

A Case of Super-giant Basal Cell Carcinoma Initially Diagnosed as Multiple Traumas

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Summary: Basal cell carcinoma (BCC), which is relatively easy to diagnose in a clinical setting, is the most common malignant tumor in the skin. Conversely, a giant BCC, a tumor beyond 5 cm in diameter, is a rare disease. In particular, a giant BCC beyond 20 cm in diameter is called a super-giant BCC, which frequently invades into deeper tissues, including the dermis, bones, or muscles. Here, we present a case of a 71-year-old patient who was initially diagnosed with multiple traumas with a large periosteal defect of the head. The ulcer was surrounded by malodorous necrotic tissue and slough, and several bacteria that caused necrotizing fasciitis were detected. Mapping biopsies after extensive debridement yielded BCC, and therefore, he was finally diagnosed with a super-giant BCC. A careful consultation revealed a history of ulcer on the head after a head injury approximately 10 years ago. He underwent radical dissection including the external table of the skull, followed by a free latissimus dorsi muscle flap with a meshed split-thickness skin graft. Because of the slow and chronic development of a super-giant BCC, accurate diagnosis is often difficult. Careful attention should be paid in patients with long-sustained ulcers. (*Plast Reconstr Surg Glob Open* 2023; 11:e4812; doi: [10.1097/GOX.0000000000004812](https://doi.org/10.1097/GOX.0000000000004812); Published online 2 February 2023.)

A 71-year-old man presented to the emergency room with loss of consciousness after he was found to have drowned in a river. Upon presentation, initial examinations and investigations revealed an E1V1M5 score on the Glasgow Coma Scale, anemia, hyperammonemia, severe inflammation, electrolyte disturbance, hepatic dysfunction, and hypoalbuminemia. He had lacerations on his face, bilateral pneumothorax, multiple rib fractures, and mediastinal emphysema. Therefore, the patient underwent resuscitation after being diagnosed with shock. One of the most conspicuous signs on his body was the presence of a large periosteal defect of the head filled with malodorous necrotic tissue and slough (Fig. 1). A bacterial culture of samples from the head ulcer was positive for *Fusobacterium gonidiaformans*, *Staphylococcus aureus*, and *Aeromonas* species, all of which had been reported to cause necrotizing fasciitis.¹⁻³

Three days after hospitalization, history obtained from the patient revealed a suicidal intent due to pessimism

about his general fatigue and economic conditions. According to the CT scan findings, no major injuries were present in the brain. However, a psychiatry consultation to obtain a detailed history was indicated. Subsequently, the consultation revealed a history of ulcer on the head, resulting from a head injury due to a fall from a bridge, which occurred approximately 10 years ago. Two weeks before the drowning event, he had a sense of malaise and episodes of vomiting.

Since more than two-thirds of the cranium was covered with grimy and necrotic tissues, extensive debridement was necessary before mapping biopsies. The first mapping biopsy yielded basal cell carcinoma (BCC) in one sample from the temporal skin and actinic elastosis in samples obtained from all other regions. A whole-body CT scan did not show any suspicious mass to be metastatic. Therefore, a second mapping biopsy, with a focus on the temporal regions, was performed under local anesthesia to determine the extent of resection. A radical resection under general anesthesia was performed with a 5-mm margin from the ulcer or BCC-positive area. The left external auricle was resected, whereas the BCC-negative regions, periosteum, and temporal muscle fibers were preserved. Thereafter, the large defect was reconstructed using a meshed split-thickness skin graft (STSG), which was 12 thousandths of an inch in thickness, obtained from the right thigh.

Five months after the radical resection, the patient presented with ulcers surrounded by melanotic macules at the

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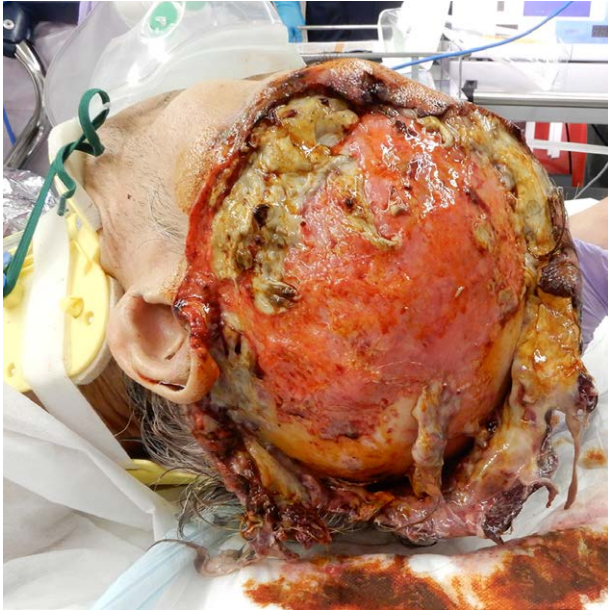


Fig. 1. Preoperative view of the super-giant BCC on the left side of the scalp.



