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Case Report

Parotid abscess in a seven year old child - A rare case report with review of literature

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Abstract

Parotid gland is one of the major salivary glands and when there is infection/inflammation of the parotid gland, the condition of parotitis ensues. A parotid abscess (PA) results as a complication of the primary parotitis. Literature review has revealed that it is very rare in the pediatric population and many predisposing factors are present for the formation of a PA in children. PA is seen often in the adults when compared to the paediatric subset. The management with intravenous broad spectrum antibiotics, drainage of the PA and surgery is the main stay of treatment in an adult patient. In this case report, a seven year old female child who detected to have a PA and managed only conservatively has presented and discussed.

Key words

Parotid gland, Parotitis, Parotid abscess, Sialolithiasis, Sialogogues, Parotidectomy.

Introduction

Parotid gland (PG) diseases in children are of two types, the neoplastic and the non neoplastic conditions. Among the non neoplastic group, the infection and the inflammation of the PG are common [1]. Parotitis (PT) is an infection/inflammation of the PG usually results following an ascending infection following bacteremia or viremia via the parotid duct-Stensen's duct [2]. The PG parenchyma and the lymph nodes in the PG and surrounding lymph nodes are gradually involved and a parotid abscess (PA) can result as the complication of a parotitis. PA is very rare in the paediatric age group [2, 3]. Literature review reports cases in adults with PA and managed surgically [4]. A PA in a seven year old child is reported in this case study and the significance is that it is a rare case in pediatrics and was managed conservatively.

Case report

A seven year old female child was seen in the out-patient clinic. She had a swelling in the right side of neck, gradually increasing in size with

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associated low grade fever of five days duration. There was no past history of similar illness. There was no difficulty in chewing, swallowing or any sore throat. There was no associated rash or conjunctivitis. The birth history revealed that she was born to a 25 year old mother at 38 weeks gestation via spontaneous vaginal delivery weighing 3.0 kg with normal apgar score. Her parents were non-consanguineously married and she had normal milestones of development and was immunized to date according to the national immunization schedule. On general physical examination, the child had stable vitals. She was febrile, heart rate 82/minute, respiratory rate 36/minute. Blood pressure was 108/66 mm Hg in right upper limb. All peripheral pulses were equally felt. There was no dehydration and she was active. She was noticed to have a swelling in the right side of the face in the parotid area and in the submandibular region. **(Photo - 1A)** The swelling was soft and non tender. There was no fluctuation and any associated facial nerve palsy. There were multiple lymph nodes in the cervical and submandibular region. Oral cavity examination showed caries tooth and oral hygiene was satisfactory. There were no other features of any congenital anomalies or dysmorphism in the child. All her systemic examinations were normal. An initial diagnosis of a parotitis was considered along with lymphadenitis. An ultrasonogram of the right side of the face and neck was done and revealed a heterogenous lesion with solid and cystic area measuring 1.6x1.3 cm noted within the lower part of right parotid gland suggestive of parotid abscess. **(Photo - 1B)** Multiple hypoechcoic lymph nodes with echogenic hilum were noted within the parotid gland and a large lymph node measuring 2.4x1 cm was noted inferior to right parotid gland. Bilaterally multiple enlarged lymph nodes were also noted in both sides of neck antero-lateral to the common carotid artery, especially on the cervical and the submandibular regions. The diagnosis of a right parotid gland abscess with cervical and submandibular lymphadenitis was confirmed. Laboratory investigations such as hemogram revealed Hb (12 g/dl), PCV (33.7%), total count (22000/µl), neutrophils (77%), lymphocytes (18%), eosinophils (3%), monocytes (1%), basophils (1.0%), ESR (61 mm/hr), and platelets count (210000/µl). Results of the urine routine analysis indicated albumin (nil), sugar (nil), pus cells (1-2/hpf), epithelial cells (+/hpf), bile salt (negative), bile pigment (negative). All the bleeding parameters such as BT, CT, PT and APTT were normal. Peripheral smear was normal. Serum amylase level was 234U/l. Blood culture sensitivity was send. The child was also seen by the paediatric surgeon and the PA was decided to manage conservatively as there were no extensions of the abscess or any facial nerve palsy. The child was admitted. She was given symptomatic treatment for her fever and was started on intravenous antibiotic Ampicillin and Cloxacillin combination (50mg/kg/dose) 6^{th} hourly for seven days. She was also given warm formentation 4^{th} hourly, well hydrated with home available fluids and sialogogues such as lemon juice was taken by the child. The blood culture and sensitivity reported as sterile. The swelling gradually subsided by the sixth day and so any aspiration of the abscess was not done and her fever subsided. The child was discharged on the day 8 after seven days of intravenous antibiotics with advise to maintain good oral hygiene and continue oral antibiotic Ampicillin and Cloxacillin combination (50mg/kg/dose 6^{th} hourly) for seven more days. The child has come for follow up and was doing well.

