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CASE REPORT

APPLICATION OF FREE FLAP IN AN ELDERLY PATIENT

ABSTRACT

The incidence of skin cancers is increasing parallel to other cancers, with a growing elderly population. Surgery continues to be the gold standard, although many other therapeutic methods are available for the treatment of skin cancers. In surgical treatment, all steps of reconstructive surgery can be employed, and the method to be selected should yield satisfactory cosmetic and functional outcomes. Free flaps are at the very top of the reconstructive steps, due to prolonged operation time and the necessity of employing a specific technique. On the other hand, free flaps are the first line of treatment in certain cases where cosmetic and functional concerns prevail. In elderly patients, however, free flaps are often not preferred due to prolonged operation time. The current case report presents a 96-year-old female patient who was admitted to our clinic due to squamous cell carcinoma and who subsequently underwent reconstruction using a free radial forearm skin flap. Examples from the literature were highlighted in which proper patient management in the preoperative, intraoperative, and postoperative period will produce fewer concerns regarding free flap surgery in the elderly population.

Key Words: Aged; Skin Neoplasms; Free Tissue Flaps.



OLGU SUNUMU

İLERİ YAŞ HASTADA SERBEST FLEP UYGULAMASI

Öz

Günümüzde artan yaşlı popülasyonda diğer kanserlerle birlikte cilt kanseri insidansı da artmıştır. Cilt kanserlerinde birçok tedavi yöntemi bulunmakla birlikte cerrahi tedavi altın standarttır. Cerrahi tedavide seçilecek yöntemler arasında rekonstrüktif basamağın her adımı uygulanabilir ve seçilecek yöntemin estetik ve fonksiyonel sonuçları tatmin edici olmalıdır. Uzun operasyon zamanına ve spesifik bir tekniğe ihtiyaç duyması nedeniyle serbest flepler rekonstrüktif basamağın en tepesinde yer alır. Estetik ve fonksiyonel kaygılar göz önüne alındığında ise bazı olgularda serbest flepler cerrahi tedavide ilk sırada tercih edilir. İleri yaş hastalarda ise serbest flepler uzun operasyon süresi gerektirdiği için genellikle tercih edilmez. Bu yazıda, skuamoz hücreli karsinom tanısıyla kliniğimize başvuran 96 yaşındaki bayan hastanın tümör eksizyonu sonrası serbest radial ön kol flebi ile rekonstrüksiyonu sunulmuş ve preoperatif, intraoperatif ve postoperatif uygun hasta yönetimi ile, ileri yaştaki hastalarda da serbest flep cerrahisi üzerindeki kaygıların azalacağı literatür örnekleri vurgulanmıştır.

Anahtar Sözcükler: Yaşlı; Cilt Kanseri; Serbest Flep.

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Geliş Tarihi: 15/06/2014
(Received)

Kabul Tarihi: 21/07/2014
(Accepted)

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INTRODUCTION

The advances in modern medicine not only increase life expectancy in the elderly population, but also increase the incidence of cancer (1). Skin cancer is the most common type of cancer in the United States and is classified as melanoma and non-melanoma (2). Non-melanoma cancers often occur in the head-neck region and the incidence increases with age (2). Although many options are available for reconstruction after the excision of the tumor from the head-neck region, the technique selected for reconstruction should yield satisfactory cosmetic and psychological results.

Morbidity and mortality related to surgery increase with age due to cardiac, pulmonary, and renal problems (3). In addition, studies have indicated that free flap transfer is a safe method, with proper preoperative management, in elderly patients (4). This case report presents a 96-year-old female patient who underwent tumor excision for non-melanoma skin cancer on the mentum of the mandible and subsequent reconstruction with free tissue transfer.

CASE REPORT

A 96-year-old female patient presented to our clinic due to squamous cell carcinoma diagnosed by incisional biopsy in another center. The physical examination revealed a 4x5



Figure 1— Tumor mass at the level of the mentum of the mandible.



Figure 2— Planning of radial forearm flap by determining the projection of the radial artery using hand-held Doppler.

cm tumor mass on the mentum of the mandible with ulceration and scab at the center, induration around the lesion, and a 1x0.5 cm satellite lesion in the right superolateral site of the primary lesion showing similar characteristics (Figure 1). The patient's past history was not remarkable for smoking or alcohol use, and the patient did not have additional conditions other than chronic anemia (Hb: 11.2 g/dL). The ultrasonographic (USG) examination of the neck did not reveal any pathological findings, and preoperative consultation by a pulmonologist and the anesthesiologist did not report any conditions that would prevent surgery; the patient's ASA (American Society of Anesthesiologists) score was 2. The patient underwent an operation under general anesthesia for 2.5 hours. The lesion on the mandible was totally removed, together with 1 cm of normal tissue around the lesion. For the reconstruction of the skin defect, a radial forearm free flap was prepared (Figure 2) and anastomosis was performed between the radial artery and the concomitant vein, being the pedicle of the flap, and the facial artery and facial vein under microscopy (Figure 3). Neck dissection was not considered due to the advanced age of the patient and possible postoperative complications. Hemoglobin level was found to be 9.5 g/dL after the operation and no complications were observed at follow-up (Figure 4). The patient was discharged at postoperative day 3 and referred to medical oncology and radiation oncology clinics. The histopathological examination of the lesion revealed well-differentiated squamous cell carcinoma, and the surgical margins were tumor-free. After the oper-



