

## Acute Submandibular Sialadenitis

Thaslima K.\*, Sunil Mhaske\*\*, Liza Bulsara\*, Gaurav Machale\*\*\*\*

\*Resident, \*\*Professor & Head, \*\*\*Assistant Professor, Department of Paediatrics, PDVVPF's Medical College, Ahmednagar, Maharashtra.

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### Abstract

Diseases of salivary glands are rare in infants and children and the therapeutic regimen differs from that in adults[1]. Acute sialadenitis is a painful and inflammatory infection preferentially affecting the parotid and submandibular gland. Submandibular sialadenitis is an uncommon condition. Though commonly caused by bacteria, the etiology ranges from simple infection to autoimmune condition. The management is mainly early administration of antimicrobial therapy and surgical drainage [2].

**Keywords:** Submandibular Sialadenitis; Submandibular Gland; Infection.

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### Introduction

Acute sialadenitis is an infectious or inflammatory disorder of salivary gland[1]. Incidence of submandibular sialadenitis is 10%. A variety of factors affect the susceptibility of salivary glands to bacterial infection among them salivary flow rate, composition of saliva and varying damage to their ductal systems are the most common predisposing factors. Deterioration of host defence inevitably renders the salivary glands susceptible to haematogenous infections. Common factors are older age, debilitation and dehydration and the site and size of glands renders them prone to infection. The common features are swelling of glands, pain and tenderness, occasionally difficulty in opening the mouth and pus exudation through the duct orifice [3].

### Case History

Mother of 18 months male child, 8 days before admission had noticed swelling in the left side of

cheek which was acute in onset initially smaller in size, gradually progressed to attain the present size. It was painful on touch. She also complained of running nose and fever which was acute in onset, high grade, intermittent and associated with chills, evening rise of fever and was relieved on taking medications.

On clinical examination, a single well-defined swelling was present in left submandibular gland region below the lower border of body of the mandible, oval in shape measuring 5x6cm extending anteroposteriorly 1cm from the parasymphysis to 1cm beyond the angle of mandible and superoinferiorly below the inferior border of mandible to the level of second thyroid cartilage. There was no discharge.

Skin over the swelling was normal on palpation, stony hard in consistency, tender with raised temperature, immobile, nonfluctuant, transillumination was negative.

With all these clinical findings a differential diagnosis of cervical lymphadenopathy, alveolar abscess, cervical abscess, infection and sialoadenitis was made.

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**Corresponding Author:** Liza Bulsara, Resident, Dept. of Paediatrics, PDVVPF's Medical College, Ahmednagar, Maharashtra 414111.

E-mail: [liza.bulsara@gmail.com](mailto:liza.bulsara@gmail.com)

Routine investigations were done which showed raised white blood cells count to 23,200/cumm. Rest of the haemogram was within normal limits.

An ultrasonography of the affected part was done which showed multiple enlarged lymph nodes at various cervical levels with the left submandibular gland showing mixed echogenicity, increased vascularity, increased size of the gland with no calcifications. It was suggestive of left submandibular gland sialoadenitis.

He was started on iv antibiotics ( Inj. Ceftriaxone and Amikacin) with antiinflammatory Syrup Ibugesic. All these medications were given for 7days. Regular dressings were done to reduce the pain and swelling.



Fig. 1:



Fig. 2:

## Discussion

*Sialadenitis* can occur in various forms ranging

from acute bacterial sialadenitis (acute suppurative sialadenitis) to acute viral sialadenitis to chronic sialadenitis.

### *Acute Sialadenitis*

Acute sialadenitis is an acute inflammation of a salivary gland.

Patients typically present with erythema over the area, pain, tenderness upon palpation, and swelling. Frank cellulitis and induration of adjacent soft tissues may be present. Purulent material may be observed being expressed from the Wharton duct, particularly upon milking the gland. Rarely, a cutaneous fistula may occur, with spontaneous drainage of purulent material. The inflammation is secondary to an infectious process.

