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RESEARCH ARTICLE

POST TRAUMATIC PAROTID SIALOCELE: A REPORT OF TWO CASES

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Abstract

Sialocele is a subcutaneous cavity containing saliva and arises from injury to the ductal system or the gland parenchyma. Sharp penetrating trauma, parotid surgeries, TMJ surgeries, infections are some of the causes of a sialocele. Most of the cases can be managed by conservative methods such as repeated aspirations and pressure dressing, antisialogogues, intralesional botulinum toxin injections. Intraoral drainage of the sialocele along with stenting of the Stenson's duct is done when the injury is in the distal part of the duct. Here we focus on two cases of sialocele of parotid duct diagnosed by Sialography and treated successfully by stenting of Stenson's duct and intraoral drainage. One of the cases was due to trauma and the other due to a probable infection post a hospital stay.

Introduction:-

Sialocele is a subcutaneous cavity containing saliva. It is an uncommonly encountered clinical entity in surgical practice. It presents as an asymptomatic soft and mobile swelling, which usually enlarges while eating and is caused by trauma or infection in and around the duct of salivary gland and it can be managed by various type of surgical and nonsurgical modalities. Primarily, diagnosed by clinical examinations and a thorough history, imaging studies and fine needle aspiration are also used in establishing diagnosis. Here, we report two cases of parotid sialocele managed with minimal surgical intervention.

Case Report 1:

A 45 years old female patient reported to our institute with a chief complaint of facial swelling in her left preauricular region. It measured approximately 4cm X 3cm in size. The temperature of the overlying skin was raised slightly, but the colour was normal with no discharge. There was no lymphadenopathy detected. She had visited a peripheral hospital with a complaint of pain and swelling in the preauricular region on the left side following blunt trauma to the face. She was advised radiological investigations including Sialography. During the introduction of the dye, she felt a sharp pain and a swelling developed rapidly. Sialography revealed a breach in the duct very close to the parotid papilla through which the dye had leaked into the tissue space. The swelling kept increasing in size and she was referred to our hospital. An aspiration test was done and salivary fluid was confirmed by elevated salivary amylase levels (21,000 units/L). Repeated aspirations and compression dressings were placed in the initial phase along with administration of Hyoscine 10mg tablets, twice a day for 10 days. Antibiotics and analgesics were also prescribed to the patient.

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The results being unsatisfactory, we changed the treatment plan. A paediatric Ryle's tube of 10 Fr was introduced into the swelling intraorally through the Stenson's duct, post localization and dilatation of the ductal opening with the help of a lacrimal probe. The tube at its distal end was secured with the help of sutures, changed at an interval of one week and was reduced in size gradually. After one and half months, the swelling subsided completely and removal of drain was done. This period ensured that the ductal injury healed and that there would be no build up of saliva in the tissue space, thanks to the Ryle's tube providing a portal for exit of saliva intraorally. Healing was uneventful and no recurrence of swelling was seen over a 1.5 years period of follow up after removal of the tube.

Fig1:- Pre op photograph.

Fig 2:- Sialography.

Fig 3:- Placement of paediatric Ryle's tube.

Fig 4:- Saliva expressed through the tube.

Fig 5:- Post op intraoral.

Fig 6:- Post op extraoral.

Case Report 2:

A 48 years old male patient came to our institute with the chief complaint of facial swelling on the right side of face. The swelling was painless, aggravated after meals and decreased in size after applying pressure. History revealed that the swelling has appeared post a hospital stay of two weeks for an unrelated condition. In all probability this was a case of retrograde infection in the parotid gland. On reporting to our institution, the same procedure of aspiration and compression dressings was done along with Hyoscine tablets. Administration of routine antibiotics and analgesics was also done. The aspirate showed high levels of salivary amylase (16,000U/L). However, again as in the previous case, this procedure was not of much use. Thus again, a paediatric Ryle's tube (10 Fr) was introduced intraorally into the Stenson's duct and secured with sutures. On the first follow up after seven days, the swelling had subsided. Drain was reduced in size gradually and changed at an interval of one week.

