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TRAUMATIC FACIAL PALSY WITH FREY SYNDROME (PAROTID TRAUMA)-A CASE REPORT

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ABSTRACT

Trauma to the facial soft tissues and fractures of the maxillofacial complex may involve the salivary structures, but the relative incidence of injury to the salivary structures is low. Parotid gland and duct injuries are far more common than injuries to submandibular and sublingual glands due to anatomic position. Several methods of treating salivary duct injuries and their complications have been advocated. Optimal treatment outcomes can be achieved with early diagnosis, adequate evaluation, and proper management. This article presents current diagnostic and treatment protocols of salivary gland trauma.Trauma involving the parotid gland is rare and is usually caused by penetrating or blunt injuries or fractures of the facial skeleton. A unique case is presented of rupture of the parotid gland after a blunt external force in a 12 year old boy. The boy presented with Right sided complete facial palsy with Frey syndrome and parotid fistula.

KEYWORDS: ***Parotid Gland; Trauma, Facial Palsy, Frey Syndrome.***

INTRODUCTION

Trauma to the parotid gland is fortunately rare. Being well protected by a thick capsule, and situated behind the strong mandibular skeleton, the parotid can only usually be breached by a penetrating wound, or by a violent external force with fracture of the mandible,such as after a road traffic accident. In these instances, the trauma to the gland parenchyma is usually superseded by trauma to other, more vital structures, necessitating surgical intervention.Salivary gland injuries have been described in the literature for more than 100 years. They usually occur following a penetrating trauma of the parotid or submandibular region and occasionally they are associated with injuries to the adjacent facial structures such as the facial and lingual nerves, the ear, and bony structures of the face.Other causes of salivary gland trauma involve blunt injuries and trauma following radiotherapy of the head and neck. Blunt injuries often remain unnoticed and they are recognized by their complications which involve chronic obstruction of the excretory system of the glands and subsequent infection and sialadenitis. Radiotherapy can also cause irreversible damage to the salivary glands. Fortunately, some portions of the glands usually remain protected. These portions gradually grow and compensate for the lost portions of the gland, maintaining an adequate function. Parotid gland and duct injuries, although rare, are far more common than injuries to submandibular and sublingual

glands. This can readily be explained by the anatomic position of submandibular and sublingual glands which are protected by the mandible, whereas parotid gland is more exposed to penetrating trauma.

PAROTID GLAND AND DUCT ANATOMY

Parotid gland is the largest of all the major salivary glands and it is entirely serous in secretion. About 75% or more of the parotid gland overlies masseter muscle, while the rest of it is located behind the ramus. Posterior to the parotid gland the external acoustic meatus is found as well as sternocleidomastoid muscle, while posteromedially the parotid gland is defined by the posterior belly of digastric muscle and stylohyoid muscle. Anteriorly, parotid gland overlies masseter muscle and more medially it is bordered by the ramus of the mandible and the medial pterygoid muscle. Inferiorly, the gland covers the superior and anterior portion of sternocleidomastoid muscle and the zygomatic arch defines the superior border of the parotid gland. The parotid gland is covered by the investing layer of deep cervical fascia, which contributes to the formation of the capsule of the gland, subcutaneous fat, and the skin. Parotid or Stensen duct exits from the anterior and superior portion of the gland. It passes superficial to the masseter muscle and 1 cm beyond the anterior border of the masseter muscle, penetrates the buccal fat pad and buccinator muscle, to exit into the oral cavity opposite the second maxillary molar. Its course is parallel to the zygomatic arch and often parallel to the buccal branch of the facial nerve. the posterior border of the masseter muscle. The facial nerve emerges from the stylomastoid foramen, passes between the stylohyoid muscle and the posterior belly of digastric muscle and within the substance of the gland it subdivides into a temporofacial and a cervicofacial trunk. These trunks give rise to five major branches: temporal, zygomatic, buccal, mandibular, and cervical. Buccal and zygomatic branches of the facial nerve form an anastomotic loop over the parotid duct. It is absolutely essential to evaluate the function of the facial nerve whenever there is trauma to the parotid gland or duct.