Figure 3— Planning of the surgical margin and projection of the facial artery.

ation, the patient was placed on follow-up with neck ultrasonography at three-month intervals. The control examination at the postoperative sixth month did not reveal new lesions, and there was no evidence of pathological lymphadenopathy on the neck USG.

DISCUSSION

Surgical excision is the gold standard treatment for skin cancers occurring in the head and neck region. All steps of reconstruction including secondary healing, primary closure, skin grafting, and local and free flaps can be used after excision of the skin cancers (5). However, the method to be selected in the head and neck lesions should yield satisfactory cosmetic and functional outcomes. In general, local flaps (local tissue flaps) are preferred in the reconstruction of small or moderate size defects. Microsurgical reconstruction with free flaps is preferred in large or composite skin defects. In addition, local flaps fail to satisfy in most cases, and free flaps become the first choice of treatment (6). Radial forearm and anterolateral thigh flaps (ALT) are ideal options in reconstruction of soft tissue defects in the head and neck region (7). In the present patient, the skin defect on the mandible that occurred after tumor excision was reconstructed using a radial forearm flap.

The most important drawbacks of free flap surgery are prolonged operation time and the necessity to perform a specific surgical technique (8). Therefore, it is not preferred in elderly patients. In the present case, most local options were



Figure 4— Reconstruction with free radial forearm flap after tumor excision (postoperative day 10).

not available due to the presence of a large skin defect after the excision of the cancer tissue. Completion of the operation in the short period of 2.5 hours reduced the risk of developing complications and allowed the selection of the most appropriate treatment option for the patient. The factors affecting the success of free flap surgery include age, gender, wound etiology, smoking habits, comorbid conditions, operation time, experience of the surgeon, and surgical technique (9). Although the present case had an advanced age, the lack of additional illnesses and short operation time contributed to the success of the surgery.

In a study by Coskunfirat et al. that evaluated the safety of free tissue transfer in elderly patients, ASA status, age and operation time of the patients were compared, and postoperative medical complications were found to be more common in ASA III and IV patients than in ASA I and II. Although prolonged operation time and the presence of comorbid illnesses increased surgical morbidity and mortality, it was highlighted that age was not a contraindication for the surgery (4). In a similar study Turrà et al evaluated free flaps in the head and neck region in elderly patients and they reported that free flaps could be safely used in reconstructive surgery in the head and neck region in all age groups (10).

Tsai et al. evaluated 1012 patients who underwent free tissue transfer due to head and neck cancer and reported on



197 patients aged above 65 years. Age above 70 years and intraoperative blood loss above 220 ml were important determinants of postoperative morbidity, and they highlighted the importance of meticulous preoperative geriatric and oncological evaluation, patient selection, and perioperative bleeding control (11).

In a series of 197 patients aged above 70 years, Howard et al. reported that free flaps could be successfully used from the technical point of view in patients above 70 years; however, they stated that perioperative mortality and medical complications in the eighth decade were two times more common compared to the seventh (12).

Previous studies showed that the ASA score is the most important determinant of postoperative medical complications after microsurgical procedures. ASA class 3 and class 4 patients are more prone to postoperative medical complications (4). On the other hand, the operation time seems to be the most important factor for the surgical complications. Serletti et al. performed a retrospective analysis of 100 patients to determine preoperative and intraoperative predictors of surgical and medical complications and they reported that patients with a higher ASA designation experienced more medical complications but not surgical complications. But increased operative time resulted in more surgical complications (13). In a similar study Ozkan et al. evaluated the microsurgical tissue transfers in elderly patients and they reported that ASA classification is a predictor for only medical complications, not for surgical complications. They also highlighted the importance of low operation time to prevent surgical complications (14).

The review of studies of free tissue transfer mentioned above involved a very low number of patients above 95 years who underwent free flap surgery. Even if free flap surgery would be expected to increase morbidity and mortality, considering the advanced age of the patient (96 years), the low ASA score, absence of additional conditions, and relatively shorter operation time resulted in successful surgery. In summary, free flaps can be safely employed in patients with advanced age; however, this requires meticulous preoperative, intraoperative, and postoperative patient management.

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