Management of Maxillofacial Soft Tissue Trauma with Parotid Gland Exposure: Case Report

George Abraham Saragih¹, Seto Adiantoro², Indra Hadikrishna³

Resident of Oral and Maxillofacial Surgery, Padjadjaran University, Bandung, Indonesia
Staff of Oral and Maxillofacial Surgery Department, Dr. Hasan Sadikin General Hospital Bandung, Indonesia
Staff of Oral and Maxillofacial Surgery Department, Faculty of Dentistry, Padjadjaran University, Bandung, Indonesian

Received: 11-08-2023 / Revised: 04-09-2023 / Accepted: 30-09-2023
DOI: https://doi.org/10.32553/ijmbs.v7i10.2739

Corresponding author: George Abraham Saragih
Conflict of interest: No conflict of interest.

Abstract

Introduction: Soft tissue trauma in Oral and Maxillofacial cases occurs quite often in the Emergency Room at Hasan Sadikin Hospital, Bandung. Trauma that occurs to the facial area is very susceptible to causing problems, both aesthetic sensory and motor function problems in that area. The existence of important structures in the facial area, such as the parotid gland and the location of the Facial Nerve (N.VII) in the facial area, requires special attention in treating soft tissue trauma to the face. Emergency management aims to ensure appropriate action in treating wounds, preventing infection, and ensuring the presence or absence of gland damage, as well as involvement of N.VII damage. Management of soft tissue wounds in the facial area is carried out by suturing, pain management and administering antibiotics. Emergency management of soft tissue trauma must be carried out quickly and precisely to obtain maximum results and consider function and aesthetics. Case report: A 16 year old female came with complaints of bleeding from the face and ears due to a motorbike accident approximately 2 hours before entering the hospital. Physical examination revealed an asymmetrical face, a torn wound on the left cheek with the parotid gland exposed and otorrhea. The patient's intraoral examination was normal. Conclusion: In this paper we will report a case of trauma to the maxillofacial soft tissue with exposure of the parotid gland. It is hoped that this article will expand insight into how to examine damage to the parotid gland and examine the function of N.VII in soft tissue trauma to the facial area.

Keywords: Facial Soft Tissue Trauma; Parotid Gland; Management, N.VII

Introduction

Trauma in Oral and Maxillofacial cases includes trauma involving soft tissue and hard tissue on the fascia. Cases of soft tissue trauma to the facial area can affect important facial structures. Some of these important structures can be blood vessels, glands and innervation. Some blood vessels that need to be considered when treating facial injuries are the arteries and veins in the face. If trauma affects the arteries and veins of the face, active bleeding will occur which is feared to cause shock, namely hypovolemic shock. Shock that occurs in a patient can cause the patient's general condition to worsen and can even result in death. Apart from the location of the blood vessels on the facial, several other important structures that need to be considered are the position of the glands on the facial. There is the parotid gland which is the largest salivary gland among the other salivary
glands and is susceptible to damage when facial trauma occurs. The function of the salivary glands is to produce saliva which is useful for aiding digestion, preventing the mucosa from drying out, providing tooth protection against caries, and maintaining homeostasis. Damaged salivary glands will disrupt the balance in the oral cavity. The impact of damage to the salivary glands will affect oral disorders such as xerostomia in the oral cavity. N.VII needs attention when facial soft tissue trauma occurs, N.VII needs to be checked to determine whether there is damage. N.VII examination can be carried out by inspection and palpation of the facial. Thus, the aim of managing soft tissue trauma to the face is to protect important facial structures, restore normal facial anatomy before trauma occurs, and to prevent sequelae. Wound management that can be carried out when soft tissue trauma occurs on the facial is to first stop the active bleeding that is occurring, carry out wound cleaning measures, and continue closing the wound with primary sutures and carrying out function checks on the nerves.

**Case Report**

A 16 year old female patient presented with facial bleeding. Approximately two hours before entering the hospital, the patient was riding a motorbike at medium speed in the Holis area. The patient hit the truck from behind so that the patient fell with the mechanism of hitting the truck head first. The patient experienced fainting, and there was bleeding from the left ear. In the primary survey it was found A: clear with C-spine control, B: Chest shape and movement symmetrical, right Vesicular Breath Sound the same as left, respiration 20 times per minute, C: Pulse 92 times per minute with, D: GCS assessment 9 (E2M5V2), the left isochoral round pupil with a diameter of 3 mm is the same as the right, there is no light reflex disturbance, and there is no paresis. Secondary survey found no abnormalities.

