interviews, eight of the nine respondents reported remarkable improvements in quality of life following surgery and expressed a high level of satisfaction with their surgical results.

Conclusions: Our study showed that microsurgical reconstruction performed in super-elderly patient not only appropriately repairs post-oncologic defects but also significantly improves the patients' quality of life.

Key Words: Super-elderly, Free flap, Satisfaction, Quality of life

INTRODUCTION

Life expectancy has steadily increased over past decades, and as a result, microsurgical tissue

transfer reconstruction is now required to treat an increasing number of elderly cancer patients^{1,2}. Although substantial advances have been made in microsurgery and perioperative care^{3,4}, free-

※통신저자: 문 구 현

서울특별시 강남구 일원동 50

성균관대학교 삼성서울병원 성형외과학교실

Tel: 02-3410-2233, Fax: 02-3410-0036, E-mail: supramicro@gmail.com

tissue transfer in the elderly necessitates careful consideration because microvascular free-tissue transfers involves a special technique and a relatively long operative time⁵. In addition, some elderly patients at least 80 years old, who are also referred to as the “super-elderly”^{6,7} and their families are frequently denied standard surgical management⁸ because these individuals are generally considered to be high-risk⁹⁻¹¹ and because it is believed that surgery will not increase the life span or improve quality of life.

Although there have been several studies that objectively evaluated acceptable flap loss and surgical complication rates in elderly patients¹²⁻¹⁸, studies on microsurgery in the elderly vary widely in terms of their definitions of elderly patients^{12,16,17}. Some studies define an elderly individual as one who is 50 years old¹⁸, while other state that individuals over 60¹⁹, 65^{17,20}, 70^{15,21,22}, or 80 years of age are “elderly”¹³. Furthermore, there has been little attempt to assess the subjective outcomes of these patients. Recently, quality of life issues have become a primary consideration in clinical practice and research²³⁻²⁵. Accordingly, clinical variables, such as mortality and morbidity, are now considered to be of limited value assessing plastic surgery outcomes²³. Furthermore, because cancer in super-elderly patients is associated with a limited life expectancy, the ability to function and the quality of life become profoundly important considerations.

This study was undertaken to evaluate potential applications of microvascular tissue transfer in super-elderly cancer patients and changes in the quality of life observed after surgery. We reviewed cases of free-tissue transfers performed in super-elderly patients and conducted structured interviews with patients and their caregivers.

PATIENTS AND METHODS

The medical records of seven cancer patients

≥ 80 years old who had undergone microvascular free-tissue transfer between 2002 and 2009 were retrospectively assessed. All surgeries were performed by the same plastic surgeon (G. M.). Preoperative medical characteristics were assessed using the American Society of Anesthesiologists (ASA) Classification of Physical Status. The ASA physical status scale is a 5-point preoperative grading system that evaluates general patient health and severity of underlying disease (Table 1). Patients’ ages, gender, preoperative medical data, type of transferred tissue, length of operation, postoperative parameters such as flap fates, and short-term postoperative outcomes including surgical complications, medical morbidities, and days of hospitalization were documented and reviewed.

After obtaining institutional review board approval, we identified a primary family caregiver for each patient who could participate in this study. Patients and family caregivers were asked to complete a questionnaire during a face-to-face interview or over the telephone. The key items of the interviews are presented in Fig. 1. The questionnaire included questions about pain, health status, quality of life, and caregivers’ burden based on a comparison of pre- and postoperative states, and documented satisfaction with reconstruction. In addition, patient and caregivers were individually asked whether they believed the surgical goals had been achieved and whether they would retrospectively chose microsurgical free-flap reconstruction

Table 1. American society of anesthesiologists preoperative physical status classification

Status	Description
Class 1	Healthy patient, no medical problems
Class 2	Mild systemic disease
Class 3	Severe systemic disease, but not incapacitating
Class 4	Severe systemic disease that is a constant threat to life
Class 5	Moribund, not expected to live 24 h irrespective of operation