The clinician who is called to treat parotid gland injuries must have a thorough understanding of the anatomy of surrounding structures.

DIAGNOSIS

Evaluation of the patient must always begin by obtaining as much information as possible by the patient or the family. As in every trauma, mechanism and time interval between injury and presentation are vital information that can lead the clinician to a proper treatment plan. Patient's medical history is always necessary. When trauma to the salivary glands is suspected, the clinician should also ask when the patient ate his last meal because eating stimulates salivary gland function and if the patient had his last meal after the trauma, it is more possible to notice saliva coming out of the wound or producing parotid swelling. The next step is to clinically evaluate the patient. If a penetrating injury exists along a line joining the tragus of the ear and the midportion of the upper lip, then there is a great chance that either the parotid gland or the parotid duct or both have been injured .Another useful landmark is the anterior border of masseter muscle. Any injury behind it should be thoroughly inspected.An easy way to diagnose the presence of injury to the parotid gland is by palpating and massaging the gland to express saliva into the field. If there is injury to the ductal structures, saliva will be seen pooling in the wound. This is a simple maneuver, but occasionally it does not help to come to safe conclusions. Another simple way to confirm the presence of ductal injury is to cannulate the duct from its distal oral opening with a pediatric intravenous catheter

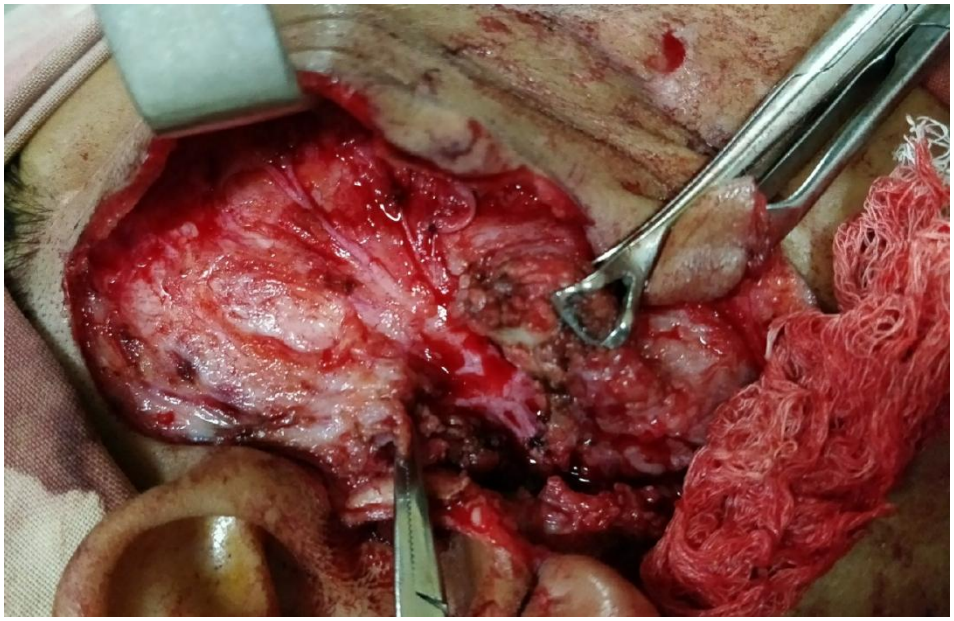
after dilating it with a lacrimal probe and inject saline or methylene blue. If the injected liquid does not appear in the wound, the ductal system is intact. Despite this, it is advised to keep the catheter for at least 1 week to prevent obstruction of the duct due to edema.If the liquid appears in the wound, it is safe to conclude that a ductal injury exists and needs to be repaired. Whenever there is a penetrating trauma over the parotid region, adjacent structures should also be examined. If the patient is awake, facial nerve integrity should be evaluated by asking the patient to raise his eyebrows, close his eyes, blow his cheeks, and show his teeth. Facial nerve injury occurs in 20% of patients with isolated gland injuries and in more than half of the patients with Stensen duct injuries. The buccal branch of the facial nerve is most commonly injured because it courses parallel with the duct superficial to the masseter muscle and sometimes may even cross the duct. Lacerations to the facial nerve or parotid duct should be repaired at the initial time of laceration closure. Injury to the duct may be accompanied by injury to the buccal branch of the facial nerve. In that case the patient presents with weakness of the upper lip when trying to animate. Electroneurography and electromyography are also important adjuncts to evaluate nerve recovering. The general rule dictates that when the facial nerve injury is located anterior to an imaginary line that unites the outer canthus with the glenoid notch of the mandible ,repair of the facial nerve is not necessary. For nerve injuries posterior to this line, identification and primary repair of the nerve stumps is indicated.

