

# Recurrent basal cell carcinoma of lower lid invading the orbit and whole hemiface reconstructed by rectus abdominis free flap

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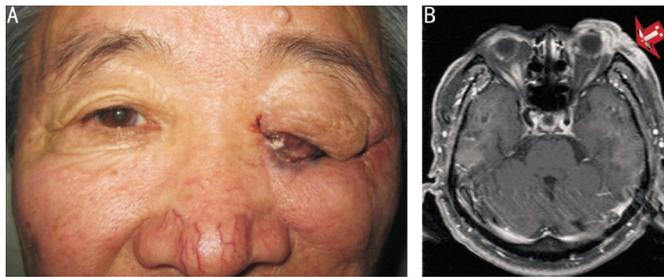
Dear Sir,

I am Dong Hyun Ji, from the Department of Ophthalmology of St. Vincent's Hospital, Suwon, Korea. I write to present a very severely recurrent basal cell carcinoma (BCC) in lower lid invading left orbit and whole hemiface, which was completely cured by rectus abdominis free flap (RAFF) surgery.

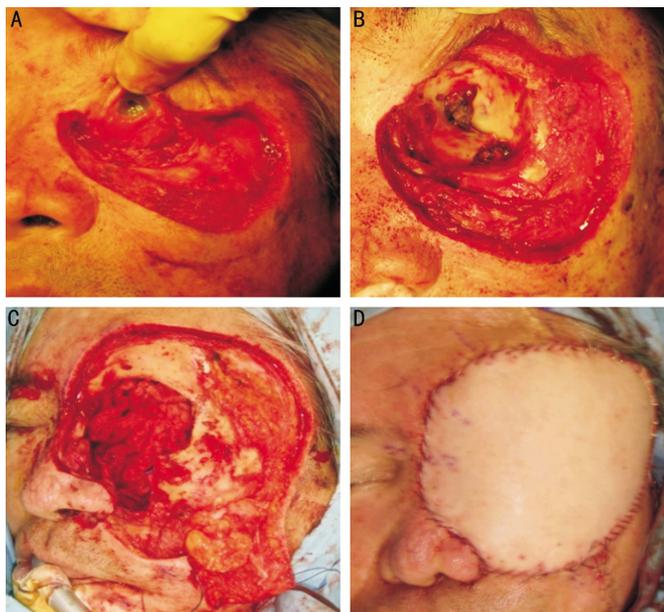
The prognosis of BCC is expected to be satisfactory after local excision and eyelid reconstruction if the tumor is still small. However, the reconstruction will be difficult when the invasion area become more extensive to the orbit, facial soft tissues and bones. Pedicled local flaps using frontalis, pectoralis major, deltoid and trapezius muscles are commonly known to reconstruct the relatively wide defect area [1]. While a free flap will be required when there is a more extensive defect. The reconstruction methods with free flap for the severe injuries or the defective areas after removing other type of malignant tumors on the face have been reported in literatures several times [2-4]. But the case of the recurrent BCC that invaded the orbit and the whole hemiface, which was reconstructed by RAFF after total exenteration has not been reported.

A 77 year-old man visited our clinic with the complaint of hardness on the left lower lid, drooping of the upper lid and discharge. On the past medical history, he had two times of operations for recurrent BCC in lower lid at plastic and reconstructive surgery department 7 years ago. The patient was not able to follow up for 4 years afterward. At the time of visit, there was dark brown necrotic ulcerative lesion on

