CASE REPORT

Parotid Sialocele, Fistula, and its Management

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Abstract

Introduction: Facial swellings commonly presented to the clinician every day can be due to a variety of causes. One of such swelling is sialocele, which is a cavity filled with saliva which is caused by ductal injury or parenchyma injury and more commonly observed in parotid gland than any other salivary glands.

Methods: Relevant all article available in the goggle scholar search engine are selected.

Results: All long term results of parotid sialocele occurred, resulted and treated either by conservative therapy or surgical therapy are considered. They are most commonly observed and involved in parotid gland. In most of the time the sialoceles and fistulas are treated by simple conservative method itself. In long-standing, fibrosed cases the surgical intervention may be considered.

Conclusion: The conservative treatments suffice, but in case of resistant cases it requires surgical intervention.

Keywords: Compression dressings, Parotid fistula, Sialocele, Tympanic neurectomy.

Journal of Dental Sciences and Oral Rehabilitation (2019): 10.5005/jp-journals-10086-1210

Introduction

Sialocele (*Sialo*: salivary gland; *coele*: cavity) is a cavity filled with saliva. It is a complete or partial disruption of the salivary duct resulting in an accumulation of saliva surrounding the duct. It could occur in any salivary glands parotid, submandibular, or sublingual glands referred as parotid, submandibular, or sublingual sialocele. The submandibular sialocele can be also considered as ranula. But it is most commonly seen in parotid glands being it is subjected to more inflictions. Later, if it starts draining extra- or intraorally it is called salivary/parotid fistula.

Before 1970s, the term "pseudocyst" was used to define a saliva collection secondary to disruption of the parotid duct or parotid capsule which was as popularized by Landry around 1950s.

Salivary fistula is a well-known, relatively common complication of surgical procedures on the parotid gland,[1] and the reported incidence presented up to 14%.[2]

Etiology

Trauma

It usually occurs as a result of direct trauma to the preauricular or cheek region. Unfortunately, the parotid swelling or effusion is often misdiagnosed as a soft tissue hematoma. If it is diagnosed at this stage, the primary repair of duct can be performed. So in suspicious facial injuries, the integrity of the duct should be examined by inserting a fine plastic catheter or cannula through the parotid papilla and wound exploration subsequently. The transected duct should be sutured over the inserted stent using an appropriate suture material. Failure to recognize and treat this injury will lead to a sialocele or a fistula on the later stage. Although the sialocele develops in 8–14 days, the external parotid fistula usually manifests within the first week after the injury. Sometimes, the infected sialocele may lead to the formation of external parotid fistula.

Surgical Procedures

Another etiology is postoperative complication of surgery surrounding the salivary gland region, which involves the preauricular region as in the case of temporomandibular joint (TMJ) surgery,[3] treatment of fractures of the angle, ramus or condylar region, and resection of the tumor involving parotid gland either partial or superficial parotidectomy.[4] It occurs more so in the case of postpartial superficial parotidectomy than near-total parotidectomy. During the excision of tumor, the duct within the gland could be injured or acini might be separated from the duct which will later directly secrete the saliva into the parenchyma,[5] resulting in sialocele.

Others

Sialolithiasis or sometimes even bacterial infection residing inside the duct could leads to the formation of it[6] or even drainage of abscess secondary to space infections around the parotid region.[7]

Clinical Features and Diagnosis

Sometimes, these conditions are difficult to identify because of the complex anatomy. Normally, it appears as a nontender, nonerythematous fluctuant swelling in the region of angle of the mandible preauricular region. The subjective discomfort varies for a sialocele from no complaint to a mild to moderate pressure sensation. After a few days depending on site of the ductal involvement, it gives an appearance of a soft painless swelling extraorally at the angle or the preauricular region, involving the buccal soft tissues.

The diagnosis can be done by extraoral aspiration and confirming biochemical analysis, which usually shows a high

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How to cite this article: Indra BN, Chaurasia A, *et al.* Parotid Sialocele, Fistula, and its Management. J Dent Sci Oral Rehab 2019;10(1):21–24.

