

## EFFECTIVE MANAGEMENT OF PEDIATRIC SIALOLITHIASIS THROUGH AYURVEDA: A CASE REPORT

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### **ABSTRACT**

Sialolithiasis is a condition characterized by swelling and hardness around Stensen's duct due to mineral deposits (*Ashmari*) in the *Parotid* (salivary) gland.

The current case of a 11-year-old female with 'Sialolithiasis' presented with a palpable swelling (*Kathinya & Shotha*) and tenderness (*Sparsha-asahatva*) mainly at the left mandibular joint (*Hanu sandhi*), below the left ear.

*Ayurvedic Shaman Chikitsa* has proven to be efficacious in managing Sialolithiasis, with the application of appropriate *Yukti Pramana*. The patient was treated with external application of *lepa guti* over the swelling and internally *Kanchanar guggul*, *Pathyadhi kwath* and other necessary medications were prescribed. This study suggests a Potential role of Ayurveda in the comprehensive treatment of disorders like *Sialolithiasis*, sialadenitis, sialectasis, parotitis including mumps (*Pashana-gardabh*), showcasing notable symptom remission and paving the way for further exploration in integrative healthcare.

### **Keywords:**

*Ayurveda Chikitsa, Ashmari, Kathinya, Sialolithiasis, Shoth, Kanchanar Guggul, Lepa Gut.*

### **INTRODUCTION**

**Sialolithiasis** is a condition where in formation of stones occur in the salivary ductal system.<sup>1</sup> It is the Second most common salivary gland disease after mumps.<sup>2</sup> Majority percent of calculi develop in Wharton's duct of submandibular gland, followed by Stensen's duct of parotid

salivary gland whereas the sublingual duct is rarely involved. They are mainly composed of calcium phosphate and carbonates in combination with an organic matrix. there can be multiple internal micro calculi within salivary gland secretory granules. When these micro calculi get secreted into the salivary ducts, they may act as a nidus for the formation of larger calculi, ultimately forming a sialolith. The second hypothesis suggests bacteria or food debris within the oral cavity enter the distal submandibular or parotid ducts. Over time, this organic substrate may act as a nidus for the formation of larger calculi.<sup>3</sup> Clinically sialoliths are round or ovoid, rough or smooth and yellowish in color.<sup>4</sup> Factors that may Contribute to Sialolith Formation could be Increased hydroxyapatite, phosphates, enhanced viscosity, mucous, and alkalinity in mandibular gland secretions. Clinical Features further includes recurrent suppurative sialadenitis, pre and post meal salivary stimulation can lead to stagnation of Saliva and swelling in the mandibular region.<sup>5</sup>

In Ayurveda, we can co-relate the condition of sialolithiasis with *Ashmari janya - Shotha*. In Ayurveda – classical books we find reference pertaining to *Ashmari*<sup>6</sup> and *Shwayathu (Shotha)*.<sup>7</sup> Classics mentions *Ashmari*<sup>8</sup> as something that appears like a hard stone mass that can develop in any *srotas*, there by obstructing the normal flow of its contents. Thus, may lead to *sanga* of doshas nearby which may further result into (give rise to) *Shotha* and *Shoola*. In *Balyavastha* the chances of developing *Ashmari* are high due to continuous *sevan* of *Guru* and *Madhur rasatmak ahar*. Here the signs and symptoms match with that of *kaphaj Shotha* which is *sthira* and has *kathina utsedha*.

In this case report, a 11-year-old female child with – Sialactasis secondary to Sialolithiasis. The patient's family took multiple opinions from Pediatric surgeons who advised patient for surgical removal of the sialoliths. Thus, in order to avoid the surgery and seeking for conservations mode of treatment, the patient approached to Pediatric OPD of Kamakshi Arogyadham, Shiroda-Goa, on 04 November 2023.

## CASE REPORT

### Case history –

A 11-year-old female child was brought by her parents to Pediatric OPD of Kamakshi Arogyadham, Shiroda-Goa, with chief complaints of pain and swelling in the mandibular region below the left ear, in the past five months.

### Patient information:

- **Age:** 11 years
- **Gender:** Female
- **Occupation:** Student
- **Family history:** No one in the family have similar signs and symptoms.

