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PRETERM NEONATAL SUPPURATIVE SUBMANDIBULAR SIALADENITIS: A CASE REPORT.

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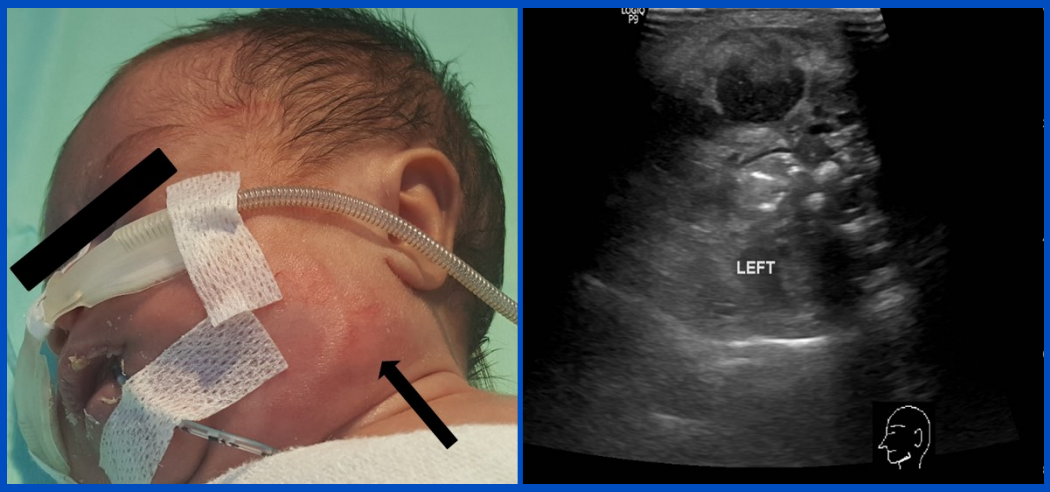

ABSTRACT

Suppurative submandibular sialadenitis amongst neonates is rare condition. They almost always involve the parotid gland. Herein, we described a case of a left suppurative submandibular sialadenitis in a 27-day old premature neonate which was successfully managed with incision and drainage and broad spectrum iv antibiotics. Culture and sensitivity of the pus grew staphylococcus aureus sensitive to cloxacillin. The aetiology, diagnosis treatment and possible complications of this rare condition are further discussed.

KEYWORDS: Neonate, Sialadenitis, Staphylococcus aureus, Submandibular abscess

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ABSTRACT
Suppurative submandibular sialadenitis amongst neonates is rare condition. They almost always involve the parotid gland. Herein, we described a case of a left suppurative submandibular sialadenitis in a 27-day old premature neonate which was successfully managed with incision and drainage and broad spectrum iv antibiotics. Culture and sensitivity of the pus grew staphylococcus aureus sensitive to cloxacillin. The aetiology, diagnosis treatment and possible complications of this rare condition are further discussed.

KEYWORDS: Neonate, Sialadenitis, Staphylococcus aureus, Submandibular abscess

INTRODUCTION
Infection remains most common cause of neck swelling amongst the paediatric population of which lymphadenitis prevails.[1] Apart from that, other potential aetiology of neck swelling includes congenital, inflammatory, benign and malignant lesions. Isolated submandibular sialadenitis is exceptionally rare with a reported incidence rate of 1 in 10000 admissions.[2,3] Parotitis amongst the neonatal population has been linked with prematurity in 35–40% of cases.[4] Similarly, in cases of isolated submandibular sialadenitis, most of the reported infants were preterm babies.[2] Although associated with a much lower mortality rate in the present day, in the 1970s, this condition was associated with a mortality rate of over 30% in pre-term neonates due to immature immune system.[5] This report presents a case of an isolated suppurative submandibular sialadenitis in a premature neonate along with discussion on the aetiology of the condition, diagnosis, treatment and follow up.

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CASE REPORT
A 27-day old baby girl borned prematurely was referred for left submandibular swelling. The swelling was noticed by the attending paediatrician as the neonate has been nursed in the Neonatal Intensive Care Unit (NICU) for feeding and weight gain. Apart from the swelling, child has no fever or any other swelling elsewhere. Child was born prematurely at 30 weeks and 3 days a with a birth weight of 1.19 kilogram via an uneventful spontaneous vaginal delivery. The neonate is not syndromic, with no signs of congenital malformations.

Upon examination, child appeared active with no signs of respiratory distress. There was a palpable warm and fluctuant left submandibular swelling, measuring 5 cm x 3 cm (Figure 1). No other neck swelling or hepatosplenomegaly was noted on examination. Child was given nasal prong oxygen 1 litre per minute and was nursed using Ryles tube feeding to monitor weight gain. Blood parameters taken showed no leucocytosis or dehydration.

Ultrasound of the neck demonstrated abscess collection at the left submandibular region measuring 1.6cm x1.8cm x1.6cm, suggestive of an abscess (Figure 2). The infant was started on intravenous (iv) amoxycilin-clavulanate acid 75mg three times a day. Her parents were counselled and an incision and drainage (I&D) was performed under local anaesthesia with no sedation. Incision was made one-finger breadth from the lower border of mandible along the skin crease over the most fluctuant area and 5cc of pus was drained. The wound was dressed with povidone dressing after the procedure. Culture and sensitivity of pus grew oxacillin-sensitive Staphylococcus aureus. The infant subsequently recovered and completed amoxicillin-clavulanate acid iv for 7 days. Two-weeks post I&D, the wound had healed well with no

Figure 1: Left submandibular swelling measuring 5 cm x 3 cm.

