

Paediatric Sialorrhoea

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Abstract

Sialorrhoea is a rare but disturbing symptom associated with increased salivary secretions which may burden the family and the child, and can affect both the patient's and family's psychological well-being, emotionally and physically. The reasons may be abnormal neuromuscular control, swallowing coordination defects etc. Rarely oral, dental and gingival problems like inflammation, caries, malocclusion may also cause increased salivary secretion. We present a unique case of hypersalivation lasting for two weeks without a clear history of dental or oral illness, any drug exposure, or any chronic disease. Management is based on a multidisciplinary team approach, with treatment options ranging from conservative measures like simple observation, neck positioning, behavioural and pharmacological therapies to botulinum toxin or surgery. The patient may need to consult a dentist or orthodontist to assess the extent of secretion and to determine any medical or surgical cause.

Keywords: Sialorrhoea, Paediatric, Management.

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Introduction

The unintentional secretion of saliva or excessive drooling, also known as Sialorrhoea is a rare disorder among the paediatric population. However, drooling is common among children with cerebral palsy, neurological or cognitive impairment or in those under the age of four years.¹ Drooling children experience physical and psychological embarrassment, and this limits the child's and the family's ability to engage in social activities outside the home. In severe cases of drooling, a child may be predisposed to dehydration.²

There are multiple causes of drooling, such as impaired neuromuscular control, inefficient or non-coordinated swallowing, poor head control, enlarged tongue, additional stimulus to the salivary glands, dental caries,

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gingivitis and oral infection. All of these conditions may increase the drooling from either of the one gland like submandibular, sublingual, and parotid glands, along with some minor salivary glands located throughout the surface of the palate, tongue, and oral mucosa, which secrete saliva.³ The case of a 15 year old male child with excessive salivation and no predisposing factors likely to be idiopathic paroxysmal sialorrhea, is presented.

Case Report

A fifteen-year-old male patient attended the emergency department of Prince Mohammad Bin Abdulaziz Hospital, Madinah, KSA, on Sept 05, 2024 with a history of excessive and continuous salivation for the past two weeks, associated with intermittent vomiting of clear liquids. The salivary secretion worsened during the last two days and was accompanied with frequent vomiting. This salivation intensity worsened while awake, with minimally reduced secretion during sleep; however the salivation persisted to the extent that he was unable to sleep flat and used to sit the whole night. There is a history of dental caries, and he had a scaling procedure a week prior to the start of hypersecretion. He was taking paracetamol tablets for pain control. His overall dental and oral cavity hygiene was satisfactory, and he was clinically dehydrated.

There was no history of such excessive secretion in the past with no family history. He had not used drugs and denied any swallowing problems. He did not complain of abdominal pain, urinary symptoms or fever. On examination, no neurological symptoms or deficit was evident. He appeared clinically stable, with a clear throat

Table-1: System for assessment of frequency and severity of drooling.⁷

Drooling Severity	Points
Dry (Never drools)	1
Mild (Wet lips only)	2
Moderate (Wet lips and chin)	3
Severe (clothing becomes damp)	4
Profuse (clothing, hands, tray, objects become wet)	
Drooling Frequency	
Never drools	1
Occasionally drools	2
Frequently drools	3
Constantly drools	4

that was neither inflamed nor congested. The tonsils, buccal mucosa, gums and teeth were normal. There was no history of facial, dental, jaw or neck trauma. The systemic examination findings were noted. There was no history of drug usage. The treatment adopted was anti-parasympathetic medications (that block the effect of acetylcholine at muscarinic receptors) with follow-up via telemedicine at 24 and 48 hours. The patient showed clinical improvement, and his salivation intensity decreased, though it persisted.

The new observation in this case was continuous and persistent salivary secretion for two weeks with reduced intensity associated with intermittent vomiting.

Discussion

Saliva is secreted by the six major salivary glands (two parotid, two submandibular, and two sublingual) and several hundred minor salivary glands.⁴ In the normal state, around 70 % of salivary secretion is produced by the submandibular and sublingual glands which on stimulation increases up to five times.⁵ Sialorrhoea commonly occurs in patients with neuromuscular dysfunction, hypersecretion, sensory dysfunction, or anatomic (motor) dysfunction. Oral mucosal cavity inflammation is another common cause of hypersecretion like teething, dental caries, oral cavity infection other than dental procedure. Medications such as tranquilizers and anticonvulsants, gastroesophageal reflux, toxin exposure (i.e., mercury vapour), and rabies are among the rare causes of sialorrhoea.

The stimulation of parasympathetic innervation of salivary glands occurs during a dental or oral cavity surgical procedure, involving the inferior salivary nucleus of the tympanic plexus, lesser superficial petrosal nerve, otic ganglion, or the auriculotemporal nerve. The superior salivary nucleus innervates the submandibular and sublingual glands via the facial nerve, the chorda tympani in the middle ear, lingual nerve, and the submandibular ganglion,⁶ and may present with variable severity and frequency of drooling as described by Gregor. J. W. et.al. (Table I).⁷

Our patient had a history of a dental procedure one week before the development of increased salivary secretions. Moreover, his symptoms waxed and waned over two weeks, with worsening while awake, making these symptoms more likely to represent idiopathic paroxysmal sialorrhoea. On the contrary, there was no nausea or epigastric pain with no progress to vomiting.

Treatment of sialorrhoea is best accomplished by using a team approach.⁸ The treatment options range from

conservative measures like simple observation, neck positioning, behavioural and pharmacological therapies to botulinum toxin or surgery. The patient may need to consult a dentist or orthodontist to assess the extent of secretion and to determine any medical or surgical cause.

Milder cases can be managed by enhancing neuromuscular reflexes through facial physiotherapy and speech therapy exercises to improve the jaw control.

Anticholinergic medications may be used to block parasympathetic nerves like glycopyrrolate, benztropine, scopolamine and tropicamide. Newer options like Biperiden have been reported in the literature but have an adverse effect on cognition.⁹

Botulism toxin is another effective option in cases of severe salivation, as it reduces salivary activity with a rapid onset of action; however, its effect is short-lasting. Surgical options, such as removal of the gland, are reserved for chronic cases not managed by botulism toxin.⁹

Recently introduced Riluzole,¹⁰ a putative glutamate release blocker and Edaravone, a free radical scavenger approved by the FDA, have been used in cases of hypersalivation related to motor neuron disease.¹¹

Physicians and other healthcare professionals should recognize the importance of sialorrhoea as a possible indicator or complication of various disease states of the oropharynx and oesophagus, as well as its significant impact on the patient's physical and social quality of life.

Conclusion

Paediatric Sialorrhoea is a rare condition and may represent other disease manifestation and its management are usually symptomatic, however in severe cases behavioural and pharmacological therapies may be beneficial.

Consent: Written consent was obtained from the father of the patient for publishing the case report.

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AUTHOR'S CONTRIBUTION:

GS: Concept, drafting, final approval and agreement to be accountable for all aspects of the work.

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