

## SIALORRHEA-A MANAGEMENT CHALLENGE IN DENTAL PRACTICE.

<sup>1</sup> Ravishankar P L<sup>1</sup> Professor and Head<sup>2</sup>Leela Krishna Prasad Ch<sup>2</sup>Professor

<sup>3</sup>Siva Nagaendra Reddy

<sup>3</sup> Professor and Head

<sup>1</sup> Department of Periodontics, Sri Sai Dental College Srikakulam, Andhra pradesh

<sup>2</sup> Department of Oral Medicine and radiology, Maharana pratap Dental college and Hospital, Kanpur, Uttar pradesh

<sup>3</sup> Department of Oral and Maxillofacial Surgery, Sri Sai Dental College Srikakulam, Andhra Pradesh

**ABSTRACT:** Sialorrhea also known as ptyalism or drooling, can be defined as salivary incontinence or the involuntary spillage of saliva over the lower lip. Drooling could be caused by excessive production of saliva, inability to retain saliva within the mouth, or problems with swallowing. Drooling can lead to functional and clinical consequences for patients, families, and caregivers. Physical and psychosocial complication includes maceration of skin around the mouth, secondary bacterial infection, bad odour, dehydration and social stigmatisation. This article provides a review of the physiology, pathogenesis, clinical oral manifestations, and therapeutic options for sialorrhea. Oral health care professionals should recognize the importance of sialorrhea as a possible indicator or complication of a variety of disease states of the oropharynx and esophagus as well as its impact on the patient's physical and social quality of life.

**KEYWORDS:** Sialorrhea, Drooling, Ptyalism, Ptyalorrhoea, Hyper salivation

## INTRODUCTION

Saliva is produced by major salivary glands (parotid, Submandibular and sublingual) and many minor salivary glands situated in the oral cavity. Saliva plays a very important role in the functions of oral cavity and maintenance of healthy oral tissues. Main functions of saliva include food lubrication, assistance in swallowing, cleaning of teeth and oral mucosa, buffering action in oral cavity and esophagus, antimicrobial action and initiates digestion.<sup>1</sup>

Sialorrhea refers to excessive saliva that appears beyond the margin of the lips. Sialorrhea is most commonly caused by neuromuscular dysfunction (e.g. Parkinson's disease). However, sialorrhea can also be caused by hypersecretion resulting from inflammatory conditions, such as oral cavity infections; side effects from medications; gastroesophageal reflux; exposure to toxins; and rabies. Sialorrhea can also occur when sensory dysfunction decreases a person's ability to recognise drooling or a motor dysfunction impedes the person from managing their normal secretions. On the contrary to hyposalivation/xerostomia there is a little attention paid in the literature for discussing the problem of the patient having too much saliva. In most of cases, pathogenesis of sialorrhea is not known. Due to the small number of patients involved in the studies it is difficult to get exact data. In addition to that, there is no consensus either on the terminology of sialorrhea or a preferable method which

should be used to achieve the best diagnostic and therapeutic approaches.<sup>2</sup>

Sialorrhea may occur in all age groups of population either as a consequence of increased salivary gland secretion or oral incontinence and impaired swallowing. Sialorrhea may result in oral problems, such as perioral chapping, maceration of the skin, dehydration, and odour. In Sialorrhea patient's hypersalivation should be considered as primary form and drooling as secondary form of Sialorrhea. Both these conditions of Sialorrhea (primary and secondary form) may affect the physical activity, organ functioning, communication and psychosocial status of the patients.<sup>3,4</sup>

**Definition:** Sialorrhea can be defined as abnormal spillage or saliva from mouth on to the lips, chin and clothing. Sialorrhea is also known as ptyalism which can be defined as involuntary spillage of saliva.

**Causes:**

Local cause:

- Pathological condition: ANUG, Aphthous ulcer, Herpetic ulcer
- Presence of foreign body: New denture, ill fitting denture, probe and mirror

Individuals who wear dentures may experience excessive saliva production, as do babies when teething.

Treatment methods for sialorrhea vary depending upon the cause of the condition.

- An infection in mouth or throat may cause sialorrhea. Treating the inflammation and infection may ease the symptoms. If swollen tonsils are causing excess saliva production, the tonsils can be surgically removed.
  - Oral inflammation-teething.
  - Caries, peritonsillar abscess.
2. CNS disorder:
- a. Mental retardation
  - b. Parkinsonism
  - c. Cerebral palsy
  - d. Epilepsy
3. Toxicity:  
Metal and iron poisoning,pesticides,snake poisoning
4. Drug:  
Lithium, Cholinergic agonist, tranquilizers, anticonvulsants.
- Physiological:
- 5.Pregnancy
- 6.Gastric: Gastro esophageal reflux.
7. Miscellaneous - psychic factor, rabies, facial paralysis

Clinical Features

1. The salivary flow is more in infancy and childhood, but the drooling observed in child is related to inadequate swallowing rather than excessive production
2. Drooling or sialorrhea can be a devastating problem for the affected child or adult.
3. The problem may range from mild embarrassment and discomfort to emotional and physical impairment
4. The affected person may require numerous clothings and/or bib changes per day.
5. He or she may develop cheek scarring, lip chapping or infection from constant exposure to saliva
6. The soiling of clothes, carpets, furniture, books and people often results in social rejection, employment difficulties and stigmatization.<sup>5</sup>

