

Traumatic facial nerve injury. A case report

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Case report

Plastic Surgery



Background: The facial nerve and its branches exit the anteromedial portion of the parotid glands to a plane deep below the SMAS, and thus the facial musculature is innervated from a deep plane. The most frequently injured branches, in descending order, are the temporal, marginal, buccal, and zygomatic branches of the facial nerve. We present the case of a 23-year-old male who is attacked by third parties with a sharp object, changing the cut in the left facial region, he is referred to our hospital unit for Plastic and Reconstructive Surgery evaluation, finding a patient with Left Facial Paralysis, facial edema.

Keywords: Facial nerve injury, facial palsy.

Plastic, aesthetic, and reconstructive surgery incorporates a wide range of procedures in multiple areas of the body, such as face, neck, breasts and extremities.

The facial nerve and its branches leave the anteromedial portion of the parotid gland towards a deep plane below the superficial musculoaponeurotic system (SMAS) and for this reason the facial muscles are innervated from a deep plane, except for the muscles that elevate the oral commissure: the buccinator and mentalis.

Motor injuries are less frequent; they occur in 2.6% of cases. The most frequently injured nerves, in descending order, are the temporal, marginal, buccal, and zygomatic branches of the facial nerve. The lesion of the temporal or marginal branch of the facial nerve is the most reported in the literature and this is explained by the lack of intercommunicating branches and anastomoses that they have in the zygomatic and buccal branches (1).

The temporal branch of the facial is the thickest; it is located anterior and caudal to the frontal branch of the superficial temporal artery in 91% of cases. It can be identified by following Pitanguy's line that runs from 0.5 cm inferior to the tragus, to 1.5 cm above the lateral border of the eyebrow. Since the lateral border of the eyebrow is not constant in all patients, a line drawn from the tragus to the lateral canthus can be taken as reference, which at its midpoint crosses a line coming from the lower border of the ear lobe.

Seckel locates the temporal branch in facial zone 2, where the nerve originates below the parotid gland at the level of the zygomatic arch before innervating the frontalis muscle. Damage to this nerve causes paralysis of the frontal but preserves function of the orbicularis due to the cross-innervation it receives from the zygomatic branch. The lesion presents clinically as ipsilateral frontal paralysis, with ciliary ptosis and loss of symmetry during active mobilization of the facial muscles (2).

Within the broad chapter of traumatic facial paralysis, these can be divided into two large groups:

1. Facial paralysis resulting from the direct action of the traumatizing agent on the facial nerve. Consider in this section obstetric trauma, facial wounds caused by projectiles and, to be more representative, iatrogenic trauma.
2. Facial paralysis resulting from the indirect action of the traumatizing agent on the facial nerve. Among them, head injuries that occur with fractures of the petrous bone (3).

Case report

This is a 23-year-old male with no medical history of importance for the current condition, who is attacked by third parties with a sharp object, suffering a cut in the left facial region, goes to a second-level hospital where they perform wound closure and is referred to our hospital unit for Plastic and Reconstructive Surgery evaluation, finding a patient