Patient Interview Guide	
1. How severe is your pain? (0 indicates no pain and 10 indicates the most severe pain you can imagine.)	
a. Preoperative (), b. Postoperative ()	
2. Overall, how would you describe your current overall health compared to your health before surgery?	
3. How would you describe your current quality of life compared to that before your surgery?	
4. Do you feel that the goals of the surgery were met?	
5. Have there been any unanticipated outcomes or problems after surgery?	
6. How has the surgery affected your life?	
7. Do you feel that you are overall pleased with your decision to pursue surgery? Would you do it again?	
In hindsight, do you have any feelings regarding the decision to undergo surgery?	
8. Overall, what particular factors had improved after surgery?	
Family Caregiver Interview Guide	
Indicate how accurate these statement are for you as a caregiver using a scale of 0 to 4 with 0= never and 4= nearly always.	
1. My relative depends on me to help complete his or her daily tasks.	a. Preoperative (), b. Postoperative ()
2. I felt burdened by caring for my relative.	a. Preoperative (), b. Postoperative ()
3. How would you describe your family member's condition compared before surgery?	
4. Overall, how would you say he or she is currently doing compared to before his or her surgery?	
5. Do you feel that the goals of the planned surgery were met?	
6. Have there been any unanticipated outcomes or problems after surgery?	
7. How has the patient's surgery affected your life?	
8. Do you feel your family member has been pleased overall with his or her decision to undergo surgery?	
Would he or she do it again? In hindsight, do you have any feelings regarding the patient's decision to undergo surgery?	
9. Overall, what particular factors had improved after surgery?	

Fig. 1. Interview guide

surgery. Finally, all participants were asked to state what factors had improved after surgery.

All interviews were conducted by a research nurse (A. K.) with extensive experience in qualitative measurement techniques and pre- and postoperative care. Interviews were tape recorded and transcribed verbatim, resulting in a total of 12 single-spaced transcript pages.

RESULTS

Between 2002 and 2009, seven patients 80 years old or older with cancer underwent reconstruction surgery by microsurgical tissue transfer at our clinic. Five patients were male and two were female; the mean age of the patients was 87.6 years (range, 81 to 95). The data of seven

Table 2. Data for seven patients who underwent the surgical procedure

Patient	Gender/Age (years)	Pathologic diagnosis	Free flap	ASA class	Operation time	Medical complication	Surgical complication	Hospitalization period (days)	Alive/death (age) Cause of death	Survival period (months)
1	M/95	Malignant melanoma, forefoot	Parascapular	2 (HTN)	4 hr 50 min	-	-	17	Death (98) Pneumonia	26
2	F/93	Squamous cell carcinoma, Rt. cheek	Anterolateral thigh	1	6 hr 30 min	-	-	14	Death (95) Advanced age	15
3	M/89	Invasive squamous cell carcinoma, scalp	Latissimus dorsi & Thoracodorsal artery perforator	2(HTN)	8 hr 40 min	-	Back seroma	18	Death (90) Advanced age	12
4	M/87	Malignant melanoma, cheek	Latissimus dorsi	2(HTN, COPD)	4 hr 20 min	-	Back seroma	17	Alive (93)	44
5	M/85	Verrucous ca, ant. tibia	Thoracodorsal artery perforator	2(COPDII)	5 hr 30 min	-	-	15	Alive (88)	21
6	M/83	Malignant mixed tumor, parotid	Anterolateral thigh	2(HTN)	12 hr 50 min (including ENT joint op.)	-	-	15	Death (84) Cancer recurrence	11
7	F/81	Tongue cancer	Anterolateral thigh	2(Pul. HTN)	13 hr 20 min (including ENT joint op.)	Pul. Edema, atrial fibrillation	Flap margin necrosis	41	Alive (87)	22

patients are presented in (Table 2). One patient was categorized as Class 1 and the others were categorized as Class 2 based on the ASA classification status.

Three free flaps were used for lower extremity reconstruction and four were used for head and neck reconstruction. The average operative time was 8.0 hours (range, 4 hours and 50 minutes to 13 hours and 20 minutes). Only two complications were reported and both occurred in one female patient who underwent reconstruction for invasive tongue cancer using an anterolateral thigh flap. Although she suffered from pulmonary edema and atrial fibrillation, she completely recovered on postoperative day 5 and was discharged from the hospital on a semi-liquid diet. Surgical complications related to donor areas were a minor degree of seroma which occurred on the backs of two patients who underwent latissimus dorsi flap transfer, and disappeared 1 or 2 months postoperatively. In addition, one patient experienced minimal marginal flap necrosis that healed after revision. The average length of hospitalization was 19.6 days (range, 14 to 41 day).

We confirmed patient survival by reviewing hospital records and made telephone calls to determine patient satisfaction levels and changes in quality of life. However, four patients were found to have died. The other three were alive, and two responded in person. Including the primary family caregivers of the five patients who were unable to participate in the interview (four deaths and one invalid), all seven family caregivers completed the questionnaire. The mean survival period of the four patients that died was 15.8 months (range, 10 to 26), and the average age of these individuals was 91.8 years (range, 84 to 98). Three patients survived for 44 (93 years old), 21 months (88 years old) and 22 months (87 years old) after the operation.

