

Lower Lip Cancer Managed by Reconstruction with a Double Abbe Flap - A Case Report

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Abstract

Although the incidence of lower lip cancer is not high in Japan, its treatment requires an approach that considers both esthetics and function. When surgical resection is required, the method used for reconstruction varies depending on the affected part. Despite various studies proposing different types of algorithms, no single method is considered the best. If the loss of half or more of the lip is predicted, a free flap may need to be considered, depending on the case. Here, we report a case involving a 78-year-old edentulous woman with lower lip cancer whose resection area involved approximately 70% of the red and white portions of the lower lip. Fortunately, no resection was required at the commissure. We accordingly performed reconstruction with a double Abbe flap in accordance with a detailed treatment plan. The patient was extremely satisfied with the esthetic and functional outcomes of the surgery.

Keywords: Double abbe flap, esthetics, function, lip cancer, reconstruction

INTRODUCTION

The lower lip is an uncommon site for the development of cancer; however, because it is located below the facial midline, reconstruction of defects caused by cancer at this site requires careful consideration of esthetic factors. In addition, the postoperative function must be taken into account. For instance, depending on the size of the tumor, patients with dentures may not be able to continue using them. Moreover, if the denture does not fit after reconstruction, depending on the situation, a gastrostomy needs to be considered. Therefore, if required, the possibility of gastrostomy must be explained to the patient before surgery. The type of flap used for reconstruction is also extremely important. When significant defects are present, clinicians commonly use a combination of different free flaps.^[1-3]

Here, we report a case involving a 78-year-old edentulous patient who underwent reconstruction with a double Abbe flap for the repair of a postoperative full-layer defect due to the resection of lower lip cancer involving the mucous membrane. The patient was satisfied with both the esthetic and functional outcomes of the surgery.

CASE REPORT

A 78-year-old female presented at our hospital with discomfort in the inner portion of the lower lip since several months. The discomfort gradually increased, and the patient visited our hospital in June 2012 for a detailed examination. Her medical history included hypertension, and she was taking an antihypertensive drug for the same. She had a medium build and was short in stature. An extraoral examination revealed several elastic and hard lymph nodes on both sides of the neck. In addition, granular areas were observed roughly at the center of the vermillion. Intraoral examination revealed a superficial granular mass measuring 26 mm × 22 mm and extending from the inner cutaneous portion of the lower lip,

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which was connected to the vermillion [Figure 1a and b]. No induration was felt on palpation. On the basis of these findings, we diagnosed lower lip cancer with metastasis to the lymph nodes on both sides of the neck.

Histopathological examination of a biopsy specimen from the primary lesion revealed well-differentiated squamous cell carcinoma [Figure 2a]. Moreover, 2-[fluorine-18] fluoro-2-deoxy-d-glucose (FDG) positron emission tomography/computed tomography showed increased FDG uptake by the primary lesion [Figure 2b and c]. Several metastatic lymph nodes were also confirmed on both sides of the neck. A final diagnosis of squamous cell carcinoma (T2N2cM0) of the lower lip was made, and treatment was accordingly planned. First, excision surgery was performed. However, extracapsular invasion was a concern with lymph nodes showing rim enhancement; therefore, we explained the possibility of additional surgery involving the primary tumor and both sides of the neck.

The surgery involved left total neck dissection, right conservative neck dissection, and primary tumor resection involving all layers, with 1 cm safety margins. This resulted in the full-thickness loss of the oral mucosa at the center of the lip including the vermillion and the vermillion border. Considering that a unilateral Abbe flap would be inadequate, we decided to perform reconstruction with a bilateral Abbe flap. Using a #15 scalpel, we placed a sharp incision. Then,

taking care to avoid arterial injury in the upper lip, we used forceps and ophthalmic scissors to obtain sufficient mobility for inferior reversal [Figure 3a and b]. Similarly, a flap was prepared on the contralateral side [Figure 3c], and the bilateral flaps were placed over the defect in the lower lip [Figure 3d]. We confirmed adequate mouth opening to ensure satisfactory postoperative function. However, immediate suturing would result in an insufficient external nose width; therefore, we placed an incision at the ala of the nose and made every effort to maintain the shape of the ala. The final sutures were placed with trimming at some parts of the flaps for the achievement of a proper fit [Figure 3e]. To prevent wound dehiscence, the vermillion on both sides was sutured to restrict opening. During the postoperative healing period, a nasogastric feeding tube was used, and the patient did not experience any other difficulties. Two weeks later, the upper and lower lips were separated under local anesthesia [Figure 3f and g]. Despite the presence of a residual hematoma, the patient quickly recovered the ability for oral ingestion [Figure 3h]. Because of extracapsular invasion in the lymph nodes, irradiation was performed to lower the risk of relapse. Once the patient could tolerate the intake of porridge, a total dose of 66 Gy was delivered to both sides of the neck and the primary tumor site. After the mucositis had subsided, the patient was discharged when she could again tolerate the intake of porridge. The patient remained healthy