- **Birth history:** Full Term Normal Delivery
- **Birth Weight of Child:** (>2) Kg.
- **Immunization:** Done (as per age schedule)

**O/E: - Pradhan Vedana (Clinical Features):**

- *Vamatah - Hanu sandhi pradeshi - Kathinya, Shopha & Sparshasahatva.*  
(Hardness/Induration & tenderness at mandibular joint below the left ear).
- Difficulty in jaw movements
- Restricted opening of mouth

**Vartaman Vyadhi vritta (brief history):**

Here is a 11 years old female child with main complaint of swelling over left mandibular region just below the L. Ear, associated with pain, difficulty in swallowing (jaw movements) for past five months. Patient is previously diagnosed with sialolithiasis of left parotid gland. The patient was apparently healthy a year before. The Patient initially started to experience pain at the mandibular region and developed swelling. Gradually patient developed recurrent parotid abscess. Lately the patient started to experience difficulty in the movement of Jaw, which was associated with tenderness and hardness at the same site. the investigations revealed the Features suggestive of bilateral sialolithiasis.

**Past history:**

- K/C/O – SIALOLITHIASIS (since Oct. 2023);
- H/O- Recurrent left parotid abscess secondary to multiple calculi in intraglandular duct (reports dated: 28/09/2023).
- H/O – Trismus grade 1, left pre-aural swelling with tenderness at area of left masseter; Lt impacted wax (as on – 29/07/23).
- H/O - L. Parotid Abscess (26/7/23)
- **S/H:** I & D under G.A. (2cc pus drained) on (26/7/23)

**Drug history:**

- Syp. Zostum O 100 mg dry, Syp. Ibugesic Plus 60 ml (ibuprofen + paracetamol), Syp. Augmentin ES 50 ml, Soln. Betadine – Gargle 2%, Inj. Pantop IV 40 mg & inj. Augmentin 1.2g., Oin. B Bact Ointment (mupirocin 2%ww), Syp. Biovit.

**Growth and Development:**

- All developmental milestones achieved as per the age.
- Weight: 32.3 Kg.
- Height: 138.5 cm.

**General Examination: -**

- **Pulse:** 94/ min.

- **Shwasan / RR:** 18/min.
- **Agni:** Manda (↓)
- **Jivha: Saam** (*Alpa Shwetabh Upalepa*)
- **Mala:** Samyak / (Once/day)
- **Mutra:** Normal (3-5 times a day)
- **Netra:** No Pallor / Icterus
- **Prakriti:** *Vata pradhan kapha anubandhi*
- **Nidra:** *Prakruta*
- **Kshudha:** *Alpa*
- **Kantha:** *Ardra*
- **Indriya Parikshana:** *Prakrut*

#### Systemic Examination:

- **R.S:** AEBE, Chest clear, (Normal broncho-vesicular sounds heard on auscultation).
- **P/A:** Soft, no organomegaly.

#### Local Examination:

- **Site:** mandibular joint, below left ear. (*Hanu sandhi desha*)
- **On palpation:** *kathina-utsedha* (induration present)
- **Distribution:** circular
- **Size:** ~ 3.5 cm swelling (measured externally)
- **Colour:** skin colour
- **Inflammation:** present (+++)
- **Itching:** absent
- **Pain:** present (+++)
- **Tenderness:** present (+++)
- **Discharge:** - Absent

#### Samprapti Ghatak: –

**Nidana** – *Apathyakar ahar vihar, Ati – Madhura, Sheeta, Guru, Amla, Snigdha, Lavan, Virudhanna sevan.*

**Dosha** – *Tridosh, mainly – udan vayu, bodhak kapha*

**Dushya** – *Rasa, Rakta, Mamsa, Meda, Asthi - Dhatu*

**Sroto dusti** – *sanga, vimargagaman.*

**Sadhya/Asadhyatwa** – *Sadhya*

**Agni** – *Manda (↓)*

**Ama** – *Present (+)*

**Adhishthana:** - *shakha/bahya marga ashrita.*

**Upadrava:** *Shotha* (inflammation), *puss* (abscess/*vidradhi*), further infection may lead to sinus track formation (*nadi vrana*).