CASE REPORT

I am presenting a case of 12 years old male child who had a relatively moderate blunt force to the side of the face due to fall down from staircase 20 days back leading to disruption of the parotid gland parenchyma ,with leaking of saliva from the gland, zygomatic and temporal branches of facial nerve injury leading to inability to close the right eye with Right parotid fistula discharging and sweating and wetting on right facial region, patient also had scar mark of previous sutured wound ,,I explored the facial nerve from pes anserius to the branching of facial trunk ,, explored upper trunk , zygomatic branch mainly , decompressed it ,and anastomosed all its branches going in the eye muscle, parotid duct was dilated and stent was kept for 7 days , tympanic neurectomy was done through transcanal approach ,and wound was sutured.after 4 wk followed up patient was absolutely fine with fully eye closure .

Pre-op showing previous scar and fistula

Per- op showing zygomatic and temporal branches of facial nerve damaged.



Per op showing decompression ,end to end anastomosis,and cable graft of zygomatic branches

Post -op showing facelift incision

CONCLUSION

Trauma to the parotid gland parenchyma and duct may occur even after a minor blunt trauma. It produces a clinical picture of facial swelling with minimal pain, and may be diagnosed by computed tomography or sialography. Injury to the skeletal structures and facial nerve needs to be addressed.The Management of facial paralysis continues to evolve. When the nerve is transected, direct coaptation leads to the best outcome, followed by interpositional nerve grafting. In cases where motor end plates are still intact but a primary repair or graft is not feasible, a nerve transfer should be employed. When complete muscle atrophy has occurred, regional muscle transfer or free flap reconstruction is an option. When dynamic reanimation cannot be undertaken, static procedures offer some benefit. Adjunctive tools such as botulinum toxin injection and biofeedback can be helpful.

CONFLICT OF INTERESTS

The authors declare that there is no conflict of interests regarding the publication of this paper.

REFERENCE

1, Lewkowicz AA. Hasson O, Nahlieli O: Traumatic injuries to the parotid gland and duct- J Oral Maxillofüc Surg 2O()2; 60: 676-80,
2. Steinberg MJ. Herrera AF: Management of parotid duct injuries. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2005; 99: 136-41.
3. Demian N. Curtis W: A simple technique for cünnulation of the parotid duct. J Oral Maxillofac Surg 2008 : 66 : 1532-3,
4. Van Sickels JE: Management of parotid gland and duel injuries. Oral Maxillofacial Surg Clin North Am 2009: 2! : 243-6,
5. Powers DB. Will MJ. Bourgeois SL. Hatt HD: Maxillofacial trauma treat- menl protocol. Oral Maxillofac Surg Cün North Am 2005; 17: 341-55.
6. Shah GV: MR Imaging of Salivary Glands. Neuroimaging Clin N .\m2004: 14:777-808.

7. Marchai F. Duiguerov P. Becker M. Barki G. Disant F. Lehmann W: Specificity of parotid sialendoscopy. Laryngoscope 2001; 111: 264-7
8.Asha RI, Tanwar R, Nagesh KS, Patil S, Divyalakshmi MR, Rao R. Traumatic sialocele of parotid duct: report of a case with review of literature. JIAOMR. 2010; 22:171:173.
9.Bater MC. An unusual case of preauricular swelling: a giant parotid sialocele. Int J Oral Maxillofac Surg. 1998; 27: 125-126.
10.White H, Rosenthal E. Static and dynamic repairs of facial nerve injuries. Oral Maxillofac Surg Clin North Am. 2013;25(2):303–12.