

# Application of a Split-thickness Skin Graft after the Removal of Huge Cutaneous Squamous Cell Carcinoma on the Right Lower Posterior Neck and Right Shoulder: Case Report

Jong Chan Kim, MD<sup>1</sup>, In Pyo Hong, MD, PhD<sup>2+</sup>

*Department of Plastic and Reconstructive Surgery<sup>1</sup>, National Medical Center, Seoul, Korea*

*Department of Plastic and Reconstructive Surgery<sup>2</sup>, Eulji University Hospital, Eulji University School of Medicine, Daejeon*

목과 오른쪽 어깨 부위에 발생한 거대 편평세포암에 대해  
피부이식술로 치험한 증례보고

김종찬<sup>1</sup> · 홍인표<sup>2+</sup>

국립중앙의료원 성형외과학교실,<sup>1</sup> 을지대학교 의과대학 대전 을지대학교 병원 성형외과학교실<sup>2</sup>

## = Abstract =

거대한 피부편평세포암은 드문 피부 종양이다. 편평세포암은 모든 피부 악성 종양 중 20%을 차지한다. 피부편평세포암은 주로 햇빛의 노출되는 것이 주요 원인으로 알려져 있으며, 때때로 피하층을 침범을 하는 경향이 있다. 편평세포암이 흔한 종양인 것과는 다르게, 5cm 이상의 거대 편평세포암은 보고된 바가 드물다. 이에 저자는 경부에 발생한 14.5cm × 11.5cm × 9.5cm 크기의 거대한 피부편평세포암을 피부이식술을 통해 성공적으로 치료하여 이에 대해서 문헌 고찰과 함께 보고하는 바이다.

중심 단어 : 편평세포암 · 피부이식술 · 피부 종양 · 피부편평세포암 · 거대피부편평세포암.

## Introduction

Cutaneous squamous cell carcinoma (cSCC) is a common cutaneous malignancy that often presents as an elevated, indurated lesion with varying degrees of ulceration and crusting. cSCC accounts for 20% of all cutaneous malignancies and is the second most common malignancy, with

an incidence that continues to increase.<sup>2)</sup> The diagnosis of cSCC is primarily based on clinical features. A biopsy or excision and histologic confirmation should be performed in all clinically suspicious lesions in order to facilitate the prognostic classification and correct management of cSCC. The first line treatment of cSCC is complete surgical excision with histopathological control of excision margins.<sup>6)</sup> When lesions are larger than 2 cm in diameter, SCCs can be associated with a greater risk for disfigurement, local recurrence, and metastasis.<sup>1)</sup> They tend to be more invasive when the lesion is larger or when the cellular differentiation is worse. While squamous cell carcinoma is a common cutaneous malignancy, few cases of squamous cell carcinoma larger than 5 cm in diameter have been reported. We report here our successful treatment of huge SCC using a

Received: May 6, 2016  
Revised: May 16, 2016  
Accepted: May 24, 2016

<sup>+</sup>Corresponding author: In Pyo Hong, Department of Plastic and Reconstructive Surgery, Eulji University Hospital, Eulji University School of Medicine, 95 Dunsanse-ro, Seo-gu, Daejeon 302-799, Korea  
Tel: (042) 611-3031 Fax: (042) 259-1111  
E-mail: nmeps@unitel.co.kr

split-thickness skin graft (STSG) in the right lower posterior neck and right shoulder.

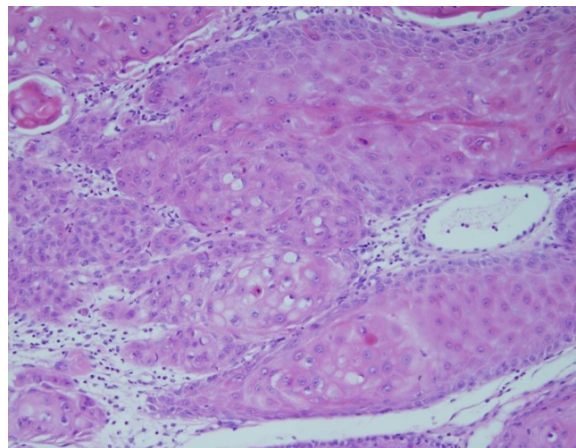
## Case report

A 58-year-old female patient was admitted to our hospital with a gradually growing mass on her right lower posterior neck and right shoulder. According to the patient, a smaller solid mass had appeared on her right lower posterior neck and right shoulder 15 years previously, but she never had analyzed or treated the mass. Upon physical examination, the mass of 14.5 cm × 11.5 cm × 9.5 cm was found accompanied by an ulcer that bled easily (Fig. 1). The patient did not complain of pain or tenderness, and no hypertrophy of the lymph node was found in the physical examination. The mass was biopsied and diagnosed as cSCC (Fig. 2). The fact was revealed that the Deepest of mass had invaded the superficial layer of the right trapezius muscle with the computed tomography, but without evidence of local metastasis in the neck lymph nodes or distant metastasis in any other organs (Fig. 3). According to clinical stage based on American Joint Committee on Cancer (AJCC), the diameter of the cSCC was bigger than 2cm and there was the deep infiltration to skeletal muscle. It was confirmed as T3. Additionally, because of no regional lymph node metastasis and distant metastasis, the stage of the cSCC was T3N0M0 and stage 3.