After one month, removal of drain was done, post complete reduction of the swelling. The patient was followed up for a period of two years and he showed no signs of recurrence.

Fig 7:- Pre op extraoral photograph.

Fig 8:- Placement of paediatric Ryle's tube.

Fig 9:- Post op extraoral.

Fig 10: Post op intraoral.

Discussion:-

Sialocele is a subcutaneous cavity containing saliva and results from trauma to the parotid gland parenchyma, laceration of Stenson's duct or ductal stenosis resulting in dilatation [1]. It is characterized by a soft, mobile swelling in the region of salivary gland with normal overlying skin. There is usually no associated history of fever or pain unless secondarily infected [2].

The difference between a pseudocyst and a sialocele is the presence of an epithelial lining of the cavity. If saliva accumulates in the soft tissues by extravasation and remains confined by connective tissue or fibrosis, it is a pseudocyst. On the other hand, if this accumulation is present within a cavity covered by epithelium, it is a sialocele [3].

Diagnosis of sialocele is complex and involves combination of thorough history taking and clinical assessment of the patient**. Fine needle** aspiration and imaging procedures such as sialography, ultrasonography and MRI are useful in diagnosing the disease. **Fine needle** aspiration is a standard technique which permits sampling and the fluid can be sent for investigations .Parotid secretion is of high amylase content, usually around 10,000 units/L [4]

The parotid gland lies superficial to and on the posterior aspect of the masseter muscle. The posterior lobe or tail of the parotid extends upto posterior and medial to the posterior border of the ascending ramus of mandible. The gland is covered by the parotido-masseteric fascia, which is an extension of the superficial layer of the deep cervical fascia. The Stenson's duct is approximately 7 cm in length, arises from the anterior aspect of the gland and passes superficially anterior to the masseter muscle. Here it is in close proximity to buccal branch of the facial nerve and the transverse facial artery. At the anterior border of the masseter muscle the duct turns medially through the buccal fat pad then crosses the buccinator muscle and oral mucosa to end in its papillae at the level of the second maxillary molar. Parotid duct follows a path that can be approximated by an imaginary line extending from the tragus of the ear to the midpoint of the upper lip. Van Sickles classified parotid duct injuries according to the site of injury as A, B, or C. Site A represents injuries that are proximal to the posterior border of the masseter muscle. Site B represents the part of the duct that passes over the masseter and Site C where injuries occur anterior to the masseter muscle. [5]

The decision of treatment chosen is based on the age of the injury, site of injury and mechanism of injury[5].

A variety of treatment modalities have been used in the management of sialocele and include both non surgical and surgical methods. Ablation of parotid secretion e.g. with anticholinergic drugs, botulinum toxin, radiotherapy are some of the non surgical methods. Additionally, repeated needle aspirations and pressure dressings along with a bland diet, in order to prevent salivary stimulation, have also proved helpful. The restoration of intraoral drainage route includes primary repair of the duct with microsurgical anastomosis, entubulation and reconstruction with cheek flaps, vein grafts or diversion of the flow of saliva by creation of an oral fistula and come under the surgical

methods. Other surgical methods like tympanic neurectomy, proximal duct ligation and parotidectomy have either been abandoned or are not preferred due to the limited results or due to their overly invasive nature.

Anticholinergic drugs act by blocking acetylcholine release, resulting inhibition of neurotransmission at secretomotor parasympathetic autonomic nerve endings, which is responsible for salivation. Anticholinergic drugs like atropine or antisialogogues such as glycopyrrolate are proposed in treatment of sialocele but these drugs are not commonly used because of their side effects [6]. Use of low dose radiation to necrose the gland has been tried at some centers but it has potential long term risk for development of benign condition, skin and salivary gland tumors [6]