**Differential diagnosis:** Sialo-lithiasis, Sialectasis, Mumps, *Pashana-gardabh*, *Ashmari*, *Shotha*.

**Diagnosis:** – Sialolithiasis / *Ashmari janya Shotha*.

## Materials and method

- CARE case report guidelines were followed for drafting this case report.
- Source of data: the patients was selected from OPD of *Kaumarbharitya* GAM&RC, Goa.
- Consent: a well-informed consent was taken from the patient and her parents before beginning with the treatment.

## Observation and Results (Diagnostic Assessment):

Diagnostic Approach: Inspection and palpation of mandibular as well as submandibular region for swelling, pain, tenderness, discoloration; evaluation of glandular secretions.

## Investigation-Reports: –

Date	Reports	Findings
26/07/2023	<u>Neck Ultrasound</u>	Collection within the left parotid gland measuring <i>16mm x 3mm x 6mm</i> in the deep lobe adjacent to the masseteric muscle. Multiple intra parotid calculi largest measuring <b>2mm</b> .
07/09/2023	<u>Left Parotid Ultrasound</u>	<b>Sialectasis</b> in left parotid gland with intraductal calculi, one of the calculi is seen obstructing the Stensen's duct ( <b>2.7 mm</b> ). Underlying chronic parotitis on the left side. No demonstrable residual abscess.
02-Oct-2023	<u>CT Neck And Paranasal Sinuses</u>	Features suggestive of <b>bilateral sialolithiasis</b> .
03-Oct-2023	<u>MRI Sialography of Parotid Ducts</u>	Mild <b>enlargement</b> of <b>left parotid gland</b> . Mild subcutaneous oedema is noted lateral to superficial lobe of left parotid gland and posterior aspect of left masseter muscle.
02/01/2024	<u>Neck Ultrasound</u>	Chronic sialadenitis (inflammation) of parotid glands bilaterally. Few tiny calcific concretions, largest measuring <b>2mm</b> in the intraglandular portion of left parotid duct. No remarkable dilatation of extra-glandular portion of parotid duct. <b>No e/o significant Sialactesia</b> .

## TREATMENT PROTOCOL:

Patient was prescribed with oral administration of the following medications:

### CHIKITSA –

On 04<sup>th</sup> November 2023

Sr. No.	Formulation	Dose	Adjuvant
1	<i>Pathyadi kwath</i>	7ml × TDS (After Food)	-
2	<i>Kanchanar guggulu</i>	125 mg × TDS (After Food)	Lukewarm Water
3	<i>Triphala guggulu</i>	2 tables - 125 mg × TDS (Before Food)	Lukewarm Water
4	<i>Dashmoola taila</i>	Local Application, For 5-7 min	-

Follow up: 09<sup>th</sup> November 2023

Sr. No.	Formulation	Dose	Adjuvant
1	<i>Pathyadi kwath</i>	7ml × TDS (After Food)	-
2	<i>Kanchanar guggulu (30tab)</i> <i>Palash churna (50mg)</i> <i>Pashanbheda (50mg)</i> <i>Trikatu (30mg)</i> <i>Patha(50mg)</i> <i>Kutaj (50mg)</i>	1 × TDS (After Food)	<i>Pathyadi kwath</i>
3	<i>Triphala guggulu</i>	2 tablets - 125 mg × TDS (Before Food)	Lukewarm water
4	<i>Lepa-guti</i>	Local Application. Morning	-
5	<i>Dashmoola taila</i>	Local Application. For 5-7 min at night	-

Follow up: 23<sup>rd</sup> November 2023

Sr. No.	Formulation	Dose	Adjuvant
Continue medicine – 1, 2, 3, 4, 5, - as on 09th November 2023			
6.	<i>Arogyavardhini vati</i>	125 mg, 0-1-0 (Before Food)	Lukewarm water

Follow up: 12<sup>th</sup> December 2023

Continue medicine – as on 23<sup>rd</sup> November 2023.

**TIMELINE:** Patient was subjected to treatment for 9 weeks.

WEEKLY FOLLOWUP	ABHIPRAYA
1st sitting: 4/11/23	Swelling on left side of mandible reduced Pain while eating: Present Pain at umbilical region (on & off) which increases before passing stools. Pulse rate – 94/min
2nd sitting: 9/11/23	Hardness Below mandible reduced Tenderness absent (since 2 days) Pain while eating: decreased <i>Udar Shool</i> : (on & off)
3rd sitting: 30/11/23	Hardness Below mandible: Absent Tenderness: absent <i>Udar Shool</i> : reduced weight: 33.7 kg
4th sitting: 12/12/23	swelling: absent pain: absent hardness: absent tenderness: absent flexible jaw movements abdominal pain: absent no recurrent episodes of abscess formations noted so far.

