

Short Case Report

Upper lip reconstruction after a dog bite

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Abstract – Observation: In traumatology, wounds of the lips are frequent and their care is often summarized in a suture in one or more planes. Defects at this level are rather rare. When they occur, it is important to study their areas and their size in order to offer the best reconstruction. When Abbés' flap is appropriate, surgical procedure is always achieved remotely from the trauma. **Comments:** This technique allows rebuilding one-third of the upper lip and gives good functional results and a satisfactory aesthetic result. A weaning of the flap at three weeks, regular follow-up, and prospective surgical revisions will be necessary.

Observation

Mrs. D., 53-years old, was bitten by a Malinois dog in a veterinary clinic where she worked as an assistant in the late afternoon. She immediately went to the emergency consultation.

Clinically, it showed a significant loss of substance of the left upper lip. It was about 4 cm long and 2 cm high, reaching the philtrum but not the labial commissure. There was also a very mobile tooth 11 following the bite.

Her medical and surgical history was limited to orthognathic surgery performed in our department for dento-skeletal dysmorphism when she was 18. She did not take any medicine and did not suffer from any allergies.

After careful trimming and washing of the traumatized area, it was decided to suture the torn lip portion that was found in two planes (Fig. 1). An emergency arterial suture was not possible given the long delay in management, it was decided to suture the torn piece of lip to protect the area while waiting for surgery. At the same time, the patient received an analgesic treatment with paracetamol 1 g and tramadol 50 mg every 6 h, as well as antibiotic therapy combining amoxicillin and clavulanic acid at the rate of 1 g three times a day for two weeks. In addition, the status of tetanus vaccination has been verified. The risk of rabies was ruled out considering the patient's history of vaccination and the fact that the biting

animal is known and monitored regularly. Finally, a maxillary dental rigid arch is performed in front of the significant mobility of the tooth 11.

At day 5, in front of the expected necrosis of the reimplanted piece, it was decided to perform his resection (Fig. 2).

At day 7, in the operating room under general anesthesia, the patient underwent reconstructive surgery of her left upper lip with Abbé's flap (Fig. 3). Local care is recommended daily for 3 weeks. In addition, food is allowed in mixed form through a straw.

Three weeks after the surgery, the graft was weaned in the operating room under general anesthesia, after ensuring good vascularization of the flap after clamping the pedicle. Faced with significant postoperative venous overload (Fig. 4), it was decided to puncture the graft every hour for 12 h to prevent any arterial compression.

Three days later, the aesthetic and functional result is very satisfying (Fig. 5). The patient can resume normal feeding.

One week after weaning, the patient even feels the touch at the graft.

Six months after weaning (Fig. 6), the esthetic and functional improvement is noticeable, partly due to daily massages and application of solar cream on the scar by the patient herself.

Otherwise, the motor function of the flap gradually appears, aided by physiotherapy session and daily self-reeducation.

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Fig. 1. At day 0, aspect of the lesion after suture of the torn lip portion.



Fig. 2. At day 5, aspect of the lesion after resection of the sutured lip portion.

Comments

Each lip has a cutaneous portion, a white lip, and a mucous part, a red lip. The upper white lip is very adherent to the underlying muscle plane. It has many reliefs. Medially, we find a depression, the philtrum, laterally limited by the philtrum crests and down by the Cupid's bow which symmetry we must try to preserve. All these reliefs can be described on the upper lip as three aesthetic subunits: a median between the two crests and two lateral peaks.

The mucocutaneous junction line between the white lip and the red lip is sharp, prominent, and well-drawn. It will be necessary to rebuild it carefully to avoid shifts. In the same way, the different labial subunits will be respected and reconstructed under pain of aesthetic sequelae.



Fig. 3. At day 7, Abbe's flap in immediate postoperative.



Fig. 4. Immediate postoperative aspect after weaning of the graft: venous overload.

The arterial vasculature is dependent on the external carotid system via the facial artery. The upper and lower labial arteries are collateral branches of the facial artery. They anastomose on the median line forming an arterial circle also



Fig. 5. Aspect of the scar 3 days after graft weaning.

called coronary arteries located in the plane of the glandular layer. The variations of which are numerous, and the anastomoses between the two sides are not constant [1]. They are arranged parallel to the major axis of the lips between 1 and 2 mm of the cutaneous–mucous line. Their very superficial situation makes them particularly vulnerable during labial trauma. The superior labial artery has an average diameter of 1 mm. It participates, by its branch to the vascularization of the sub-nasal septum, with the constitution of the vascular spot of the nose. Apart from the labial arteries, the lips receive branches of the infraorbital arteries, of the mouth, and transverse of the face. The coronary arteries project on the mucovermillionary junction and give vertical collateral branches.

The losses of substance of the upper lip must be analyzed according to their seat: white lip or red lip. These two zones are separated by the mucocutaneous line whose alteration is always unsightly.

The reconstruction of the upper lip must take into account the aesthetic subunits and the need to keep Cupid arch symmetry to avoid distortion from the base of the nose.

The need for the placement of scars, the respect of anatomical landmarks (continuity of the mucocutaneous junction), and the symmetry of the upper lip often requires the use of the lower lip for its reconstruction, which, on the contrary, does not have sub-unit aesthetics and where resections of less than one-third do not result in visible asymmetry.

Also, referred to as a rotating flap of the lower lip, Abbé's flap is an old design flap (1897). It allows to rebuild one-third of the upper lip if the labial commissure is not involved [2].



Fig. 6. Aspect of the scar 6 months after graft weaning.

It is a full thickness triangular flap turned 180°, vascularized by the inferior coronary artery that travels close to the lining of the inner lip surface at the level of the mucocutaneous line. The width of the flap taken from the lower lip corresponds to half of the loss of substance of the upper lip. The lower lip is still flexible enough to give a quarter of its length without residual deformation. The medial point of rotation is centered on the coronary artery, which must remain protected by the lining of the inner lip. The flap is then rotated 180° and sutured plan by plan at the loss of superior substance.

Postoperative care requires a mixed diet, or even the establishment of a nasogastric tube to avoid traction on the sutures. The vascular pedicle must be protected by fatty dressings to prevent drying out and the risk of necrosis. The section of the pedicle is performed during the 3rd week. The new mucocutaneous lines should be sutured carefully to avoid unsightly shifts.

It is planned to perform a surgical revision of the upper and lower red lips and an injection of autologous adipocytes in the scar to improve the aesthetic appearance. This gesture cannot be undertaken until 6 months after graft weaning.

Conflict of interest

The authors declare that they have no competing interest.

References

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