On general examination, the skin turgor was positive, the head of the face was asymmetrical, there was a laceration on the left side of the face with the parotid duct exposed. Eye examination. The sclera is non-icteric, and there is no subconjunctival hemorrhage. On examination of the neck the jugular venous pressure (JVP) was not increased, the left and right submandibular lymph nodes were not palpable and painless. Thoracic examination shows symmetrical shape and movement. Lung, heart, abdominal and liver examinations were within normal limits. The extremities feel warm and the capillary refill time is less than 2 seconds. Laceration wound on the left side of the face with regular wound edges measuring 10 cm long, muscle-based (Figure 1).

![Figure 1: Asymmetrical face, vulnus laceration with exposure of the parotid gland on the left side of the face](image)
The local status is normal, while in the facial region there are several abrasive wounds on the nose. Intraoral examination was normal and examination of the gingiva, vestibule, cheek mucosa, tongue, floor of the mouth, palate and tonsils were within normal limits.

The patient was taken to the Hasan Sadikin General Hospital emergency department by his family with suspected moderate head injuries. The patient was difficult to communicate with a delirium level of awareness (GCS = 9). Clinically, there was a fairly large torn wound on the left facial area and the condition of the wound showed exposure of the parotid gland. It is feared that large lacerations could affect N.VII. The first action taken in the emergency room is to first ensure that the patient's airway is smooth and not blocked. Another examination that needs to be considered is checking vital signs such as breathing, circulation and disability in patients functioning normally in accordance with ATLS principles. After declaring the patient's condition safe by the Neurosurgery TS, the Oral Surgeon performs a thorough inspection, palpation and percussion examination of the oral and maxillofacial areas to ensure that there are no wounds or fractures that have been neglected in the maxillofacial area. Torn wounds in the facial area are cleaned first. Cleaning the wound was carried out by sprinkling it with 0.9% NaCl which was added with Povidone iodine. After ensuring that the wound was clean, the torn facial wound was sutured using muscle sutures using absorbable thread type Vicryl 4.0 and continued with suturing the skin using Nylon 6.0. Before suturing, the patient is given local anesthesia by injecting lidocaine containing epinephrine first into the area around the wound to prevent pain.
The patient was hospitalized until the patient's head injury improved. After the patient is fully conscious, N.VI.II sensory and motor function is examined in the facial area. Sensory examination is carried out by instructing the patient to close the eyes and pass the tissue lightly touching the facial surface area. Patients are asked to see their ability to feel touch. The N.VII examination is followed by a motor examination. Facial motor examination is carried out by instructing the patient to frown, move the eyebrows, move the cheek to the right and left and instruct the patient to move the lips to the front and side. If there are indications of trauma to N.VII, the patient will experience problems in moving one area of the face. If this happens, the patient can be consulted to the neurology department so that the patient can be given therapy in the form of corticosteroid drugs. Apart from that, there are several other alternative therapy options that can be provided in the form of facial exercises, electrostimulation, and physiotherapy. Patients can go home and then continue outpatient treatment. The patient was prescribed home medication in the form of Cefadroxil, Ibuprofen, and Omeprazole, as well as Chlorhexidine gluconate 0.2% mouthwash. Patients are allowed to consume regular foods high in calories and protein and are educated to practice opening and closing their mouths independently. The patient is scheduled to come for control on the seventh day.
after treatment. On the seventh day after treatment, a control examination was carried out. During the control, it was seen that there were no loose stitches, no necrotic tissue, no pus or dehiscence. The pain and swelling felt by the patient began to decrease. The patient's stitches were opened and no bleeding, secondary infection or dehiscence was found.

