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# Catheterization of post infection parotid duct sialocele with paediatric Ryles tube: A case report

Running Title-
Management of Sialocele

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**Abstract-**

Sialocele is a cavity filled with saliva, usually as a result of trauma, complication of surgery, sialolithiasis or bacterial infection residing inside the duct . Many cases of parotid sialocele have been reported in the literature, but only very few cases of parotid duct sialocele have been reported. We report a case of an unusual facial swelling over buccal mucosa at the route of Stenson's duct with poor oral hygiene, a case of parotid duct sialocele with secondary infection and describe its diagnosis and management.

**Keywords-**

1. Sialocele

2. Parotid duct

3. Parotid Gland disorders

4. Catheterization

5. Ductal repair

**Introduction-**

A complete or partial disruption of the parotid duct resulting in a periductal accumulation of saliva is referred to as parotid sialocele. In maxillofacial unit, trauma is the leading cause of ductal injuries which are present in the form of laceration, ductal exposure, total cutting, or crushing of the duct however salivary duct infection though rare cannot be put on a side bay when hunting for the possible etiology. Accumulation of saliva can result from the obstruction (usually caused by inflammation, sialolithiasis ) of the distal end of a duct, which produces dilatation of the duct resulting in non-epithelized pseudocysts.

Though these conditions are difficult to diagnose because of the complex anatomy, correct diagnosis and definitive treatment can prevent further complications of forming parotid fistulas.

Clinically, sialocele gives an appearance of a soft mobile painless swelling extraorally involving the buccal soft tissues with or without inflammation of ductal orifice. The surgical treatment modalities in practice are immediate duct repair, ligation of proximal cut end, fistulization of parotid duct, and primary anastomosis of the parotid duct [1]. This case report describes an easy yet efficient technique to

diagnose and manage a parotid duct injury using an infant's Ryle's tube(RT) used for feeding. The technique of RT stent usage and its advantages with other techniques proposed for the management of parotid duct injury is discussed.

Case report-

A 65 years old man reported to the OPD of Oral & maxillofacial surgery department with a chief complaint of swelling over right side of face since 1 month. On extraoral examination a painless localized swelling approx. 3cm x2 cm in size soft and fluctuant in consistency with well demarcated borders was noted over right buccal mucosa. On intraoral examination, inflammation of parotid papilla was seen with no spontaneous discharge from its orifice but discharge of saliva mixed with pus from pressure over malar region was present **(Fig 1a & b).** The overall oral hygiene of patient was poor with multiple carious tooth and chronic generalized periodontitis. Patient was informed about the condition and informed written consent was taken. An approval was taken from local body of the institutional ethical committee.

As it was suspected of an abscess over buccal mucosa, a stab incision was made to on the most dependent and healthy part of the swelling and approx. 10 cc frank pus was drained followed by secured corrugated rubber drain under local anesthesia. The patient was kept on oral drugs-Tablet Amoxicillin and clavulanic acid 650mg thrice daily and Tablet Piroxicam as anti-inflammatory. On the meanwhile, pus sample was sent for antibiotic culture sensitivity testing. On evaluating the possible reason for inflammation and discharge on pressure from ductal orifice and localized collection of saliva which may have got secondary infected at the route of Stenson's duct with no swelling over parotid region provisional diagnosis of ductal injury was made secondary to infection from the oral cavity. To explore this

