CASE REPORT

Significance of vesicles in flap monitoring in oral cancer surgery: Report of two cases

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ABSTRACT

The success rate of vascularized free flap transplantation in head and neck oncologic surgery is high, ranging from 94% to 98.8%; however, flap necrosis sometimes occurs after surgery. When vessel-related complications occur, flap necrosis proceeds rapidly. Thus, flap monitoring after surgery is especially important. We recently treated two patients with flap-related complications. A vesicle appeared on the surface of the flap and enlarged within a short time; the flap's color changed to purple, and a reoperation was eventually performed. While there are approaches to monitor flaps, this is the first report suggesting the assessment of vesicle formation for flap monitoring, since the vesicles occur several hours before changes in the flap color.

Key Words: Flap monitoring, Vesicle, Oral cancer, Free flap

1. INTRODUCTION

Cutaneous or myocutaneous free flaps are often used to reconstruct oral and maxillofacial defects after surgery for oral cancer. The free flap requires vascular anastomosis, and thrombogenesis in the feeding vessel can cause rapidly progressing necrosis, necessitating immediate reoperation. Thus, flap monitoring is performed at short intervals postoperatively, mainly by gloss observation of color changes in the flap. In this report, we describe two patients who initially presented with a vesicle in the flap, which was followed by flap color change and subsequent reoperation.

2. CASE PRESENTATION

2.1 Case 1

An 80-year-old man with carcinoma of the floor of the mouth underwent resection of the tumor, neck dissection, tracheotomy, and reconstruction using free forearm flap. After 14 hours, vesicles appeared on the ridge of the flap, and 30 minutes later, in the middle of the flap (see Figure 1). The vesicles enlarged and the color of flap turned purple, and dark. Other monitoring methods such as pinprick test and temperature measurement were performed, and the patient subsequently underwent vascular anastomosing surgery.

2.2 Case 2

A 79-year-old man with carcinoma of the buccal mucosa underwent resection of the tumor, neck dissection, tracheotomy, and reconstruction using a free rectus abdominal myocutaneous flap. A vesicle appeared after 12 hours in the ridge of the flap, and another after 24 hours in the center of the flap (see Figure 2). As the vesicles enlarged, the flap color worsened, and reoperation was performed. Thrombogenesis of the feeding vessel was not observed, but the vessel was compressed by the hematoma, and only removal of the hematoma was performed.

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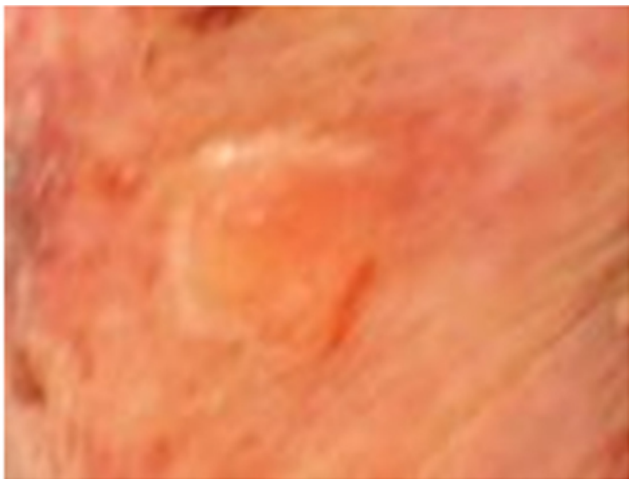

Figure 1. Vesicles that appeared on the flap after surgery

3. Discussion

Necrosis of the free flap can be attributed to two factors: systemic conditions such as diabetes, arteriosclerosis, radiotherapy, or transplanting problem, and problems related to the vascular anastomosis such as torsion, tension, or pressure on the blood vessels.[1,2] Although the systemic conditions can be evaluated before surgery, problems related to the vascular anastomosis are local phenomena that appear postoperatively. Frequent flap monitoring at short intervals is especially important for early identification of such problems. Flap monitoring is usually performed using color assessments, pinprick tests, temperature measurement, blood sugar level determination, measurement of oxygen saturation of the blood and lactic acid levels, and Doppler imaging.[3] In both cases in our study, approximately 12 hours after surgery, vesicles occur and are observed relatively early postoperative. Vesicles appeared before the color changes in the flap. Vesicles are easily observable lesions, being state in which a part of capillary vessels in the dermis breaks and plasma components are stored subcutaneously. When vesicles appear, it is not always necessary to perform re-operation. When vesicles appear, we follow closely with other symptoms and see vesicles as a sign of their circulatory disorders. We suggest that a vesicle may be one of the symptoms of vessel-related complications, and the appearance of vesicles on a flap should prompt clinicians to carefully monitor the flap color and provide early intervention for flap-related complications.

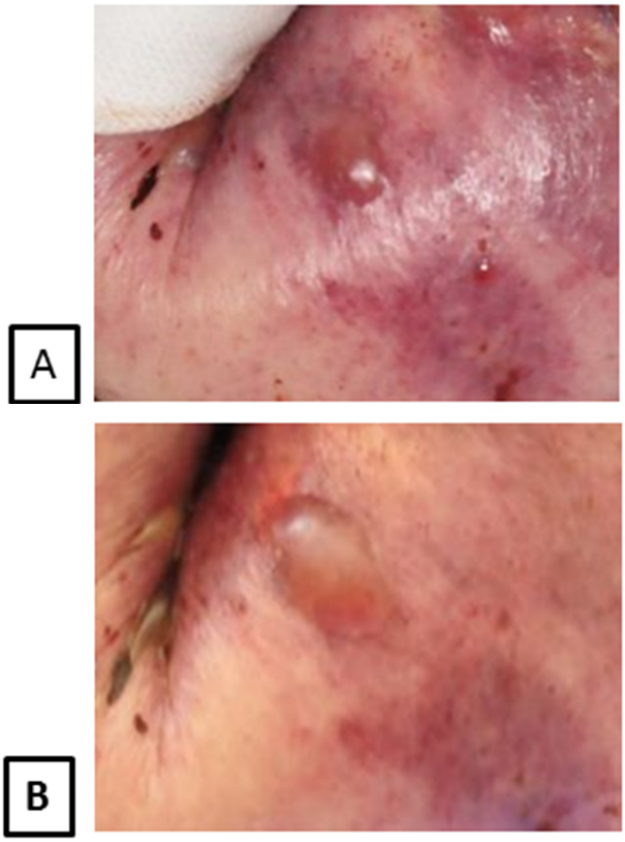

Figure 2. (A) 24 hours after surgery; (B) 28 hours after surgery

Conflicts of Interest Disclosure

The authors declare they have no conflicts of interest.

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