Source of support: Nil

Conflict of interest: None

amylase content (more than 10,000 units/L).[8] While in computed tomography (CT), we have to consider for differential diagnosis of branchial cleft cyst, sialodochitis, and lymphoepithelial cyst. However, a history of facial trauma or surgery helps in easy diagnosis.

We can also subject the patients to sialogram and radioisotope scanning with radioactive technesium pertechnetate.

The correct diagnosis and along with definitive treatment can prevent further complication of forming parotid sialocele or fistula.

Indeed, the patients develop salivary fistulas, which led to considerable discomfort of saliva draining from the fistula, social stigma, an increased stay in hospital, and often required further treatment.[9]

Treatment

The management of parotid sialoceles and fistulae has been unsatisfactory in the past and various methods of treatment with varying success have been described.

Classification of Reported Methods in the Literature

- Depression of parotid secretion
  - Conservative approaches
    - Administering nothing orally to the patient until the fistula closes
    - Antisialogauges: atropine or probanthine
    - Radiotherapy
    - Repeated aspirations and pressure dressing
  - Surgical approaches
    - Duct ligation
    - Sectioning of Jacobsen's or auriculotemporal nerve
- Diversion of parotid secretion into the mouth
  - Formation of a controlled internal fistula
    - T-tube or catheter drainage into the mouth
    - Drainage of proximal duct by a catheter
  - Reconstructive methods
    - Delayed primary repair of duct
    - Reconstruction of duct with vein graft
    - Mucosal flaps
    - Suture of proximal duct to buccal mucosa
  - Parotidectomy
  - Local therapy to the fistula
    - Excision
    - Cauterization

Conservative Management

It is often initially managed conservatively by various methods.

Nil Per Oral (NPO)

The major stimuli for salivary secretion are gustatory and mechanical stimulation associated with mastication. The stimulated parotid secretion increases 30 times more than that of the normal basal secretion, which is thought as a major factor that delays healing of parotid fistulae. Nothing orally reduces the parotid secretion, and this probably facilitates the injured gland or duct to healing, in the absence of reflex stimulation from mastication.

Antisialogauges

It can be combined with employ suppression of salivary gland secretion by administration of antisialogogues. The scopolamine patch can be kept behind the opposite ear. However, it has temporary side effects such as blurring of vision, xerostomia, and accommodation deficit which will resolve after withdrawal of the scopolamine patch.[10]

If these methods fail, surgical techniques should be undertaken. Most of these procedures are invasive; they require specialized surgical skills, with variable and often poor success rates. It can be done by microsurgical anastomosis of the duct and diversion of salivary flow into the mouth.[8,11] The other surgical treatment modalities in practice are immediate duct repair, ligation of proximal cut end, fistulization of parotid duct, and total parotidectomy that could be opted for resistant cases, even though these are invasive methods.

Radiotherapy

Even though radiotherapy can be advised, the inferior results obtained and the associated risks of long-term morbidity with it should be avoided. This radiotherapy technique may not be justified for benign disease as there are many other effective alternative methods of treatment are available and significant development of secondary head and neck malignancies with significant failure rate which has reported also to be considered.

Aspirations

By multiple aspirations and compression dressings over a period of 2–10 weeks.[11] This method usually cures in many cases.[8]

Duct Ligation

When the ducts of the parotid gland are ligated, the resting gland produces saliva against positive pressure for a prolonged period, inducing the compression of capillary and veins in the lobules that leads to atrophy of the gland.

Tympanic Neurectomy/Sectioning of Jacobsen's or Auriculotemporal Nerve

The effectiveness of this procedure has varied in different studies, probably because of the variations in the pathway of Jacobsen's nerve and effective only in glandular injury as it has been reported in the literature. After tympanic neurectomy, the mean time taken for healing in glandular injuries is 9 days. However, it may take time for healing of up to 6 months after this procedure.