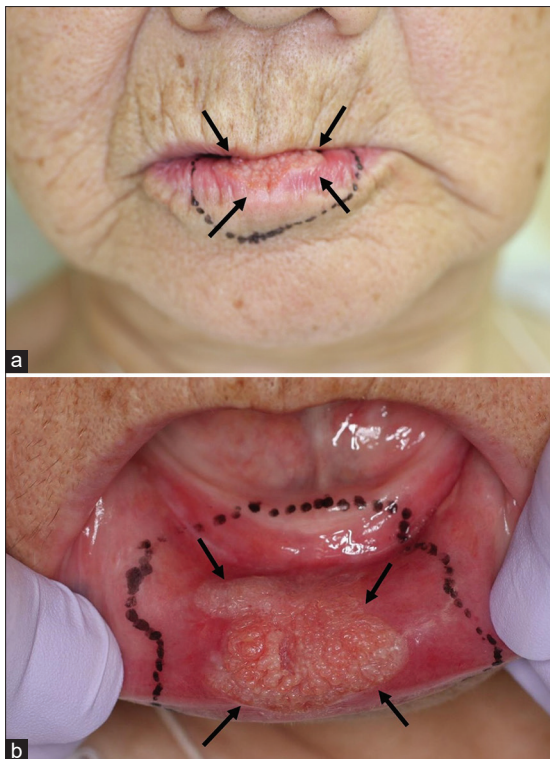


Figure 1: Intraoral findings before treatment for a 78-year-old female with lower lip cancer. (a) The tumor can be seen on the red portion of the lip, even when the mouth is closed (arrow). (b) The length of the long axis of the tumor is 22 mm (arrow)

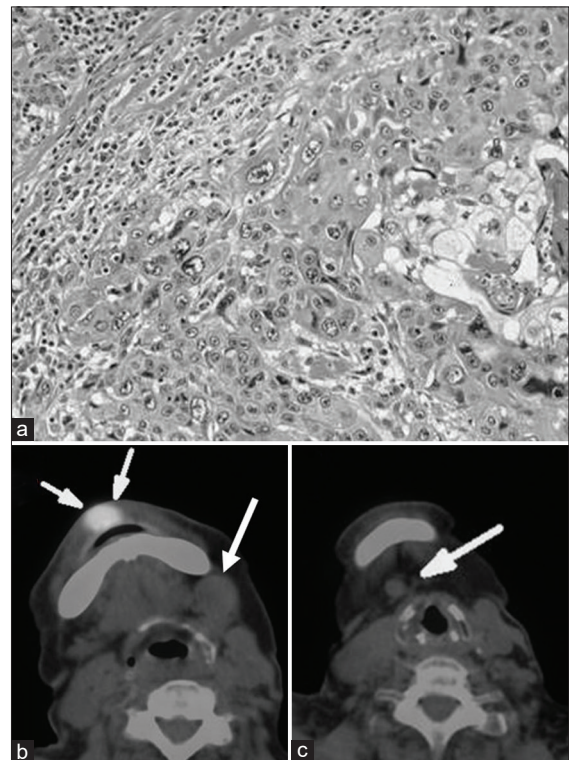


Figure 2: Findings of histopathological and radiographic examinations of lower lip cancer in a 78-year-old female. (a) Histopathological examination confirms a diagnosis of squamous cell carcinoma. (b and c) 2-[fluorine-18] fluoro-2-deoxy-d-glucose positron emission tomography images show the primary site (short arrow) and a metastatic lymph node (long arrow)