possibility, on 3rd day, patient was taken under local anaesthesia and right auriculotemporal and long buccal nerve block was given. The right parotid duct orifice which is located in the buccal mucosa near the second maxillary molar was cannulated with 22G (blue color) cannula. The cannula was slightly modified by cutting the closed distal tip end of the needle. Normal saline was slowly flushed through the cannula and a clear leak from the corrugated rubber drain fixed outside the buccal mucosa was observed confirming the parotid duct injury. An incision was made over the extraoral swelling parallel to the nasolabial crease and wound was explored gently and all the necrotic slough present was removed. After obtaining proper hemostasis, the wound area was carefully checked and the exact site of the saline leak was located to the distal cut end of the parotid duct. Furthermore, the proximal cut-end of the parotid duct was also detected by removal of necrotic tissue around the vicinity of duct **(Fig 2a)**. We put infant's RT stent in the Stensen's orifice after removing the cannula and advanced it slowly till its exit was noted from the distal cut-end of the parotid duct inside the wound.The free end of the stent present inside the wound was then advanced further proximally to enter inside the other end of the duct **(Fig 2b).** At this point, we had a stent bridging both cut ends of the parotid duct and passing out in the oral cavity through the orifice. The RT was left there in the duct and the excess was cut and the remaining stump of the stent was sutured to the buccal mucosa with 3-0 vicryl **(Fig 2c)**. The extraoral wound was irrigated with betadine and saline and closure was done in layers **(Fig 3).**

Postoperatively, oral antibiotics and analgesics was continued for 1 week with chlorhexidine mouthwash was given to the patient to maintain the oral hygiene.. Regular postoperative follow-up revealed a normal flow of saliva from the RT with no complication Sutures of extraoral wound were removed on the 10th postoperative day. Eventually the wound healed without complication and the stent

was removed after 3 weeks postoperatively. A regular follow-up was performed and the patient was uneventful at 6 moths of follow-up.

**Discussion-**

The presence of Stenson's duct orifice and the ductal system though in favor of gravity unlike in submandibular gland shows more chances of food stagnation and subsequent bacterial invasion because of the lack of continuous tongue movements at its orifice. The formation of sialolithiasis thus can result blockage in the glandular portion or at the ductal system leading to accumulation of saliva. Another common cause for parotid sialoceles are post traumatic like facial laceration & deep penetrating wounds over buccal mucosa [1, 2] and fracture of zygomatiomaxillary complex unit [3].

However in our case neither patient had a history of trauma over facial region nor presence salivary stone was detected in the radiography. Considering the socio-economic status of the patient we have limited our diagnostic tools to the conventional ones and for which an IOPA with the film placed just adjacent to the orifice of the Stenson's duct and orthopantomography was used. This was confirmed by ultrasonography which showed localized abscess over right buccal mucosa with no traces of salivary stone. The location of the mass was characteristic thus the most probable cause would have been infection from the oral cavity as the patients oral hygiene was poor could have led to an ascending bacterial infection through the distal end of the duct followed by inflammation and stenosis of the duct. The chronic sialoceles can undergo necrosis and slough into the cavity with a secondary abscess formation as in our case.

Various diagnostic measures are available that includes ultrasonography, CT-Scan & Sialography.Sialography can play a significant role in diagnosis by indicating the extent of parotid duct injury using of a contrast media has been well documented [4,5].The development of new diagnostic tools such as magnetic resonance sialography and endoscopic techniques has led to further improvements in the clinical and diagnostic assessment of this condition [6]. However, these procedures are time consuming and it needs special equipment such as X-ray unit, radiation exposure of the patient, and radiopaque dye. Moreover, the adverse effect of contrast media on the glandular tissues and its reactivity cannot be neglected. In uncertain cases, a needle aspirate may be obtained. Parotid secretion will have a high amylase content that usually exceeds 10,000 units/L thus confirming the diagnosis [7]. Staining with methylene blue dye is a well-documented technique for diagnosing ductal injures for retrograde filling of the duct from orifice and its subsequent leak from the injured duct in the wound as it maintains the contrast with tissues [8,9] . However, in this method, all the structures are deeply stained with blue color and the stain may affect the glandular tissue as well and which makes it difficult to identify and repair the duct [10] .In our technique, the normal saline was slowly flushed through the cannulated parotid duct leading to diagnosis of the duct injury via subsequent leakage of the saline in the wound. This method had a great advantage over the use of methylene blue as it did not stain the surrounding tissues and had no effect over the glandular tis-sues.