T-Tube or Catheter Drainage Placement

One surgical technique with the use of peroral catheter drainage gives the excellent results claimed by almost all the authors reported in their patients.[11–14] Wherein Demetriades[11] reported and showed almost a success rate of 92% in 12 cases. The procedure involves placing a small skin incision at the facial scar over the sialocele. Then through this, a small forceps is introduced to enter the cyst. Then forceps is punctured into the oral cavity. A catheter is then introduced into the cyst using the forceps, via the oral cavity. The skin incision is closed with a single suture and the catheter is secured to the oral mucosa. The catheter successfully stopped draining, usually within a week, and it was removed 2 or 3 days after that. The artificially created intraorally fistula was closed within few days. This procedure can be accomplished within 5 minutes which is safe, technically very easy, and cheap. But blind insertion of the tube from inside the mouth is not advised

because the presence of the masseter makes difficult palpate of the cyst from inside the mouth, which is particularly true in the case of fistulae.

The mechanism by which the described technique works seems to be continuous drainage from the sialocele and the presence of the catheter might have stimulated fibrosis of parenchyma of the gland.

Even though superficial or total parotidectomy could be done, most of these procedures are invasive, with variable and often poor success rates.

Reconstruction Methods

The major problem with reconstructing the parotid duct is the difficulty in identifying the proximal duct within the extensive scarring which forms around a sialocele along with its association of significant risk of damage to the facial nerve.[15]

The experience with many of the reconstructive procedures is limited, and, furthermore, the patency of the duct and that of parotid function in the long-term is not adequately documented. In recent years, the less extensive surgical procedures creating a controlled internal fistula have become popular. However, the proximal duct probably does not remain patent with these procedures, as illustrated in a report from our institution where follow-up radioisotope scanning demonstrated progressive parotid atrophy in patients in whom a controlled internal fistula was created.[16]

So econstructive procedures and parotidectomy should be abandoned because of the significant risk of morbidity to facial nerve.

Role of Botulinum Toxin

It is a highly effective, safe, and noninvasive method.[17,18] The drug acts by preventing acetylcholine release, which inhibits neurotransmission at the secretomotor parasympathetic autonomic nerve ending which is responsible for salivation. It can be used both for parotid sialocele and fistula when conventional therapy fails. Usually two doses of botulinum toxin type I, of 50 and 70 units, can be administered percutaneously around the sialocele with 4 days apart.[1,19] Sialocele usually disappears almost immediately after the second injection even though one injection is enough. The clinical effect of botulinum toxin type I initiates after 3 days injection. The patients will be free of any side effect related to the use of this drug. But temporary muscle weakness has been reported after therapy.[20] The fact that the toxin acts on the motor end-plate, by giving the injection away from the site of the mouth or the eye, the complications can be avoided. Apart from its use in managing sialocele and salivary fistula, it can be also used to treat sialorrhoea[21] and even Frey's syndrome.[22]

Salivary Fistula

These are the persisting drainage of salivary flow, usually after the completion of the parotidectomy or any surgical procedure around the parotid glands, more commonly. A study done by Laskawi et al. concluded that in parotidectomy, sialocele is about 4% of 223 patients.[9] Even though intraoperatively we can undertake a few measures such as airtight closure of parotid capsule or cauterization of persistent fistulas after remaining exposed parenchyma may not have much effect on the reduction of salivary fistula.

So other therapeutic techniques as previously described to be employed to reduce the salivary leak, like placing a few sutures at the site of the leakage, application of fibrin glue at the region of the fistula, use of cyanoacrylates for skin closure, application of botulinum toxin, and radiation of the remaining parenchyma long with anticipated risk and complications.

Conclusion

While treating with posttraumatic parotid either sialoceles or fistulae there is no need for radical or complicated operations. Majority of them can be managed successfully by repeated aspirations and compressive dressings. In the case of persistent lesions, depending on the available hospital's facilities and the surgeon's preference, either a conservative approach consisting of nil by oral along with parenteral nutrition or placement of drain intraorally or injection of botulinum toxin type I appears to be the most reasonable options.

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