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CASE REPORT

MANAGEMENT OF PAROTID FISTULA POST OPERATIVE COMPLICATION USING HYPERTONIC SALINE FOLLOWING SUBCONDYLAR FRACTURE TREATMENT: A CASE REPORT

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ABSTRACT

Background: Flexible gastrointestinal Parotid fistulae is although infrequent, rare, uncommon post operative complication of surgical intervention in the temporomandibular or parotid region. Any injury to the gland results in development of fistula or sialocele management of which becomes challenging owing to difficulties with healing, tissue injuries, swelling and distress to patient. We present a case of post operative parotid fistula complication following surgical intervention treatment of subcondylar fracture. This paper presents a simple but effective and conservative method of treating this complication with the use of 9% hot hypertonic saline.

INTRODUCTION

Salivary fistula, a chronic communication between salivary gland or duct and the skin through which saliva is discharged as well as sialocele are uncommon complications following surgery in the maxillofacial region. A Parotid fistulae is uncommon, unpleasant and result from either ductal or parenchymal injury with iatrogenic causes resulting from mandibular osteotomy, use of external pin fixation, and as a complication of facial bone fractures (Rao, 2011). Management options include pressure dressings and use of antisialagogues (Parekh et al., 1989), total parotidectomy, tympanic neurectomy (Davis, 1977), intraoral transposition of parotid duct (Doctor, 2007), radiation therapy (Robinson, 1989), use of botulinum toxin A (Lim, 2008; Dessy et al., 2007; Arnaud, 2008), and use fibrin glue (Zwaveling, 2006). In this paper we describe a simple but effective method of treating this complication with the use of hot hypertonic saline in a post operative complication following subcondylar and parasymphyseal fracture surgical intervention.

CASE REPORT

A 27-year-old man reported to the department of oral and maxillofacial surgery with a history of trauma (Fig 1). On inspection a deflection of mandible on right side along with anterior open bite was evident with mouth opening of 38mm was recorded (Fig2). Hematoma (coleman's sign) was inspected on floor of the mouth. On palpation a tenderness was found on right temporomandibular joint region along segmental mobility in 31,32 region with step deformity over symphysis region. After all required radiographic investigation he was diagnosed with right subcondylar and left parasymphysis fracture (Fig 3). He was thoroughly investigated and open reduction and internal fixation was done under general anesthesia. A mini-retromandibular approach was used for the fixation of the subcondylar fracture (Fig 4). Patient came with chief complaint of watery discharge from preauricular region on 5th day post operatively, which increased while having food and was diagnosed with parotid fistula on right side (Fig 6).



Figure 1. Showing multiple lacerations extra orally in zygomatic region, upper lips and in left parasymphysis region with mild swelling on right temporomandibular (TMJ) region



Figure 2. Showing deflection of mandible on mouth opening towards the affected side



Figure 3. Showing left parasymphyseal fracture





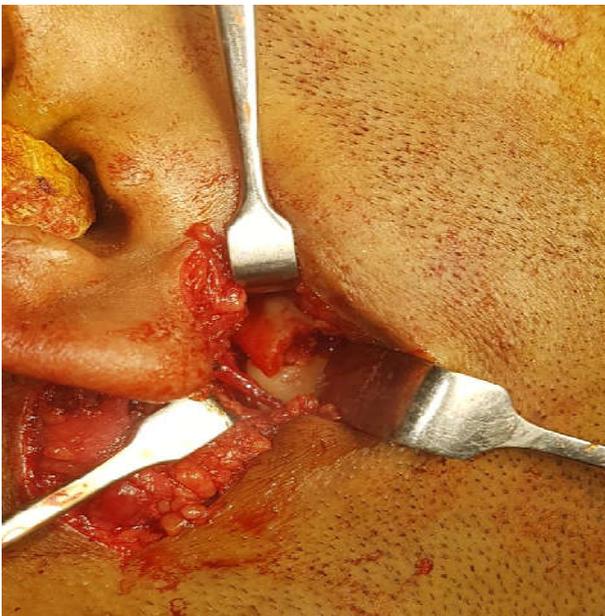
Figure 4. Showing open reduction with internal fixation along with retromandibular approach for sub condylar fracture

The treatment protocol of using 9% hypertonic saline along with pressure dressing was followed for four days. Hypertonic saline was injected everyday for four days, after flushing with Betadine, pressure dressing was applied. On the fifth day the fistula healed completely with no complaints (Fig 7).

