Nasal amputation due to donkey bite: immediate and late reconstruction with a forehead flap

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Summary The authors present two cases of nasal amputation due to a donkey bite. In one case an immediate repair of the nose with an oblique forehead flap was performed. In the second case a “classical” three-stage nasal reconstruction with an oblique forehead flap was performed 6 months after the facial injury. In both cases no complications were observed and the functional and esthetic results were estimated as satisfactory.

Donkey bites to the face are rare and often affects the nose like most of the mammalian bite injuries. It can cause severe, life-threatening damages of the face with huge functional and esthetic impact on the affected zone. These wounds can be repaired primarily when treated shortly after injury. The forehead flap remains a basic tool for the reconstruction of the nose can be used at the time of primary wound repair without increased risk of infection.

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Introduction

Bite wounds are relatively frequent, the order of frequency being, dogs, cats and humans. The mammalian bites are reported to account for 1% of all visits to emergency departments. Apart from dog and cat, other animals such as cow, monkey, horse, pig, camel are reported responsible for bite injuries.

In spite of the large variety of bite injuries and their localisation on the human body donkey bites are not common and rarely affect the facial region. Herein, we present two cases of total nasal amputation as a result of a donkey bite.

Materials and methods

Two elderly men of 67 and 70 years, respectively were victims of donkey bites to the face resulting in nose amputation and facial wounds.

In the first case a 67-year-old man was seen at the Emergency Department 6 h after a severe donkey bite to his face. He was hospitalised in a poor general condition with clinical and laboratory signs of hypovolemic shock. A total nasal amputation was observed. The whole nose was bitten-off including the distal parts of the nasal bones. There was also a

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defect involving 1/3 of the superior lip and a cutaneous defect in the zygomatic region. No other traumatic lesions were established both clinically and radiologically.

The patient was operated short after his admission under general anaesthesia.

The total defect of the superior upper lip was sutured primarily in layers. The cutaneous defect in the zygomatic region was covered by a supraclavicular FTSG. The nasal defect was primarily covered by an oblique forehead flap.

The donor site was closed primarily except in the most distal part, close to the hairline, where a retroauricular FTSG was used. The forehead flap covered the nasal wound and the poking nasal septum. No bone or cartilage grafts were used to reconstruct the nasal skeleton because of the risk for potential infection. This was left for a second stage.

In the postoperative period an antibiotic combination of ceftriaxone (2 g/24 h) and metronidazole (1 g/24 h) was used for 5 days.

In the second case a 70-year-old man presented 6 months after a nasal amputation due to a donkey bite.

Right after the accident a primary wound treatment and haemostasis had been performed. A large laceration wound on the right side of the forehead had been primarily sutured. The nose defect had been left for a secondary repair.

Six months later he presented with a totally amputated nose (Fig. 1). The nasal bones were partially preserved. The edge of the septal cartilage

Figure 1 Preoperative view 6 months after the trauma. The arrows point at the scarred zones on the forehead and right nasolabial region.
was at the level of the nasolabial skin. There was a scar on his forehead running horizontally from the middle line halfway to the right side, resulting from his laceration wound sutured right after the trauma. Another scar involving the right nasolabial region was observed (Fig. 1).

A three-stage nasal reconstruction was performed. At the first stage a unilateral superiorly-based nasolabial flap was elevated and sutured over the nasal septum to provide the nasal lining. An oblique forehead flap on the supratrochlear vessels was used to provide the nasal skin. This flap was elevated on the same side (left side) of the vascular pedicle (Fig. 2) because of the existing scar on the right side of the forehead. The nasal skeleton was reconstructed with a crista iliaca bone graft for the dorsum nasi and conchal cartilage from both ears for the columella and nasal ala.

At the second stage 3 weeks later the forehead flap was thinned under general anaesthesia by elevating a part of it and leaving the flap vascular pedicle in place. The pedicle was sectioned at the third stage under local anaesthesia 4 weeks later.

Two more corrective operations under local anaesthesia were performed later.

Results

All wounds healed uneventfully and no septic complications were observed. There was no flap necrosis or donor or recipient site complications. Both FTSG in the first case took without sequelae. The patient in the first case with immediate reconstruction was discharged from the hospital on the 8th day. He refused any second-stage operations of his nose. The final functional and esthetic results
were assessed as satisfactory (Fig. 3A–D and Fig. 4).

Discussion

As mentioned by Galloway RE bite wounds are relatively frequent, the mammalian bites accounting for 1% of all visits to emergency departments.5 The incidence of dog, cat and human bites has been increasing steadily and represent an important cause of morbidity and mortality.19 However, injuries due to a donkey bite are extremely rare.14 All regions of the human body might be affected by an animal bite e.g. upper11,12 and lower extremity,23 thorax,8 even female breast4 and genitalia.6 The head and neck region is quite frequently affected — 57% of the cases.3

The predominant areas on the face are the nose and the auricles. The tissue defects may be superficial, but they can even cause amputations, including severe vascular and nerve or bony destruction like in our cases.17 There are reports in the literature on nasal amputations due to human or dog bite7,20 but we could not find any report on donkey bite nasal amputations. In this context the cases of nasal amputation due to a donkey bite can be considered as rather exceptional and interesting, moreover the cases presented herein proved to be the only donkey bite injuries to the face for a 20-year-period in our establishment. The immediate reconstruction of the facial lacerations caused by an animal bite is acceptable nowadays. Since the
blood supply of the face is much more superior to that for instance of the legs, infections are rare and primary wound closure after animal bites is recommended.\textsuperscript{10}

This is supported by Kountakis et al.\textsuperscript{9} who declare that wounds resulting from animal bites to the head and neck can be repaired primarily, especially when treated shortly after injury. Regarding the importance of surgery in the head and neck area plastic and reconstructive techniques including autologous transplantations and various local or regional flaps should be used at the time of primary wound repair.\textsuperscript{17} The immediate reimplantation seems to be the best solution in similar cases.\textsuperscript{22} However, when the avulsed tissue is not available or reimplantation is considered unadvisable autologous transplantations and various local or regional flaps can

\textbf{Figure 4} Final result. (A) Face, (B) right semi-profile, (C) left semi-profile, (D) worm view.
be put into practice at the time of primary wound repair.18,21

This is proved by the uneventful postoperative recovery of the patient in our first case, where no complications were observed.

In our second case a classical three-stage reconstruction with a forehead flap was performed. The forehead flaps continue to be nowadays a principle method in rhinopoesis and hemirhinopoesis as well as for large nasal defects.15,13 Their significance becomes even more important because of the fact that they are suitable for nasal reconstruction in children as well.18 We used an oblique forehead flap because of the present scar on the forehead and the short distance to the hair line. We used a somewhat different design of the oblique forehead flap in which the flap was elevated from the same side of the vascular pedicle unlike the classical design where the flap and the pedicle are contralateral. The reason for this was the existence of a large scar traversing the whole contralateral to the vascular pedicle half. We could not use bilateral nasolabial flaps for the nasal lining because of the scarred nasolabial fold on the right side. The single nasolabial flap proved sufficient for reconstructing the nasal lining could be a possible solution in similar cases.

Conclusions

Donkey bites to the face are rare maxillo-facial trauma that often affects the nose like most of the mammalian bite injuries. It can cause severe, life-threatening damages of the face with huge functional and esthetic impact on the affected zone. These wounds can be repaired primarily when treated shortly after injury. The forehead flap remains a basic tool for the reconstruction of the nose after donkey bite amputation and can be used at the time of primary wound repair without increased risk of infection.

References