Discussion

Maxillofacial soft tissue trauma is related to trauma to the face or jaw caused by physical force or a foreign object that hits the soft tissue of the face. The impact that arises from facial trauma not only has a physical impact, but also has a real psychological impact. The challenge faced in treating facial emergencies is to restore the functional and aesthetic aspects of the facial to its previous condition. Every facial part such as blood vessels, glands or nerves can be injured when trauma occurs to the facial. The trauma that occurs can be in the form of edema, hematoma or lacerations to the facial area. Delaying treatment of facial soft tissue trauma can worsen the swelling, cause scars, and make primary closure difficult. The longer a soft tissue injury is exposed to the external environment, the higher the chance of developing an infection. If trauma affects major blood vessels such as arteries and veins, it will result in active bleeding. We can see the location of the arteries and veins on the facial in Figure 6, while the location of the innervation on the facial can be seen in Figure 7. Some treatments for wound bleeding in soft tissue trauma include administering anti-bleeding drugs such as Tranexamic acid, carrying out procedures and using thick gauze. and sterile at the source of bleeding until the bleeding stops due to the blood clotting process. Another action is to suture directly at the source of the wound.

Figure 6: Arteries (Left Face) and Veins (Right Face) on the face (Snell 2012)

Figure 7: Sensory (Left Face) and Motor (Right Face) innervation of the face (Snell 2012)
In this case, apart from paying attention to the location of the arteries and veins to avoid active bleeding, exposure of the parotid gland is clinically visible. The parotid gland is one of three major salivary glands whose role is to produce saliva. The major salivary glands consist of a pair of parotid, submandibular and sublingual glands in the oral cavity. Anatomically, the parotid glands are the largest pair of salivary glands located in the preauricular region along the posterior surface of the mandible. These glands are located on both sides of the face, in the area between the posterior cheeks and at the bottom of the anterior ears. This gland is yellowish in color, shaped like an inverted pyramid with an average weight of 25 grams, and has a capsule. Large facial wound showing exposure of the parotid gland. It is feared that it will cause trauma to the gland as well as N.VII. The parotid gland is bypassed by N.VII so that injuries that occur in this area are susceptible to causing damage to N.VII. Examination of trauma to the parotid gland can be done by inspection or by injecting gentian violet fluid to see whether there is damage to the gland duct.

The presence of nerves in the facial area also plays an important role in the facial area. The facial nerve is very necessary to be able to feel various sensations on the facial and to be able to move the facial in response to a stimulus. The facial nerve, namely N.VII, has sensory and motor functions. N.VII has a nucleus in the medulla oblongata and motor nerve roots that serve the mimic muscles and special sensory roots (nervus intermedius). This nerve arises on the anterior surface between the pons and the medulla oblongata (angulus pontocerebellaris). The nerve roots run with the vestibulo-cochlear nerve and enter the internal acoustic meatus in the pars petrosa of the temporal bone. The nerve is located between the balance and hearing organs, namely the cochlea and the vestibule, as it runs from the internal acoustic meatus to the ventrolateral side. The nerve enters the facial canal at the base of the meatus and turns dorsolaterally. The nerve passes to the medial wall of the tympanic cavity and forms an angle above the promontory called the geniculate ganglion. The nerve then passes down the dorsal wall of the tympanic cavity and out of the temporal bone through the stylomastoid foramen. The nerve continues to pass through the parotid gland to provide innervation to the facial muscles.

Examination of facial nerve function can be done by inspection and palpation. The inability of the facial to feel the stimuli given indicates sensory damage, while the inability of the facial to move the facial indicates facial motor damage. The House-Brackmann facial nerve assessment system can be used to assess the facial nerve in the process of examining facial nerve function. The assessment of this neurological examination is shown in Table 1 as follows:
Sensory examination of the facial nerve involves giving instructions to the patient to close both eyes tightly, then the operator applies a light touch using gauze or tissue to the patient's face and asks whether the patient can feel the light touch given to the facial area. In principle, treating soft tissue trauma to the facial area can be achieved by covering the wound area properly using primary suturing, which is then followed by examining nerve function both after suturing and during patient control on the first day and the seventh day when suturing is removed on the facial part.

**Conclusion**

Emergency management of maxillofacial soft tissue trauma must be carried out quickly and precisely to obtain anatomical and physiological results that are close to normal conditions before the trauma occurred. Management of soft tissue wounds includes cleaning the wound, suturing the wound, managing pain and administering antibiotics and analgesics. The exposed parotid gland is examined by inspection and suturing is carried out taking into account the facial anatomy. N.VII examination is carried out when the patient is fully conscious (GCS 15) by assessing facial sensory and motor responses.

**References**