Assessment

Since Sialorrhea is of multifactorial nature a multidisciplinary approach must be adopted for assessment and management of the patient. A coordinated team approach is the best way to assess such patients which includes pediatricians, dental specialists, speech pathologists, ENT surgeons and otolaryngologists. Record of child’s medical and developmental ability status must be maintained. Careful assessment of severity of drooling must be done. Since assessment of drooling is difficult to standardize but many authors have used a rating scale(cramp –Bruno et al ,1989) for measurement of drooling. Table 1 Thomas-stonell N et al shows the rating scale for measuring the amount of severity in Sialorrhea patients.<sup>6</sup>

Role of Dental surgeon

Dentist plays a very important role in management approach, which includes initial assessment of oral health of the patient, coordination of any dental treatment required and to monitor the long term oral health of the patient. Dental caries, malocclusions and poor oral hygiene should be managed. Functional appliances play a very important role in correction of malocclusion as well as training patients to control their saliva. Anterior open bites and skeletal discrepancies require surgical corrections. There are many reasons for mouth breathing like adenoids, deviated nasal septum and hypertrophic rhinitis. Patients with mouth breathing habit and obstructed airway should be investigated and corrected. Physical positioning of the patient should also be investigated and corrected immediately by a physiotherapist.

Patients with\_sialorrhea have excess saliva of normal consistency. Because saliva pools in the floor of the mouth, it may interfere with dental treatment that requires a dry operating field. Under these circumstances, saliva ejectors should be used to complete routine dental treatment procedures. An upright position of dental chair is more conducive to air way management. Following drugs can be given prior to any dental treatment <sup>7</sup>

- Atropine-induced inhibition of salivation occurs within 30 minutes to an hour. Inhibition peaks within 2 hours after oral administration but can persist up to 4 hours
- The usual dose for adults is 0.4 mg, every 4-6 hours. In children, the suggested dose is 0.01 mg/kg but generally not exceeding 0.4 mg every 4-6 hours.
- Due to potential side effects, atropine sulfate is contraindicated in patients with asthma, glaucoma or synechia ( adhesions) between the iris and the lens of the eye
- Other drugs which are used as anti-sialogogue are scopolamine (0.4-0.6 mg), methantheline (50-100 mg) and propantheline (15-30 mg)
- Icing-Effect usually last up to 5-30minutes.Improves tone and swallow reflux.<sup>8</sup>

Points to remember

1. Removal of cause
2. If any foreign body is present then removal of the cause
3. Encourage frequent swallowing
4. Antihistamine or atropine sulphate for decreasing the salivary flow.

Table: 1. Rating scale for drooling measurement proposed by Thomas stonell and Greenberg 1988

Severity	Frequency
1. Dry- never drools	1. Never drools
2. Mild – only wet on the lips	2. Occasionally drools
3. Moderate – wet on the lips and chin	3. Frequently drools
4. Severe – drools excessive clothing becomes damp	4. Constantly drooling
5. Profuse – clothing, hands, tray and objects are wet	

The drooling score is obtained by adding the ranking from both scales

Medical management:<sup>5,11</sup>

Gastroesophageal Reflux Disease

Gastroesophageal Reflux Disease, or GERD, is a common cause of excessive saliva production,. Eating a balanced and maintaining a healthy weight may prevent the symptoms associated with GERD, in addition to avoiding foods that commonly cause heartburn and acid reflux. Over-the-counter acid relievers or prescription medications may also provide relief.

Medication Adjustment

Some medications such as clozapine or medications used to treat seizures or mental conditions may cause saliva glands to produce too much saliva. If patient is experiencing excessive saliva production and are taking prescription medication, consult the physician about adjusting the dose or finding an alternative medication.

Treatment Medications

Medications such as glycopyrrolate or a scopolamine patches may provide relief from excessive salivation. Side effects of these medications may include blurred vision or constipation.

Surgery and Radiation

Surgery to inhibit or remove salivary glands will provide relief for individuals suffering from excessive saliva. Radiation treatments may also be effective. However, because radiation treatment increases the risk of cancer, it is only used on older patients.<sup>9</sup>

Alternative Treatments

Acupuncture may provide relief from excessive saliva. Having injections of botulinum (Botox) in salivary glands may provide relief for a few months at a time.<sup>10</sup>

CONCLUSION

Successful management of sialorrhea can alleviate the associated hygienic problems, improve appearance, enhance self-esteem, and significantly reduce the nursing care time of these sufferers. Treatment of sialorrhea is best managed by a clinical team that includes primary health care providers, speech pathologists, occupational therapists, dentists, orthodontists, neurologists, and otolaryngologists. The dentist is an important part of the team in both assessment and intervention, in particular maintaining oral health and assisting in sensory motor control through the use of prosthesis.

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Corresponding Author

**Dr.P.L.Ravishankar**  
Professor & Head  
Department of Periodontics  
Sri Sai Dental College  
Srikakulam, Andhrapradesh  
Phone No: 9848113248  
Email: [plrs6@yahoo.com](mailto:plrs6@yahoo.com)