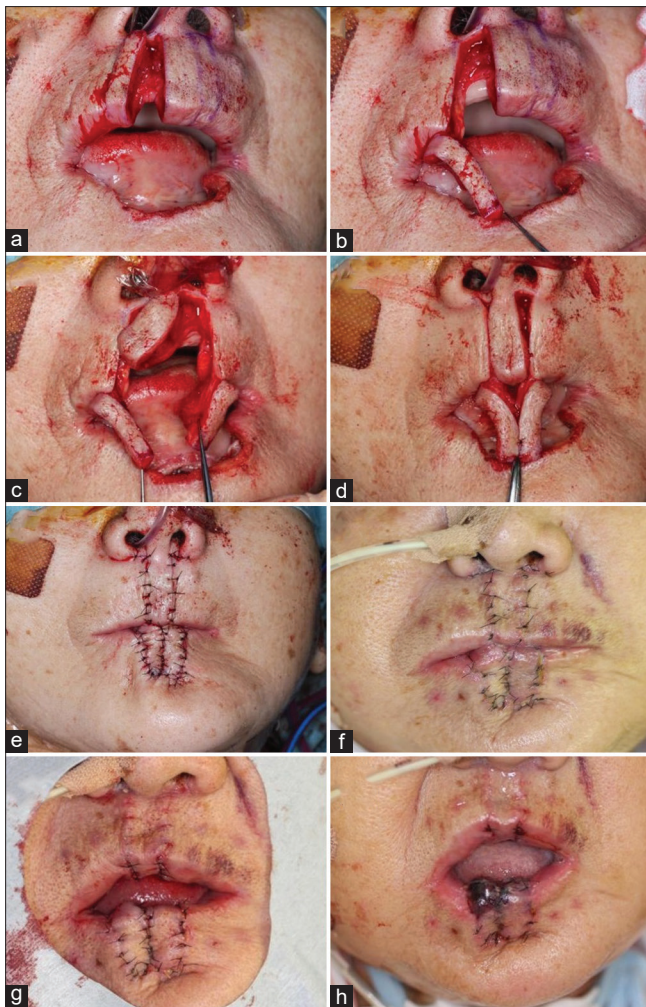


Figure 3: Double Abbe flap reconstruction for a 78-year-old female with lower lip cancer. (a) Flap preparation on the right side, (b) Evaluation of flap mobility, (c) Same procedure performed on the left side, (d) Achievement of adequate mobility on both sides, (e) Final suturing with slight flap trimming, (f) Healing period, (g) Separation of both lips, (h) A small hematoma can be observed on the right side of the lower lip, which shortly disappeared

without relapse for 5 years after surgery. Over time, the scar became inconspicuous, and although her mouth opening was somewhat restricted, she could open her mouth wide enough to wear dentures [Figure 4a-c].

DISCUSSION

We reported a case of double Abbe flap reconstruction in a completely edentulous elderly patient with lower lip cancer. Generally, lower lip plication is acceptable as long as the area to be covered involves a third to half of the lip. In the upper lip, complications such as cleft lip may occur; therefore, generalizations cannot be made.^[4,5]

Because the patient in the present case exhibited complete edentulism, postoperative function was a major concern. Fortunately, we were able to formulate a detailed preoperative

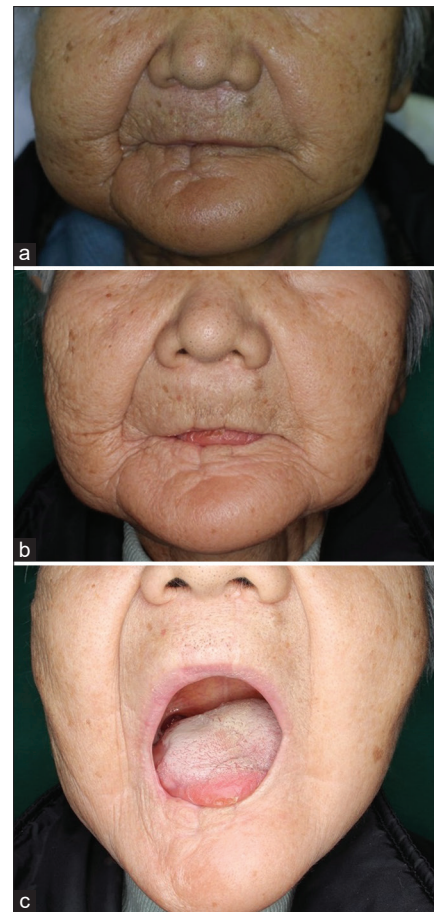


Figure 4: Postoperative findings for a 78-year-old female who underwent reconstruction with a double Abbe flap for lower lip cancer. (a) Findings at 3 months after surgery. (b) Findings at 18 months after surgery. (c) Adequate mouth opening for food intake

treatment plan. The patient's mouth opening at rest was approximately 50 mm, and at some parts of the vermilion border, it was approximately 53 mm. The width of the tumor was 22 mm; therefore, after considering the safety margin, resection of approximately 37 mm would be required at the vermilion border. This would mean that approximately 70% of the vermilion would be lost. Ebrahimi *et al.* reported reconstruction with various local flaps for defects of various sizes. They found that defects with 50%–80% loss of the lower lip structure, excluding the commissure, could be reconstructed with a bilateral Abbe flap.^[6] This was also true for the present case. If a 9–10 mm bilateral flap could be taken from the upper lip, the balance between the upper and lower lips would be maintained. Accordingly, this was considered an appropriate flap width.

In the present case, the tumor was restricted to the lower lip, which permitted the use of an Abbe flap. However, if the commissure was involved, reconstruction would be esthetically very demanding and would require reproduction of the commissure while maintaining the continuity of the orbicularis oris muscle. The Abbe-Estlander flap, which is a combination of an Abbe flap and an Estlander flap, is often used.^[7,8] In addition, for lip reconstruction, surgeons may be

biased toward the method that they are most comfortable with. This may have contributed to the current lack of an established algorithm. In addition, the small number of cases of lip cancer may be a reason for the diversity of reconstruction methods.

In conclusion, we described successful reconstruction with a double Abbe flap, with satisfactory postoperative esthetics and function, in an elderly edentulous patient with lower lip cancer. The fulfillment of minimum requirements, such as postoperative esthetics and preservation of the continuity of the orbicularis oris muscle, as well as ways to increase the level of these requirements, are topics of consideration for future studies.

CONCLUSION

The patients with lip cancer whose resection area involved more than 50% are sometimes difficult. However, the reconstruction with a double Abbe flap must be considered an option of the treatment.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given her consent for her images and other clinical information to be reported in the journal. The patient understands that name and initials will not be published, and due efforts will be made to conceal identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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