The major characteristics examined by the analysis included overall health status of the patient, role of the family member caregiver,

and post-surgical outcomes. Changes of health status and quality of life after surgery were described as fair or good compared to a preoperative assessment of fair or bad by the two patients and the seven family caregivers. Furthermore, all respondents reported no pain or reduced pain and discomfort after surgery. Family caregivers responded to the questions regarding caregiver burden. Five caregiver respondents reported that the burden of responsibility had decreased after surgery and the other two reported that it had not changed, which indicates that patient's self-care and daily activities were not adversely affected by surgery. When respondents were asked whether they believed they would be willing to undergo microsurgical tissue transfer if presented the same situation with the benefit of hindsight, eight of the nine respondents answered "definitely yes" and the other answered "perhaps".

The two most common responses to the question that asked what had improved after surgery were less or no more wound dressing and improved appearance (Table 3). Generally, respondents expressed high satisfaction with the results of surgery, particularly regarding the curative cancer treatment and appearance of the reconstruction site.

Case 1. The patient was a 95-year-old male with malignant melanoma on the right foot plantar area who complained of pain and discharge from the lesion (Fig. 2). He underwent wide excision and immediate reconstruction using a parascapular free flap. This patient was able to walk without discomfort 2 months after surgery. He survived in a healthy state for 26

Table 3. Improvements after surgery

	Number
Cure of disease	4
Appearance	5
Needless of wound dressing	6
Function	3

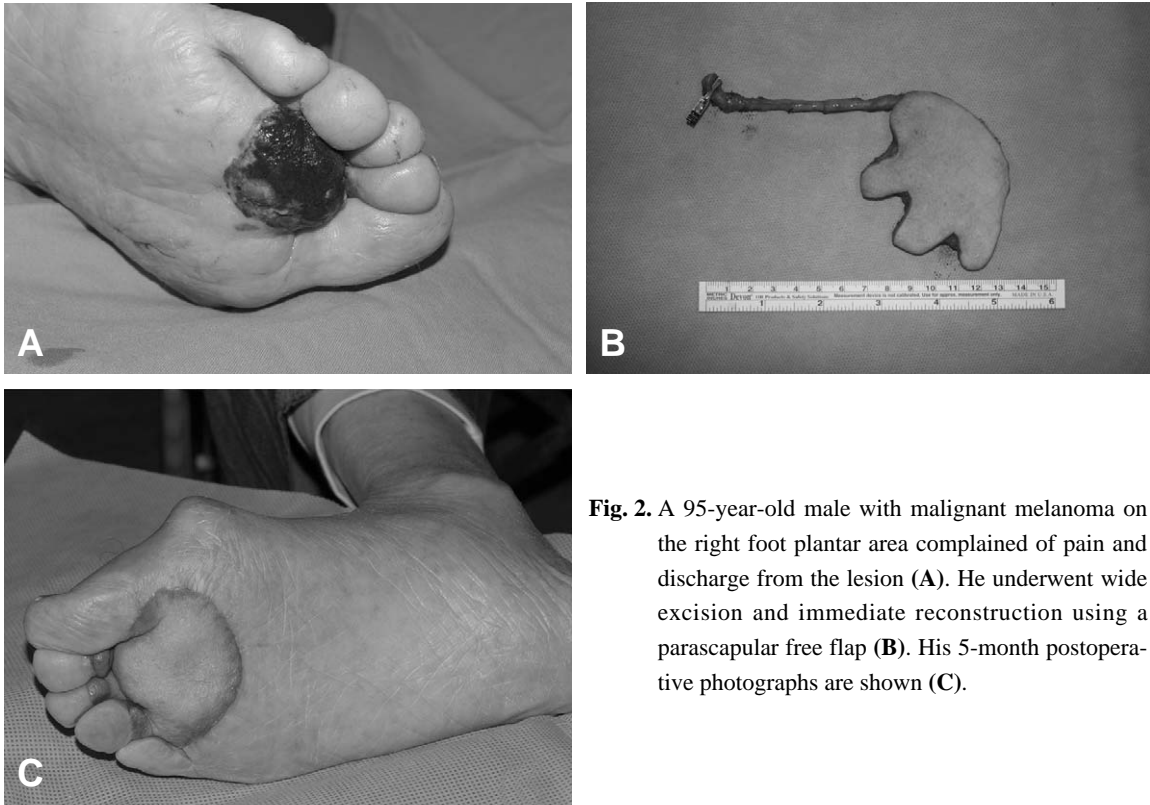


Fig. 2. A 95-year-old male with malignant melanoma on the right foot plantar area complained of pain and discharge from the lesion (A). He underwent wide excision and immediate reconstruction using a parascapular free flap (B). His 5-month postoperative photographs are shown (C).

months after surgery, but succumbed to pneumonia at the age of 98 years. His daughter-in-law was the primary caregiver and participated in the interview. She said that this patient had not been in serious pain but felt more comfortable after the surgery because there was no longer a need for dressing and treating the lesion. She also said that she was very satisfied with surgical results and didn't feel burdened from caring for the patient after surgery.