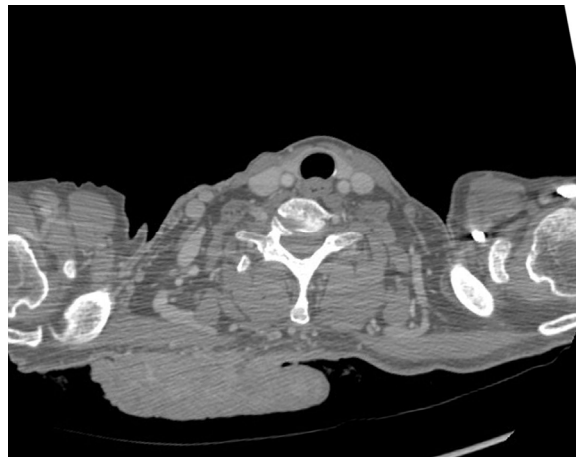
Because the cSSC could be curative by the complete excision, a wide resection of the mass was performed that included the resection of at least 2 cm of the surrounding tissue horizontally and 6 mm thickness of a portion of the right trapezius muscle with the unaided eye using numerous frozen section biopsies evaluation (Fig. 4, Fig. 5). The frozen biopsy was a crucial method for complete excision using numerous repeated frozen biopsies confirmed negative margin (Fig. 6). Biopsy of the lymph nodes and the margin of excised mass were revealed no evidence of metastasis and local invasion. Since the depth of the resected area was not deep, a STSG was used to complete the operation. The wound healed without any problems or complications (Fig. 7). She showed no sign of local recurrence or metastasis during the three years follow-up period. Although she had some secondary contracture and itching sensation in the late clinic follow-up, she had no problems with neck or shoulder



**Fig. 1.** A 58-year-old woman with a 14.5 cm x 11.5 cm x 9.5 cm mushroom-shaped mass on the right shoulder



**Fig. 2.** Histologic findings (H&E, 200×). Tumor cells transform into keratinized squames and form round nodules with concentric, laminated layers, called "cell nests" or "epithelial/keratinous pearls"



**Fig. 3.** Computed tomography indicated that the mass had invaded the superficial portion of the right trapezius muscle

movement.



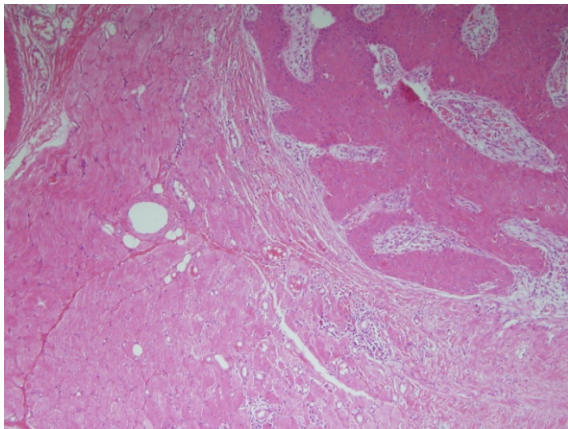
**Fig. 4.** Wide excision of the mass including the superficial layer of the trapezius muscle



**Fig. 7.** At two months postoperatively, some itching sensation occurred in the surgical area, but no signs of any wound complications or secondary contracture appeared



**Fig. 5.** Excised tumor, gross view. The mass was completely excised with ligation of the neovascularized vessels and weighed 580g.



**Fig. 6.** Histologic findings (H&E, 100x). cSCCs on the right upper side and trapezius muscle cell on the left down side were seen

## Discussion

cSCC has relatively high cure rate, but sometimes invades the dermis or the subcutaneous layer of the skin.<sup>3)</sup> Poor

prognostic factors include cSCC larger than 2 cm in diameter, located in the periorificial zones, or occurring in an injured area (e.g., on burn scars, chronic ulcers, or areas of radiodermatitis); mucoepidermoid, acantholytic, and desmoplastic histologic subtypes; perineural invasion; and poorly differentiated or undifferentiated tumors.<sup>4)</sup> Moreover, immunosuppression, incomplete resection, lymph node invasion, or metastasis all lead to a poor prognosis.<sup>4)</sup> The 5-year cure rate for huge cSCC is 70%, which is substantially worse than that for smaller lesions, at 98.4%. Moreover, cSCC greater than 4 cm in diameter is associated with a much higher mortality.<sup>2)</sup>