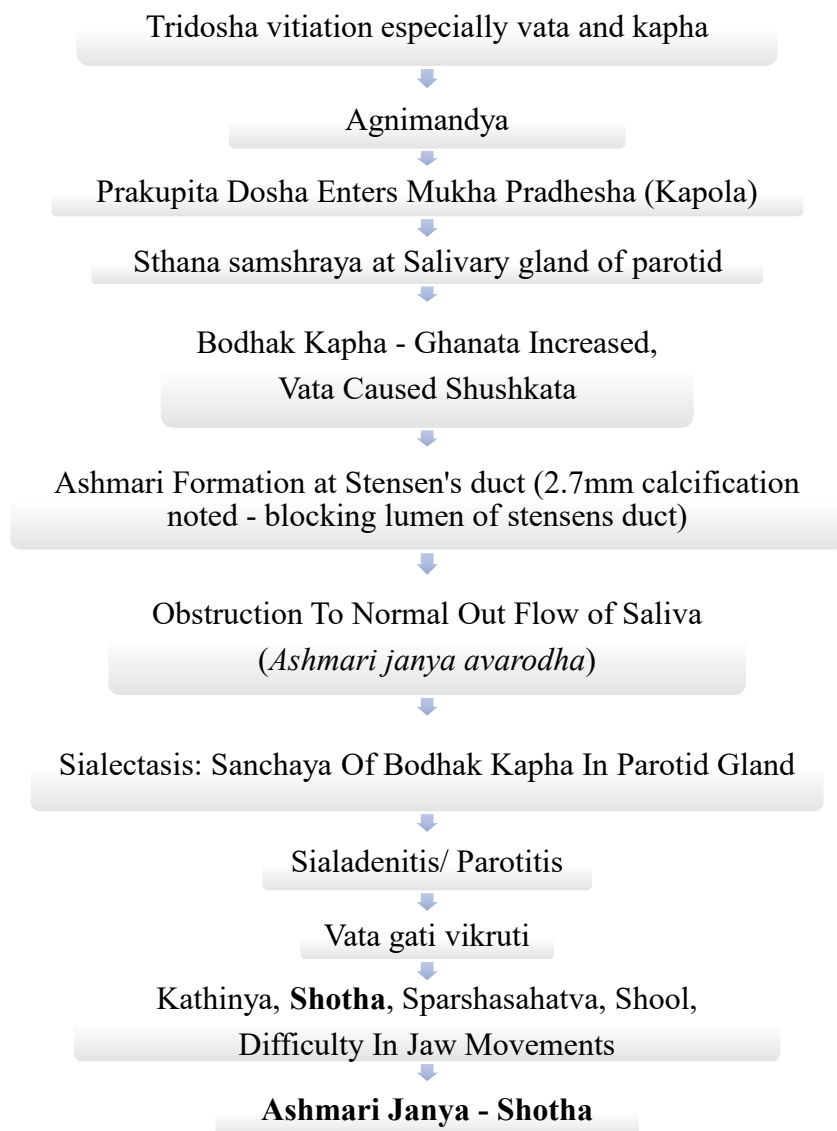
**Results:** Grading according to subjective symptoms on clinical examination:

Weekly follow up	<i>Shoola</i>	<i>Shotha</i>	<i>Kathinya</i>	<i>Praman</i>
4/11/23	++++	++++	++++	3.5 cm
23/11/23	++	+++	+++	2.9 cm
30/11/23	-	+	++	1.5 cm
12/12/23	Patient was physically absent for follow up, informant mother mentioned that the swelling was reduced and jaw movements were easily carried out.			
2/1/23	All clinical symptoms resolved. No sign of swelling/tenderness/pain. Jaw movements regained.			

**Discussion:**



*Samprapti*: - the probable pathogenesis of the case is mentioned below:



The treatment was planned in order to decrease the size of *Ashmari* so that the *Shotha* will also decrease as we obtain the normal flow of saliva through its *Srotas* (Stensen's duct).