Fig. 2. Recurrence of BCC after the first reconstruction using meshed STSGs.

outpatient department (Fig. 2). The pathological examination revealed a recurrence of BCC. A head and neck CT scan showed the presence of a subcutaneous nodule in the temporal region without lymphadenopathies. Therefore, a second radical resection of the subcutaneous nodule, temporal muscle, residual periosteum, external table of the skull, and grafted skin was performed. Eight samples of these tissues were sent for pathological examinations, which revealed the presence of BCC in the subcutaneous nodule but not the other tissues. This result indicated that

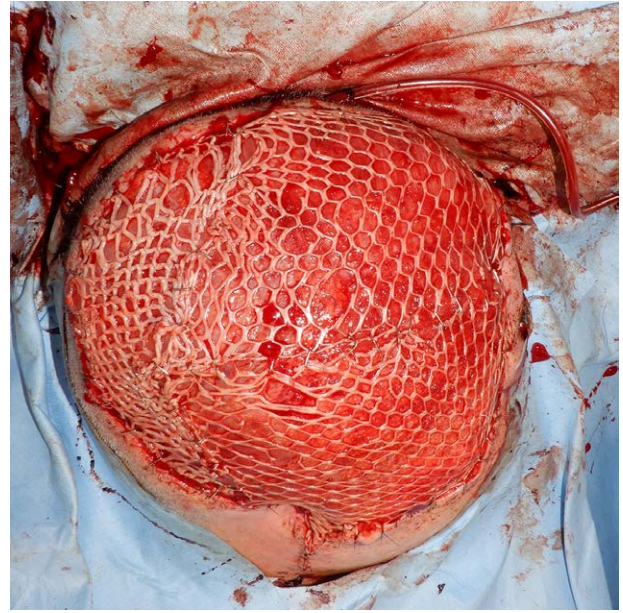


Fig. 3. The second reconstruction using an LD flap with meshed STSGs.

radical dissection was performed with a sufficient margin in the cranium. The defect was reconstructed using a latissimus dorsi (LD) muscle flap, the vessels of which were anastomosed with the superficial temporal artery, the superficial temporal vein, and a subcutaneous vein. The 26 cm × 8 cm skin island over the flap was separated to create a meshed graft at a ratio of 1:3 for covering the LD muscle body (Fig. 3). The graft and flap were taken, and no suspicion or sign of recurrence has been found 6 months after the last operation (Fig. 4).

DISCUSSION

Giant BCC, also known as neglected BCC, is defined as a tumor beyond 5 cm in diameter.⁴ Particularly, a giant BCC beyond 20 cm in diameter is called a super-giant BCC, which is the case with our patient.⁵ Consistent with the association of an onset of BCC and chronic ulcers due to trauma has been reported,⁶ and our patient received a head injury before developing BCC.

For this patient, aside from tumor size, the other risk factors for BCC recurrence included the localization of BCC to the scalp and aggressive growth pattern.⁷ Due to high remission rates of greater than 90%, surgery is the first choice in treating skin cancers.⁴ To accomplish complete excision, Mohs surgery, in which a tumor and its surrounding regions are excised until regions free of tumor cells are diagnosed pathologically during an operation, is recommended. However, it is not commonly used in Japan.^{8,9} Therefore, several samples, including samples from the periosteum and temporal superficial and deep fasciae, were examined before the first radical resection. Thereafter, the defect was reconstructed using a meshed skin graft, because the pathological examination revealed the absence of tumors in the periosteum.



Fig. 4. Outcome 6 months after the second reconstruction.

Due to its thinness, STSG has advantages in detecting BCC recurrence, as proven in this case. Additionally, the patient's regular hospital visits, due to improvements in his social and economic conditions from support by social workers and care workers, made it possible to perform immediate radical resection of tissues, including the residual periosteum and partial bone cortex. In turn, reconstruction using a free LD flap was selected because of the possibility of using composite flaps of LD and serratus anterior muscle flaps for reconstructing the large scalp defect. The use of LD flap and grafting for reconstruction in giant BCC is popular.^{6,10}

Regarding a possible third recurrence in the future, radiation therapy and/or chemotherapy using a Hedgehog inhibitor, vismodegib, are options for treatment,⁶ although the latter is not covered by health insurance in Japan.

CONCLUSIONS

We report the case of a 71-year-old patient with a super-giant BCC who underwent successful treatment after being initially diagnosed with multiple traumas. The wound with substantial grimy and necrotic tissues necessitated the performance of several mapping biopsies and operations. The patient underwent radical resection of tissues, including the external table of the skull, and a free LD flap was performed. Collaborating with social workers and care workers, we improved the patient's social and economic conditions as well as treated BCC.

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