In management of parotid duct injury, any extravasation of saliva in the wound will lead to serious complications such as pseudocapsule (sialocele) or salivary fistula formation. If happened, correction requires surgical intervention which ranges from cauterization of the fistulous tract, reconstruction of the duct, and superficial to total parotidectomy [4,11] . Placing an indwelling stent in injured ducts

at cut or lacerated site is reported to have good stability during repair [12]. Catgut suture, vitallium wire, urinary catheter, andpediatric intravascular cannula are some of the tools/materials usedfor cannulating an injured duct for its repair [10,13]. In a study of Suha et al [1], microanastomosis of the cut ends of duct was performed using vicryl over uretheral catheter as a stent which was unlike in our case where we have aligned and joined both the cut ends of the duct using infants nasogastric tube which acted as an indwelling stent inside the lumen of the duct. We have left both the cut ends without anastomosing it as it may lead to stenosis of the duct later after the removal of the stent. The stent was kept in place for 3 weeks which was a sufficient time for natural anastomosis of the duct moreover soft consistency and flexibility of ducts make it difficult to handle during anastomosis and could lead to further trauma. 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. We believe that the indwelling infants nasogastric tube had all the above mentioned properties and thus successfully used in the management of this case.

**Conclusion-** With this technique the immediate flow and the patency of saliva through the duct can be easily and efficiently maintained.

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**Legends-**

Fig (1a & b): Preoperative view (Extraoral & Intraoral)

Fig 2 (a,b,c) :Intraoperative view

Fig 3 : Postoperative view

**Fig 1a**: Preoperative view (Extraoral) showing localized swelling over Right Buccal mucosa with salivary discharge.**Fig 1b:** Inflammation around the Stenson's duct orifice with discharge of exudate

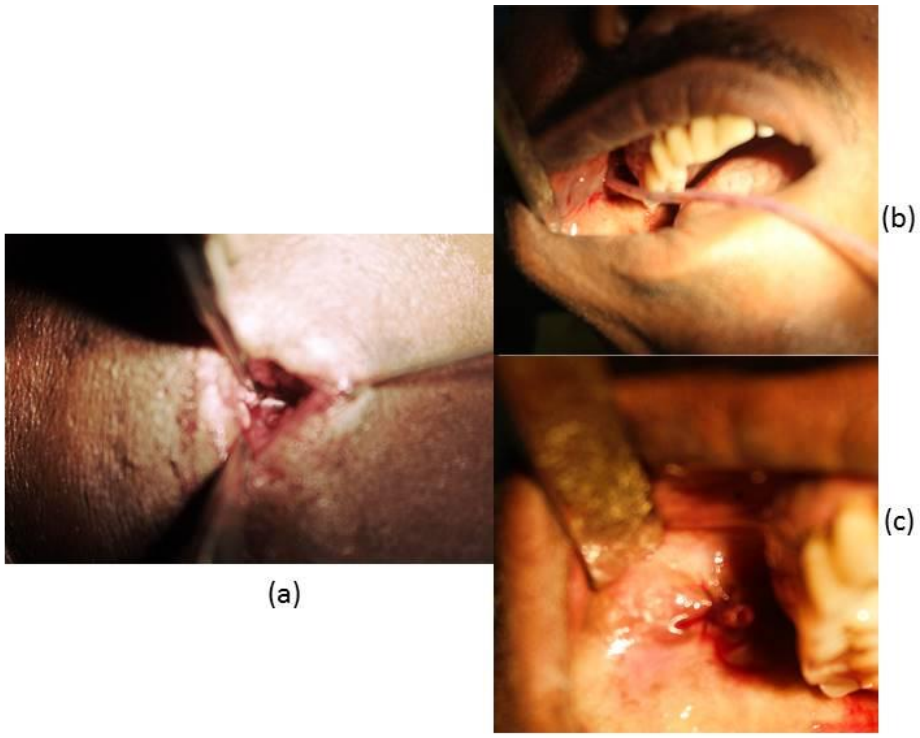


**Fig 2**.Intraoperative view **(a):**Dissection of necrotic slough and ductal isolation **(b):**Insertion of RT into the duct through orifice **(c):** removal of extra and stabilization of stent.

**Fig 3:** Postoperative: Closure done