DISCUSSION

It becomes quintessential to understand the anatomy of parotid gland to diagnose the condition and perform any kind of surgical intervention in the region owing to its injuries. Parotid gland a major salivary gland lying beneath a distinct fascial layer (the SMAS) and located antero inferiorly to external acoustic meatus, between ramus of the mandible and sternocleidomastoid and mastoid process with apex posterior to angle of the mandible and base related to zygomatic arch making it susceptible to any kind of injury to any kind of surgical intervention ranging from mastoidectomy, mandibular osteotomy, temporomandibular joint surgery and rhytidectomy, drainage of facial abscess to even dental extraction (Nahai, 2011). Previous cases have been reported to use of hypertonic saline in successful closure of parotid fistula post traumatic fractures in the region (Shah, 2015; Chabra, ?).

Table 1 shows management of parotid sialoceles and fistula by conservative approach proposed by Parekh et al. (1989) Hypertonic solutions have been implemented for treatment of varicose veins and venous malformations in head and neck region by sclerotherapy and it has been suggested that these solutions work by causing conformational denaturation of the cell membrane proteins *in situ* and saline can be diluted to a point where there will be no cellular toxicity (Parsons, 2004; Cabrera, 2003). The temperature of the saline can be raised above body temperature (60 degree) to enhance the fibrosing property of physiologic saline (Cabrera, 2003). Pressure dressings lead to atrophy of the gland as the lobules of the gland are contained in relatively in elastic capsule. The sustained rise in ductal pressure leads to compression of capillaries and veins, resulting in decrease in secretion and atrophy of gland (Chabra et al., ?).



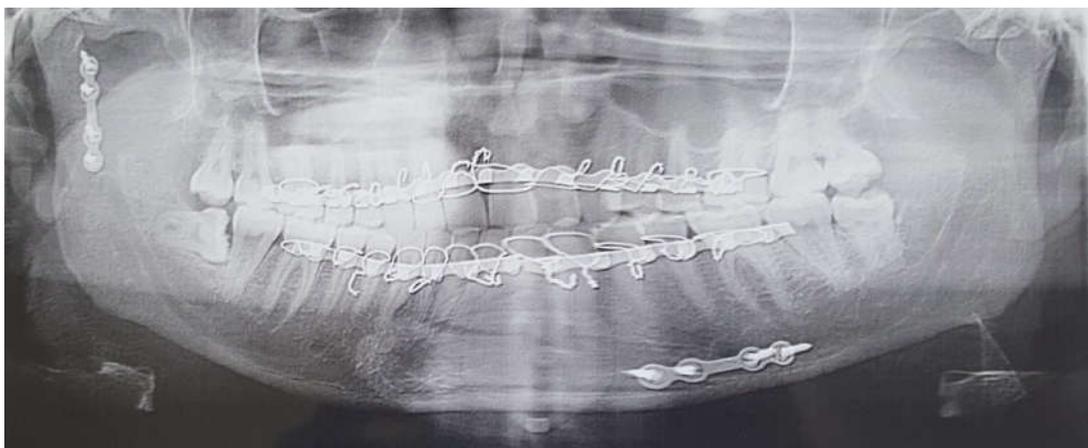


Figure 5. Showing post operative panoramic radiograph



Figure 6. Showing discharge from pre auricular region on 5th day



Figure 7. Showing complete healing of the discharge post treatment with 9% hypertonic saline and pressure dressings

Table 1 - Management of parotid sialoceles and fistulae.

1. Diversion of parotid secretion into the mouth
 - A. Reconstructive methods
 - Delayed primary repair of duct
 - Reconstruction of duct with vein graft
 - Mucosal flaps
 - Suture of proximal duct to buccal mucosa
 - B. Formation of a controlled internal fistula
 - T-tube or catheter drainage into the mouth
 - Drainage of proximal duct by a catheter
 - C. Parotidectomy
 - D. Local therapy to the fistula
 - Excision
 - Cauterization
2. Depression of parotid secretion
 - A. Surgical approaches
 - Duct ligation
 - Sectioning of the auricotemporal or Jacobsen's nerve
 - B. Conservative approaches
 - Administering nothing orally to the patient until the fistula closes
 - Drugs: atropine or Pro-banthine
 - Radiotherapy
 - Repeated aspiration and pressure

A classification of reported methods in the literature by Parekh et al.

Conclusion

Therefore hypertonic saline owing to its cost effectiveness, no foreign body reaction or hypersensitivity reaction to the patients, easily availability, non-toxic and non-irritant to the surrounding structures and with minimal risk to damage of facial nerve and its branches is successfully implemented for fistula closure

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