Discussion

Pediatric age group is vulnerable to many inflammatory conditions and infections. Among these conditions, there are diseases which

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involve the salivary glands [1-3]. PG diseases are many and include viral and bacterial infections of the PG, autoimmune diseases, and tumors of the salivary glands. So they are broadly classified into the neoplastic and the non neoplastic conditions. The saliva secreted by the salivary glands is the source of the various bacteria, viruses and other microorganisms involved in the infections of the oral cavity. PT is an infection/inflammation of the PG and usually results following an ascending infection following bacteramia or viremia via the parotid duct-Stensen's duct [2, 3]. Acute PT can progress into an abscess and the PA is the complication of the ongoing PT [1-4]. There are many predisposing factors for the development of a PT and a PA [5, 6]. The main contributing factor is the poor oral hygiene. The child in the case study had caries tooth and oral hygiene was satisfactory. Other factors contributing are infection and trauma of the oral cavity, dental diseases, caries tooth. In the background of protein energy malnutrition the risk of developing a PT and PA increases. The dryness of oral cavity, dehydration, salivary stones and obstruction of the PG duct can result in PT and PA. There are rare causes in children but are more seen in the adult population such as usage of anticholinergics drugs and antihistamines drugs, Sjogren's syndrome, diabetes mellitus, pre-existing parotid Warthin's tumor and in individuals with immunosuppression [5, 6]. The predilection of the PG for PT and PA have been also postulated due to the slower flow rate of the PG and also with the length of Stensen's duct increases the risk for stasis and ascending infections via the duct. Also the composition of parotid saliva (the parotid being entirely a serous gland) is a factor, as it lacks the bacteriostatic properties found in the mucus-containing secretions of the other salivary glands namely the submandibular and sublingual glands [7].

Microorganisms in the saliva have an important role for the disease. There are an array of bacteria and viruses causing PT and PA. Viruses causing PT are the common paramyxovirus (causing mumps), coxsackie viruses, Epstein Barr virus, influenza A virus, para-influence viruses, herpes simplex virus, and cytomegalovirus [5]. Human immune deficiency virus also is implicated in PT and PA. Staphylococcus aureus is the most common bacteria implicated in the causation of acute bacterial PT and PA both in adults, and in pediatric patients. Streptococcus spp have been isolated are the most recurrent isolated organisms [6]. Hemophilus, pseudomonas and anaerobic bacteria also are frequently causing PT [1-7].

Photo - 1A: Photograph of child showing the swelling on the right side of the face**.**

Photo - 1B: Ultrasonogram showing the parotid abscess.