In Ayurveda classics *chikitsa sutra* of *Ashmari*, suggests to primarily carry out the *Bhedan* (breakdown) and subsequently *paatan* (removal) of the *Ashmari* considering the *bala* of *rugna* and *vyadhi*. *Samanya Chikitsa sutra* of *Shotha* suggest for *nidaan parivarjana*, *aama dosha pachan*, *shodhan* or *shaman* considering *dosha avastha*. For *Ekanga Shotha*<sup>9</sup> Acharya Vagbhat has advised for *sthanik snehan swedan* and *lepa* application.<sup>10</sup>



In the course of *shaman chikitsa* medicines used were possibly which can help in *tridosha dhosha shaman*, *Deepana*, *Aama Pachan*, *Srotoshuddhi*, *Ashmari bhedan* and *Paatan*, *Shoola prashaman*. We first focused on improving the *Agni* and balancing the *Kapha* and *Vata dosha*. *Aama pachan* was done *rasa dhatu gata dosha pachan* and *shaman* was done which helped further *dhatu parinaman*. This also helped in controlling the *vikruta kleda/meda* formation. Also to act at the level of *Asthi dhatu*, drugs like *Pashanbheda*, *Palash*, *Kanchanar Guggulu* were prescribed. Considering the *ekanga shotha chikitsa*, *Dashamoola taila* and *Lepa guti* application was advised. The reduction in the size of *Ashmari* was noted after which the *Shotha* also got reduced, there by facilitating the jaw movements.

#### Probable mode of action of the drugs and formulations used: -

**Patha**<sup>11,12</sup> – Helps in alleviating pain (*Shoola-prashaman*) and swelling (*Shotha-har*).

**Pashan bheda**<sup>13</sup> – Helps in *Ashmari bhedan* (breaking down the stones) and *Shoolprashaman* (subsides pain).

**Palasha**<sup>14,15</sup> – Helps in *agni deepan*, controls abnormal *kapha* and removes laxity of fatty tissues in body. Also, *Palash kshar* has known to be effective in *Ashmari bhedan*<sup>16</sup>.

**Kutaja**<sup>17</sup> – Helps in *agni deepan* and does *Rasadhatu gata dosha pachan* and *shaman*.

**Trikatu**<sup>18</sup> – An excellent *Amapachak* formulation and is used in diseases of throat.

**Kanchanar guggulu**<sup>19</sup> – Is effective in case of *Shotha*, *granthi* (tumor), *Apachi*(cyst), tonsilitis, swollen lymph nodes, *Galagand* as it possesses properties like *Deepan*, *Pachan*, *Vatta-Kapha shamak*, *Shoth-har*, *Lekhan* and *Bhedan*.

**Triphala guggulu**<sup>20, 21</sup> – It possesses *deepan-pachan* qualities, removes obstruction in *srotas*. It contains anti-inflammatory, anti-microbial, and analgesic qualities.

**Arogyavardhini**<sup>22, 23</sup> – It does *deepan-pachan*, removes *srotorodha* and controls excessive *kleda*. It does *Rakta prasadan* and hence helps in *Mamsa - Meda dhatu Shuddhi*.

**Pathyadi kwath**<sup>24,25</sup> – it does *deepan pachan*, *rakta prasadan*. It acts as Antipyretic, Analgesic, Anti-tumor, Anti-inflammatory, Antimicrobial.<sup>26</sup>

**Lepa guti**<sup>27</sup> –It is used traditionally for local inflammation, local pain, joint pain, Musculo-skeletal pain.

**Dashamoola taila**<sup>28,29</sup> – *Dasha-moola* has anti-inflammatory properties.

Through the case study it is observed that there is a good result of *shaman chikitsa* in Sialolithiasis.

#### Conclusions:

This treatment was done with an aim to avoid the surgical intervention thereby giving relief to the patient through ayurvedic principals of *shaman chikitsa*. By the help of *chikitsa sutras* and *yukti praman*, diagnosis was done and the treatment protocol was planned; considering the status of *dosha-dushya* and also the *Balyaavastha* of the patient. Remissions mentioned in the follow-up shows effective actions of the medicines prescribed to the patient. Hence *Ayurveda* intervention can *Successfully* be used in cases like *Sialolithiasis*, is evident from the present case report.

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**Conflict Of Interest Statement:** None.

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