### *Causative Organisms*

#### *Bacterial*

*Staphylococcus Aureus* most Common. Other includes *Streptococcus viridans*, *Haemophilus influenzae*, *Streptococcus pyogenes*, and *Escherichia coli*. The infection is often the result of dehydration with overgrowth of the oral flora, immunosuppression, iatrogenic (drug-induced) and rarely haematogenous spread.

**Viruses:** These include the mumps virus, HIV, coxsackie virus, parainfluenza types I and II, influenza A, and herpes.

The common predisposing factors of submandibular sialadenitis are sialolithiasis and xerostomia [3].

Sialolithiasis is often present (causing obstructive sialadenitis) and stones are found in ~85% of submandibular ducts and ~15% of parotid ducts.

Of note, infection of the submandibular gland is rare in the neonate and prepubescent child. When it does occur, similar pathogens have been identified, including *Pseudomonas aeruginosa* and group B streptococci. Physical examination, in addition to the symptoms described above, includes failure to thrive and irritability. Progression may occur, involving the contralateral gland. The etiology of this entity is unclear.

The clinical signs and symptoms of sialadenitis include fever, chills, localized painful firm swelling of the affected gland area, with redness of the overlying skin. Other constitutional features include a foul taste in the mouth, dry mouth, decreased mobility of the jaw, and a general ill feeling. Pus

drainage through the gland duct may also be present.

Most often the diagnosis of submandibular sialadenitis is made by the history and clinical features of the lesion. Further investigations like radiograph and ultrasound helps to rule out sialolithiasis, Wharton's duct abnormalities and glandular neoplasm [4].

Of all the radiologic examinations available, one of the simplest is conventional plain radiography. Anteroposterior, lateral, and oblique intraoral occlusal views are used. This technique is particularly valuable in evaluating the presence of calculi, which are radio-opaque in approximately 70% of cases [3].

#### *Radiographic Features*

##### *Fluoroscopy*

Sialography is contraindicated in acute sialadenitis because it can worsen the infection [4].

##### *Ultrasound*

In acute sialadenitis the affected gland appears enlarged, hypoechoic and hyperaemic on ultrasound.

In chronic infective forms the affected gland appears atrophic and diffusely hypoechoic with irregular margins - the ultrasound appearances have been likened to that of a "cirrhotic" liver.

There may be evidence of sialectasis if recurrent [4].

#### *CT*

##### *Acute Sialadenitis*

1. enlarged salivary gland with abnormal attenuation, indistinct margin and vivid contrast enhancement with associated adjacent fat stranding and/or thickening of the deep cervical fascia that is typically unilateral
2. dilated duct from sialolithiasis or stenosis
3. enlarged intra- or extra-glandular lymph nodes may also be seen but this is non-specific and can occur in other conditions such as malignancy
4. abscesses are hypodense fluid collections, which may or may not be loculated [4].

#### *MRI*

The salivary gland(s) is often enlarged. The affected gland can range from well defined to poorly defined. Signal characteristics in majority of cases tend to be

heterogenous [4].

Signal characteristics include

**T1**-acute sialadenitis:low signal

**T2** -acute sialadenitis:overall signal tends to be high [4].

#### *Differential Conditions Include*

Sjogren syndrome

Sialadenosis

Sarcoidosis

#### *Treatment*

Medical management - Hydration, antibiotics, warm compresses and massage, sialogogues. Resolution of symptoms occurs in a week but oedematous condition may last for few weeks.

Patients are most often treated on an outpatient basis, with the administration of a single dose of parenteral antibiotics in an emergency department, followed by oral antibiotics for a period of 7-10 days. Clindamycin (900 mg IV q8h or 300 mg PO q8h) is an excellent choice and provides good coverage against typical organisms.

Surgical management - Excision of the gland in cases refractory to antibiotics, incision and drainage in case of abscess formation [5], gland excision in cases of recurrent acute sialadenitis.

Prognosis of sialadenitis is good with prompt diagnosis and treatment.

#### **Conclusion**

Submandibular sialadenitis is a rare condition and acute sialadenitis not amenable to conservative management requires surgical management. As these disease are rarer in young people it is difficult to establish universally valid therapeutic guidelines.

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