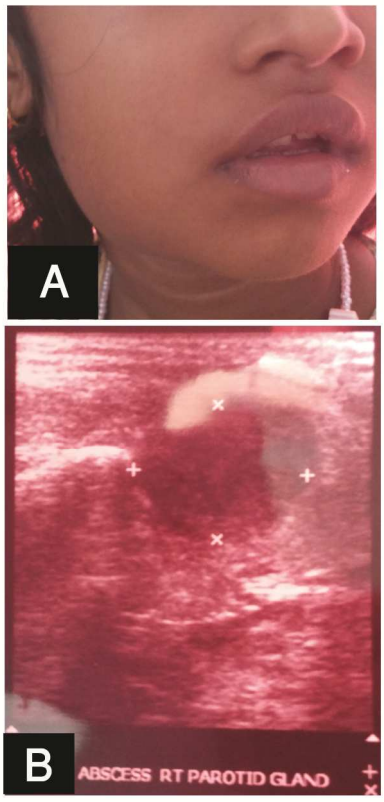

Figure 1

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The characteristic presentation of a PT is the onset of fever and a swelling in the parotid region. This swelling is usually erythematous and causes discomfort to the child. The swelling can be painful or painless in children as in the case presented the PG swelling was non tender. The child experiences pain on swallowing food, referred pain to the ears and sometimes dysphagia. There may be also xerostomia (dry mouth) and sialorrhoea (drooling of saliva). Sometimes there can be associated pus or blood in the oral cavity. Acute infection of the PG usually settles gradually especially a mumps infection. The scenario of the PT can change when it progresses and then there is chance to develop facial nerve palsy and a PA can evolve. The differential diagnosis to be considered in children with PT includes infections of the salivary glands, autoimmune and systemic diseases and lymphadenopathy of various origins. Tumors and drug-induced disorders tend to be rare in children [2-7]. Infected cysts or fistulas of the first branchial arch should be considered in the differential diagnosis of a PA [8]. Tuberculosis of the PG can present as a localized, unilateral, slow-growing mass with some degree of fixation and is difficult to distinguish from a PG tumor [9]. PT in the neonatal period has been highlighted occurring between the ages of 7 and 14 days [10].

The high degree of suspicion of a PA is important in the setting of a parotid swelling. So a proper and good history is important. The duration of symptoms of PT and thorough history and a clinical examination often provides a diagnosis. Onset of fever, pain, swelling of the PG and associated systemic symptoms are to be repeatedly asked and frequently assessed. Mild leukopenia can be seen in viral infections. Bacterial PT can be associated with a purulent salivary secretions and leukocytosis. An ultrasonogram of the PG can clinch the diagnosis [11, 12]. The ultrasonogram was done in our case study ant PA was promptly diagnosed along with the cervical and submandibular lymphadenitis and treatment was promptly started. Iro, et al. mentioned a 3 year old boy with a PA, diagnosed with the clinical presentation and an ultrasonogram who did not improve with intravenous antibiotics [2]. Fortunately our case study child improved with just the medical treatment given. Other tests such as examination of the saliva will give a clue as to whether there is an acute suppurative infection (thick yellow saliva) or a chronic recurrent PT (saliva is flocculent). The expertise of an Ear Nose and Throat specialist can be ensured and sialolithiasis and tumours of PG can be identified by palpation. Investigations such as sialography and X-rays are not usually done in childhood and are cumbersome as the child has to be sedated. Magnetic resonance imaging (MRI) and computed tomography (CT) are done to rule out space occupying lesions or tumours of PG that extend further into the base of the skull or mastoid. MR sialography may be used to examine the ducts or MR angiography to demonstrate the topography of the vascular supply. Sialendoscopy can be used to visualise the ducts of the PG [8, 11]. It is important to rule out the presence of stones in the parotid duct as seen in literature review where children with sialolithiasis were seen and causing PT [12].

Apart from PA, the complications of acute parotitis include facial nerve palsy and extensive phlegmons of the throat causing difficulty in breathing. PA can extend into the head and neck with the resulting formation of abscesses in these areas and also fistula formation [13]. A 72 year old female patient with facial nerve paralysis as a rare complication of parotid abscess had been mentioned [4]. Fortunately the case presented did not have any facial nerve paralysis. The House-Brackmann scale is most commonly used to quantify the degree of facial muscle weakness [14]. The child in the case

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study was grade 1 according to this scale. The treatment of PT and PA consists of initially conservative management with gland massage, rehydration, sialagogues such as lemon juice and good oral hygiene [1, 2, 3, 12, 13]. Aggressive broad spectrum antibiotics to cover staphylococci and streptococci is the life saving and complication preventing treatment modality. The complications such as facial nerve palsy and PA formation even after broad-spectrum antibiotic requires surgical intervention such as incision and drainage of the PA and rarely total parotidectomy [15].

Conclusion

This case study concluded that the knowledge of PT and its complications such as PA is important in patient care especially in a child and also helps in counselling the parents. The significance of this study is that even though PA is very rare in the paediatric population, the PA in children can be managed conservatively if diagnosed without delay.

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