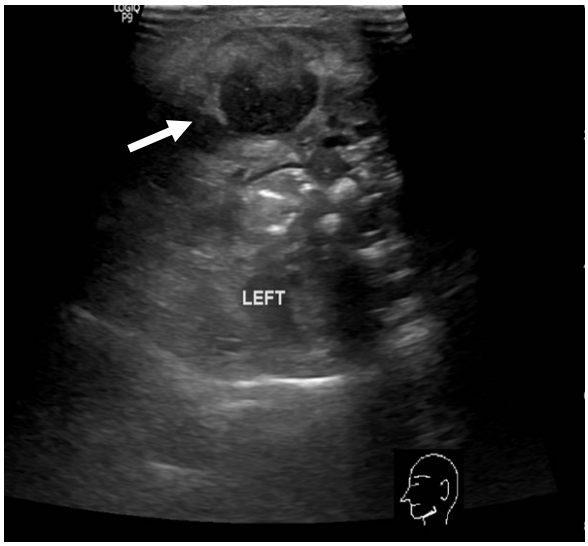

Figure 2: Ultrasound neck showing abscess collection at the left submandibular region measuring 1.6cm x1.8cm x1.6cm, suggestive of an abscess.

Staphylococcus aureus. The infant subsequently recovered and completed amoxicillin-clavulanate acid iv for 7 days. Two-weeks post I&D, the wound had healed well with no evidence of re-collection. The infant was reviewed again one month later and noted to be well with no noticeable scar and was discharged.

DISCUSSION

The most common cervical lesions within the neonatal period, are thyroglossal duct remnant and branchial cleft anomalies.[1] Infections of the salivary glands are uncommon within the neonatal period and commonly it involves the parotid gland.[6] Submandibular suppurative sialadenitis is exceptionally rare amongst the neonates as submandibular gland produces more mucus which is bacteriostatic thus, protecting the gland from infection. [2,7] This submandibular suppurative sialadenitis usually follows infection of the parotid gland.[2]

Submandibular sialadenitis was first described almost a quarter century ago.[2] Prior to that, submandibular sialadenitis was

to that, submandibular sialadenitis was considered secondary to parotitis. Prematurity, dehydration, prolonged gavage feeding and stasis of secretions were proposed as predisposing factors for this entity. [8] Apart from that, presence of stones within the duct or presence of congenital malformation in the floor of the mouth could increase the likelihood of infection caused by stagnation of secretions. Only a moderate amount of dehydration is a predisposing factor for salivary sialadenitis.[1] Prolonged gavage feeding predisposes premature infants to develop submandibular sialadenitis as salivary gland stimulation is reduced which reduces ductal clearance of mucoid saliva causing obstruction and finally local inflammation.[8]

Long-term gavage feeding may predispose premature infants to submandibular sialadenitis by reducing reflex salivary gland stimulation, which can lead to reduced ductal clearance of mucoid saliva, functional obstruction and local inflammation.[2,9] Reduced sympathetic adrenergic tone found amongst premature infants has been reported to elicits a reduction of saliva production causing obstructions of the ducts and inflammation.[8,9] In the absence of other causes such as dehydration and congenital anomalies or tumours, it was assumed that prolonged nasogastric feeding may have contributed to the development of sialadenitis in this case. Besides prematurity and prolonged gavage feeding, the neonate in our case revealed presence of no stones, normal examination of the floor of mouth and she was also not dehydrated.

Albeit rare, cervical abscess in a newborn commonly manifests as erythematous, fluctuant swelling in the upper neck.[9] These abscesses often arises as a sequelae of odontogenic, rhinogenic, otogenic, or aerodigestive tract infections. Common microbacteria involved with this entity includes Staphylococcus aureus, streptococci, Pseudomonas aeruginosa, Escherichia coli and Moraxella catarrhalis.[7, 10] Staphylococcus aureus is the most common organism to cause neonatal sialadenitis. Amongst organisms found in isolated submandibular sialadenitis, 83% of cases were caused by Staphylococcus aureus.[2] Potential transmission of this organism includes transmission through formula or breast milk or prolonged hospitalisation.[2] However, our infant was only fed via Ryles tube whereby Staphylococcus aureus could have colonised and later possibly infected the stagnated saliva in the submandibular gland from prolonged gavage feeding.

Ultrasound remains the preferred imaging modality as it is safe, fast, cost effective, and feasible with no radiation exposure. Ultrasound helps in determining the size, vascularity, location and consistency of the mass.[1] Computed tomography scan with contrast is also useful in determining the exact location of the abscess which aids surgical drainage but exposes the neonate to significant doses of radiation.[2] Clinical and radiographic evidence alone is usually sufficient in diagnosing a paediatric neck mass. In our case, early diagnosis, drainage and iv antibiotics were used concurrently for successful management to reduce the progression to life-threatening complications in neonates whose immature immune systems predisposes them to serious bacterial infections.

Suppurative submandibular sialadenitis albeit rare is an important differential diagnosis in paediatrics/neonatal neck mass. The most

CONCLUSION

Suppurative submandibular sialadenitis albeit rare is an important differential diagnosis in paediatrics/neonatal neck mass. The most common predisposing factors in developing sialadenitis amongst neonates include prematurity, dehydration, prolonged gavage feeding and stasis of secretions. The successful management of this condition is reliant on early recognition and diagnosis, treatment is incision and drainage with appropriate broad-spectrum antibiotics according to culture and sensitivity, always remembering that in a neonatal population with immature immune system, such trivial infections can rapidly progress to serious infections with significant mortality.

DISCLOSURE STATEMENT

The authors reported no conflict of interest or financial liability. Consent has been obtained from both parents of the child to publish the pictures and details in this report.

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