Botulinum toxin acts by causing temporary chemical denervation of the cholinergic fibers. Botulinum toxin is a highly effective, safe and non invasive form of therapy. The clinical effect starts 3 days after the administration of 1st dose. However, muscle weakness with the use of Botulinum toxin has also been reported. [7]

Patients can be managed with repeated aspiration and compression with or without using intraductal catheter. Here good patient compliance and follow up is required at regular intervals which may not be feasible with all the patients. However, this method did not prove to be of much use in our cases. Use of temporary cannula via intraoral route allows saliva to flow into oral cavity, which results in rerouting of duct to create an internal fistula. When the cannula is left over a long period of time, it can result in scarring of tissues around cannula. In case of failure of conservative approach, an invasive procedure such as superficial parotidectomy along with excision of duct and sialocele can be done. [8] As has been already mentioned, radical procedures do carry their fair share of problems.

It should be noted that treatments that allow the continuous function of the gland and at the same time enable the gland to heal by itself, instead of suppressing its secretory function, thereby avoiding parenchymal atrophy, seem to report better recovery prognosis [9] . Consideration to preserve the parotid gland functionality is highly relevant to achieve better long-term results, after treatment is carried out [10,11,12]. Thus, whenever an injury to the parotid gland or duct is suspected, diagnosis of the site and extent of injury assumes prime importance. In cases of infection, antibiotics and analgesics need to be administered and the patient needs to be put under observation. As far as possible, primary repair of the ductal injuries should be attempted. In cases where this is not possible, and where the injuries are not recognized, chances of development of sialocele increases. To prevent build up of saliva and subsequently inflammatory fluids in the tissue spaces and in order to prevent further progression to a parotid fistula, providing a pathway for drainage of salivary fluids assumes utmost importance. This can be done by creating a controlled internal fistula in cases where the Stenson's duct cannot be managed. In cases where the injury to the Stenson's duct is minimum, such that management of both the proximal and distal segments is possible, it would be prudent to drain through the duct with the help of cannulation by IV cannulas, paediatric Ryle's tube or ureteric stent-DJ stents (double J stents) [13].

Sialocele secondary to blunt injury to face is relatively less common and only less than 10 cases have been reported so far [13,14]. Common site of duct injury in blunt trauma is terminal portion of parotid duct where it bends over anterior margin of masseter muscle to pierce buccal pad of fat and opens into buccal mucosa [13,14,15]. At this region, duct is relatively freely mobile within buccal fat pad; fat pad acts as shock absorber. When there is frictional injury, it causes ductal shearing injury resulting in terminal ductal injury, sialocele formation and stenosis of distal portion of duct. In our first case, reason of injury and the site of injury matched what has been reported in the literature, as already mentioned.

In all the above mentioned cases, there was a soft, fluctuant swelling in pre auricular region suggestive of a more superficial lesion. It was not fixed to underlying structure or overlying skin. Fever or any other signs of inflammation were not present. An important key to diagnosis in our case was specimen sent for biochemical analysis, after aspiration, which revealed high amylase content. High amylase content is indicative of salivary secretion [16].Aspiration also decreased the size of the swelling.

The ideal properties of the stent use for repair of duct includes soft though stiff architecture , flexibility, narrow diameter and adequate length in accordance with ductal orifice. The indwelling paediatric nasogastric tube fulfilled all the above mentioned properties and thus successfully used in the management of these cases [17]. Placing an indwelling stent in injured ducts at cut or lacerated site is reported to provide good stability during repair [18].

Conclusion:-

The management of parotid sialocele has been unsatisfactory in the past and numerous methods of treatment with varying success and morbidity have been described. Many of the principles of management are controversial; however there are certain points to remember while dealing with such type of injuries:

1. Cannulation of the duct through the orifice and passing of a small catheter into the wound isolates the distal segment of a transected duct.
2. Pressing on the gland to express saliva into the wound identifies the proximal portion of the duct.
3. Ductal lacerations should be repaired as early as feasible.