Huge cSCC has been known to present in patients without a family history of skin cancer and occur from chronic lesions located in areas that are difficult for a patient to notice. For example, approximately 66.7% of huge SCCs are thought to occur on the back.<sup>1)</sup> On our case, it was similar that the patient had suffered from right lower posterior neck and right shoulder. Surgical resection with safety margins is the best treatment for most cSCC cases including those with very large lesions.<sup>4)</sup> When initial removal is incomplete, cSCC is more likely to recur, mostly locally or less frequently in regional lymph nodes.<sup>6)</sup> The more massive the cSCC, the larger the margins recommended for a safe resection.<sup>5)</sup> Thus, complete negative margin was very important. A 4 mm margin is sufficient to remove 95% of clinically well-defined low risk tumors measuring less than 2 cm in diameter. For cSCC of more than 2 cm in clinical diameter, or for tumors with more than 6 mm thickness, or tumors with other high risk prognostic characteristics, a margin of at least 6 mm is considered necessary

to obtain the same result.<sup>6)</sup> In our case, we decided a horizontally 2cm margin and a vertically 6 mm margin with the unaided eye. Using numerous intraoperative frozen biopsies, we performed the negative margin excision.

Suitable reconstruction methods should be determined after tumor resection according to the size and location of the defect.<sup>5)</sup> In our case, we chose the STSG as coverage for two reasons. First, the resected region was not deep but wide (18 cm × 15 cm). Due to the large size of huge cSCC, if surgical resection with safety margins is conducted, the defect size will be enlarged, which can make coverage very difficult. Secondly, though at that time no impression of lymph node invasion or distant metastasis was evident, huge cSCC in itself has a high level of relapse. Therefore, a secondary operation using a flap is necessary in case of later recurrence. Taking these reasons into account, we concluded that when the invasion depth is not deep, it would be more appropriate to implement STSG than to use a flap for primary reconstruction of the defect region and then observe the progress.

Adjuvant or post-operative RT should be considered in the following situations: (i) cSCC with substantial named perineural involvement, and (ii) when tissue margins are not tumor free after surgical excision and further surgery is not possible or unlikely to completely eradicate the tumor.<sup>6)</sup> Additionally, adjuvant RT should be also considered in all patients with regional disease of the head and neck, trunk or extremities who have undergone lymph node dissection, particularly if multiple nodes are affected.<sup>6)</sup> In our case, there were no lymph nodes infiltration and named perineural involvement. Additionally, tissue margins were negative resulting from successful excision. Thus, we did not apply adjuvant or post-operative RT.

The longer that treatment for a cSCC is delayed, the more likely it is that the cSCC will increase to a size greater than 2 cm in diameter. Therefore, early detection and treatment of SCCs can have a positive impact on morbidity and mortality rates as well as costs.<sup>1)</sup> Nevertheless, in case of already enlarged SCCs, if the invasion depth is not deep, our case study suggests that STSG application, considering the characteristics of huge SCCs, could be a good primary surgery option.

## References

- 1) Renzi C, Mastroeni S, Passarelli F, et al. *Factors associated with large cutaneous squamous cell carcinomas [published online ahead of print July 2, 2010]. J Am Acad Dermatol. 2010;63:404-411.*
- 2) Weinberg AS, Ogle CA, Shim EK. *Metastatic cutaneous squamous cell carcinoma: an update. Dermatol Surg. 2007;33:885-899.*
- 3) Madan V, Lear JT, Szeimies RM. *Non-melanoma skin cancer. Lancet. 2010;375:673-685.*
- 4) French Society of Dermatology. *Guidelines for the diagnosis and treatment of cutaneous squamous cell carcinoma and precursor lesions. arguments—May 2009 [in French]. Ann Dermatol Venereol. 2009;136(suppl 5):S189-S242.*
- 5) Papadopoulos O, Frantzoglou M, Chrisostomidis C, et al. *Neglected squamous cell carcinoma of the frontal area: a clinical report. J Craniofac Surg. 2006;17:1015-1020.*
- 6) Stratigos A, Garbe C, Lebbe C, Malvehy J, del Marmol V, Pehamberger H, Peris K, Becker JC, Zalaudek I, Saiag P, Middleton MR, Bastholt L, Testori A, Grob JJ; European Dermatology Forum; European Association of Dermato-Oncology; European Organization for Research and Treatment of Cancer. *Diagnosis and treatment of invasive squamous cell carcinoma of the skin: European consensus-based interdisciplinary guideline. Eur J Cancer. 2015 Sep;51(14):1989-2007.*