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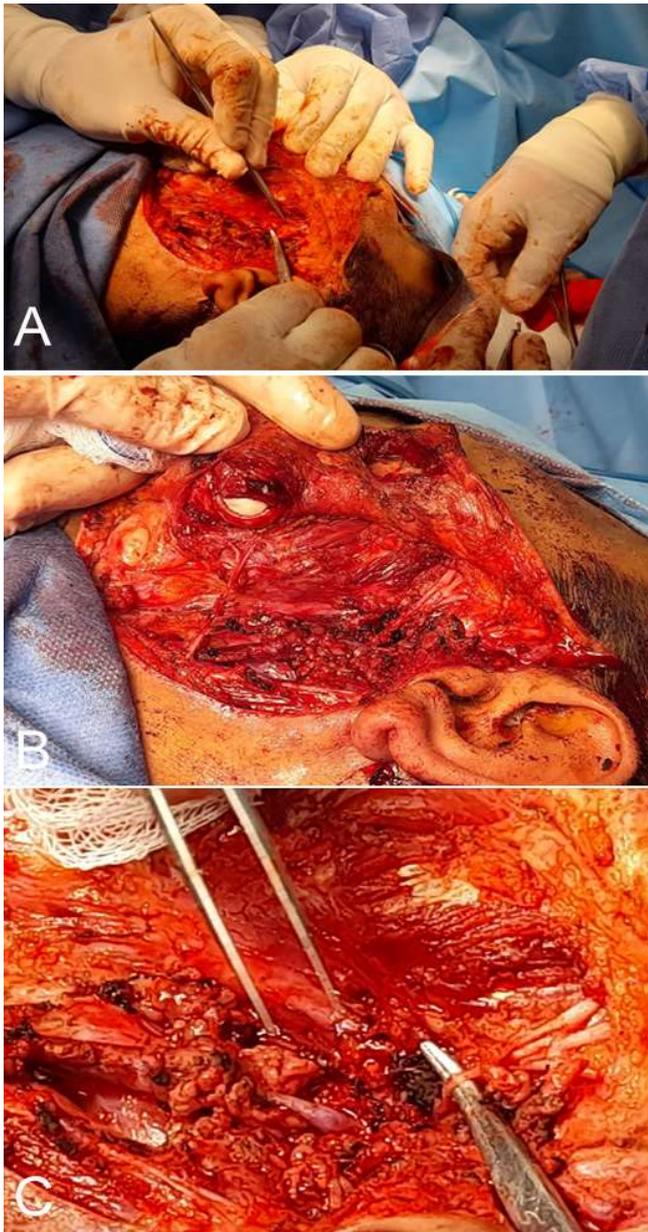


Figure 1. A. Severed facial nerve, zygomatic branch. B. Neuroorrhaphy of the facial nerve. C. Neuroorrhaphy of the facial nerve.

apparent to chronological age with left facial paralysis, facial edema, rest without alterations.

A modified Blair-type incision is made, the anterior and posterior skin flaps are raised, respecting the superficial musculoaponeurotic system (SMAS), beginning the dissection of the superficial aspect of the gland; we proceed to identify the sternocleidomastoid muscle and the posterior belly of the digastric muscle, which is used as an anatomical reference to locate the facial nerve, dissect its main trunk as well as its main branches, carefully finding a section of the temporal and facial zygomatic branch (Figure 1), neuroorrhaphy of the facial nerve is performed using magnifying glasses with prolene 5-0 (Figure 1B, 1C). Hemostasis is verified and drainage is placed that is fixed to the adjacent skin, sutured in two planes and a compressive bandage is placed. The patient had a postoperative



Figure 2. 2 weeks post surgery.

period without complications, with preserved facial mobility one month after surgery (Figure 2).

Discussion

Trauma in general, and facial trauma, have increased in frequency in recent years. It constitutes a challenge for physicians who work in emergencies regarding its initial management, and a difficult problem for specialists who work in this area. Every professional who deals with these patients must have the necessary knowledge of clinical evaluation, imaging tests, initial treatment, and the ability to carry out an adequate prioritization in the resolution of facial trauma, in the context of the presence of lesions of other systems and organs.

Maxillofacial trauma is found in up to 30% of polytrauma patients, with a male:female ratio of 3:1. Its risk is death due to suffocation, hemorrhages and association of spinal column and central nervous system injuries. The sequelae can be aesthetic and functional (such as alterations in occlusion, ventilation, vision, etc.). Facial injuries can involve pure facial fractures, pure soft tissue injuries, both concomitantly, nerve and visceral injuries (5).

Traumatic injuries of the facial nerve have a very low incidence in the literature, they tend to occur more in context of iatrogenesis during maxillofacial surgeries. However, their management when there is a section of the facial nerve in any of its final branches is the same, identifying the nerve by parotidectomy and neuroorrhaphy, being the most common, the Ipsilateral facial Neuroorrhaphy.

Ipsilateral facial neuroorrhaphy consists of reapproximating the severed ends of the facial nerve or, in the event of a nerve defect, placing a graft between the two ends, generally using the greater auricular nerve or the sural nerve as the donor area for the nerve graft. This technique is the treatment of choice for lesions of isolated branches of the facial, with a powerful and rapid regeneration (5).

Conclusion

Facial nerve injuries due to trauma, despite not being so common, it is necessary to have knowledge of the surgical technique to perform neuroorrhaphy. In many hospitals in the country most traumatic injuries are resolved by a general surgeon, when there is no subspecialty such as plastic and reconstructive surgery, where many times it is the only option that the patient has to preserve the function of the nerve, it is important to have both theoretical and practical knowledge in this branch.

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