As various conservative and radical surgical management techniques have their own drawbacks, minimal intervention, using paediatric Ryle's tube to create a controlled internal fistula, is effective in cases where management of parotid sialocele is delayed.

References:-

1. Sulabha AN, Sangamesh NC, Warad N, Ahmad A. Sialocele: An unusual case report and its management. Indian J Dent Res 2011;22:336-9.
2. Pereira KD, Smith SL, Mitchell RB. Ear, Nose and Amp; Throat Journal, Jan 2007.
3. Van der Goten, A., Hermans, R., Smet, M.-H., & Baert, A. L. (1995). Submandibular gland mucocele of the extravasation type. Pediatric Radiology, 25(5), 366–368. doi:10.1007/bf02021705
4. Meyer RA, Gordon RC. Method for repair of traumatic pseudocyst of parotid duct: report of case. J Oral Surg. 1969;27(4):281-283.
5. Steinberg, Mark J., and Andres F. Herréra. "Management of parotid duct injuries." Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontology 99.2 (2005): 136-141.
6. D, Srinidhi & Singh, Madhumati & Rangaswamy, Shruthi & Choudry, Shouvik. (2011). Parotid Sialocele and Fistulae: Current Treatment Options. International Journal of Contemporary Dentistry; Vol 2, No 1 (2011). 2.
7. Araujo MR, Centurion BS, Albuquerque DF, Marchesano LH, Damante JH. Management of a parotid sialocele in a young patient: case report and literature review. J Appl Oral Sci. 2010;18(4):432-436. doi:10.1590/s1678-77572010000400019
8. Langenbrunner DJ. Treatment of sialocele: an experimental study in dogs. Trans Sect Otolaryngol Am Acad Ophthalmol Otolaryngol. 1975;80(4 Pt 1):375-381
9. Hofer TD, Alucema SD, Pozo JA, Delayed Treatment of Parotid Sialocele:A Functional Approach and Review, Journal of Oral and Maxillofacial Surgery (2014), doi: 10.1016/j.joms.2014.08.039.
10. Rui Medeiros J□nior,Al□pio Miguel da Rocha Neto,□Isaac Vieira Queiroz,Ant□nio de Figueiredo Cauby,Luiz Alcino Monteiro Gueiros,□Jair Carneiro Le□o. Giant sialocele following facial trauma. Brazilian dental journal□2012; 23(1):82-6.
11. O Edkins, A C van Lierop, J J Fagan and D E Lubbe. Peroral drainage of post-traumatic sialocoeles: report of three cases. The Journal of Laryngology & Otology 2009: 123:922-924. doi: 10.1017/S0022215109004721.
12. Daya Gahir,Nicholas Clifford,□Afshin Yousefpour,□Christopher Avery. A novel method of managing persistent parotid sialocele -□Brit J Oral Maxillofac Surg. 2011:49(6):491-492.
13. Maheshwaran S, Pookamala S, Rajasekaran P (2019) A Simple Technique for Treatment of Post Traumatic Sialocele of Parotid Gland. J Otolaryngol Res 2: 105
14. Raynal M, Kossowski M, Pons Y, Lisan Q (2014) Catheterization of post-traumatic parotid duct sialocele. Eur Ann Otorhinolaryngol Head Neck Dis 131: 317-8.
15. Monfared A, Ortiz J, Roller C (2009) Distal parotid duct pseudocyst as a result of blunt facial trauma. Ear Nose Throat J 88: E15-7.
16. Payne James JJ, Fitzgibbon E. Post-traumatic parotid sialocoele. Br J Clin Pract 1989; 43: 265-266
17. Tandon P, Saluja H, Shah S, Dadhich A, Sachdeva S. Catheterization of post infection parotid duct sialocele with paediatric Ryles tube: A case report. J Oral Biol Craniofac Res. 2018;8(3):217-220. doi:10.1016/j.jobcr.2017.09.001
18. K.N. Remick, T.S. Jackson, Trauma evaluation of the parotid duct in an austere military environment, Mil. Med 2010,175: 539–540.