the left lower lid and dehiscenced wound on the lateral canthus (Figure 1A). The tumor extensively invaded to the upper and lower lid and the subcutaneous layer of left upper cheek on facial MRI. The soft tissue of lateral part of orbit were also affected (Figure 1B). Other physical examinations were all within normal range and the patient was referred to the oncology to find out about metastasis, but no abnormality was found. Exenteration and radical excision was planned. Under the general anesthesia, initial boundary of excision was drawn from the inner side of medial canthus to the outer side of lateral canthus horizontally and from the internal side of lower eyelid margin, inferior fornix to the upper cheek vertically and were incised with No.16 Bard Parker blade. The tissues were dissected and removed deep down to the level of the periosteum of maxillary bone around inferior orbital rim, temporal bone and zygomatic bone (Figure 2A). When this was done, we were able to find out that the tumor invaded into under the periosteum by the evidence of bone destruction on the maxillary bone around inferior orbital rim. There was also an evidence of invasion into intraorbital tissues under the inferior fornix. For this reason, total exenteration was performed (Figure 2B). The tissues that had removed by the operation was sent for frozen section examination to find out whether the tumor had invaded to the excision interface. The first result revealed that malignant tumor cells were found in the interface. Therefore, the excision was more extended outwardly until no malignant cells were identified. The final boundary of excision was nasal bridge medially, lower cheek downwardly, over the eyebrow upwardly, and preauricular hairline laterally. Additionally, the removal of inferior and medial orbital wall and maxillectomy was done. The size of skin and soft tissue defect was estimated around 12cm×9cm (Figure 2C). Free flap transplantation including vessels was decided to cover the extensive defect area. The 14cm×11cm of sizable skin and abdominal muscle were obtained from lower abdomen as a free flap and deep inferior epigastric artery and vein were used as donor vessels. The superficial temporal artery and vein were searched for as recipient vessels and anastomosis was successfully completed. After confirming blood circulations of the flap, the subcutaneous muscular layer and skin were sutured (Figure 2D). The operation took about 10 hours and the transplanted flap survived well without any complications and recurrence for 3 years of follow up (Figure 3).



**Figure 1 Preoperative photograph and facial MRI of the patient** A: Photograph shows brownish black colored necrotic and ulcerative lesion of lower lid, and edematous drooping and solidly changed skin of upper lid at left eye; B: MRI shows well enhanced, diffusely infiltrative soft tissue lesion (red arrows) at periorbital area and lateral orbital space of left eye.



**Figure 2 Procedures of cancer resection and reconstruction** A: Initial resection of cancer infiltrated area was performed. During the operation, bony destruction of the maxilla, meaning cancer invasion, was found; B: Total exenteration was performed with removal of the whole eyelid. Frozen section of the tissue showed the malignant evidence at the margins, so, the resection margins was more extended outwardly; C: Finally, margin negative resection was achieved and subsequent defect size was about 12cm×9cm. For harvesting the superficial temporal artery and vein as a recipient vessel, another elongated incision was made and dissection was done; D: A rectus abdominis free flap was transferred and sutured to the defect. The superficial temporal vessels were anastomosed to the deep inferior epigastric vessels in donor site.



**Figure 3 Photographs show well grafted rectus abdominis myocutaneous free flap and reconstructed left face at 2 years after operation.**

It is known that BCC rarely invade into the intraorbital tissue and have to do exenteration. Payne *et al*<sup>[5]</sup> once reported that only 8 out of 273 of his patients (2.9%) went through exenteration. However, when the tumor extensively invade to the orbit and surrounding areas like this case, it is difficult to reconstruct the wide defect with routine eyelid reconstructive procedures such as Cutler-Beard bridge flap, semicircular or Mustarde-cheek rotational flap, Hughes operation, skin graft and *etc*; after the radical excision. The reconstruction with free flaps can be considered in these cases. Forearm flaps, femoralis flaps, rectus abdominis muscle flaps, inguinal flaps, latissimus dorsi muscle flaps can be used for facial reconstruction<sup>[1]</sup>. Among these, the rectus abdominis muscle flap is especially useful when the free flaps with sufficient size and volume are required because securing the flap is relatively uncomplicated and quick. Additionally, it is possible to obtain vessels with various diameters<sup>[6]</sup>. The authors also considered radiation therapy because the affected area was so extensive that the reconstruction after radical excision expected to be complicated but, considering the fact that radiation therapy was not ideal in the view of a complete cure and the fact that he had already recurrence two times, the authors decided to surgical intervention. Although the appearance of the patient was not as natural as one might hope, complete cure was achieved by radical excision and reconstruction with the RAFF without any complications. In conclusion, RAFF is thought to be a very useful method to reconstruct the extensive orbital and facial defect after radical excision of severely recurrent BCC.

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