Case 2. The second patient was a 93-year-old female with painful squamous cell carcinoma on the right cheek with a foul-smelling discharge (Fig. 3). She and her family wanted rapid removal of the cancer and recovery. Therefore, wide excision and anterolateral thigh flap coverage was performed. Postoperatively, this patient remained healthy for 15 months before her sudden death. Her son was participated in the interview as a caregiver and he said that the patient was very happy with the surgical results, especially the absence of the foul odor and need to dress the wound. He also expressed his gratitude to

medical staff for the patient's postoperative quality of life.

DISCUSSION

In this study, we focused on patients at least 80 years old and found that the surgical risks associated with microsurgical reconstruction in certain super-elderly cancer patients were acceptable. Furthermore, responses to our interview showed that the patients and their family caregivers in our study were highly satisfied with the overall surgical results. These included improved appearance and increased postoperative quality of life, which was reflected by responses to questions regarding pre- and postoperative assessments of pain and caregiver burden^{26,27}. These results strongly suggested that the surgical procedures improved the quality of life of both the patients and their families.

Preoperative assessments of operative risks are of considerable importance when treating geriatric patients²⁸, and age-specific reference figures



Fig. 3. A 93-year-old female presented with painful squamous cell carcinoma on the right cheek with a foul-smelling discharge (A). Wide excision and anterolateral thigh flap coverage was performed (B). The patient's 1-year post-operative photographs are shown (C).

are essential for clinical decision-making. Preoperative risk factors and surgery-related morbidity and mortality are known to be age-dependent factors^{9,10,14,16-18,29}. Howard et al. showed that free-tissue transfer can be performed in patients over 70 years old with a high degree of technical success; however, it should be noted that this procedure carries a distinct risk of perioperative mortality and morbidity, particularly in patients over 80 years old^{14,30,31}.

However, chronologic age serves as a poor substitute for biological age. In a number of previous studies, the ASA Classification of Physical status has been used as a simple method for

estimating preoperative health status³², and is also the most reasonable and reliable means of assessing the probability of postoperative complications after microsurgical procedures³³. In the present study, no patient had an ASA class of higher than 2, which may explain why our patients had a lower rate of complications compared to ones that have been previously reported¹⁶. Therefore, before planning surgery for a super-elderly patient, the individual's physical status should be taken into consideration.

Although actual life expectancy is difficult to predict and little is known about the course of

cancer after optimal treatment, life expectancy of patients over 80 years is much shorter than younger individuals. In other words, remaining quality of life and life expectancy should be kept in mind when exploring treatment options for super-elderly cancer patients. In particular, the possibility of non-fatal complications and lengthy hospital stays are important considerations as these factors may severely impair the patient's quality of life.

Cancer patients do not only suffer from the direct effects of the cancer. They also experience pain, a deterioration in appearance, and from odors and discharges, and they have to endure expansive and complicated dressings, especially those with skin or soft tissue cancer. Super-elderly patients are more likely to require pain control and to seek improvements in function and appearance that might increase the quality of life. Our results show that our patients were highly satisfied with their overall functioning and appearance after surgery. Figures 2 and 3 show pre- and postoperative photographs of four of our patients. Our finding is strengthened by the two most common responses to the question concerning improvements after surgery, which were no need for wound dressing and improved appearance. When discussing health status, family caregivers identified patients' symptoms such as pain and wound as a major reason for undergoing surgery, and also emphasized the impact of symptoms on the patient's quality of life. These responses indicate that microsurgical reconstruction could be a suitable surgical option for super-elderly patients with cancer because free-flap transfer provides well-vascularized tissues through a single-stage procedure and eliminates pain and cancer-related wound problems.

This study had several limitations including a small sample size and objective bias. The period between the surgery and the completion of questionnaire differed between patients, and it is possible that the recollection of some patients or their families was unreliable when responding to

the questionnaire. Our study is also limited by the absence of a control group and a preoperative assessment; therefore, we were unable to make quantitative comparisons between the merits of microvascular free-tissue transfer and other techniques. Nevertheless, this study clearly showed that free-flap reconstruction was associated with a low rate of surgical complications in super-elderly patients with skin and soft tissue cancer, and offered these patient definite benefits in terms of symptom relief, improved appearance and increased quality of life.

CONCLUSION

Microsurgical tissue transfer in super-elderly patients is a valuable option for post-oncologic reconstruction. This procedure provides an appropriate repair of complex tissue defects that significantly improves postoperative quality of life.

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