A CASE STUDY TO EVALUATE THE EFFECT OF CHITRAKA HARITAKI AND HINGWADI TAIL NASYA IN MANAGEMENT OF DUSHTA PRATISHYAYA W.S.R. TO CHRONIC SINUSITIS

1*Dr. Naveen Kumar, 2Dr. Vijayant Bhardwaj, 3Dr. Chanda Chopra and 4Dr. Lokesh Katna


ABSTRACT
Dushta Pratishyaya is explained in Ayurvedic system of medicine as on & off discharge from nose, stuffy nose, smelly breathe, absence of sense of smell etc. The clinical features of Dushta Pratishyaya as explained in Ayurvedic literature have the relevance with Chronic sinusitis. This work was planned with two formulations from classical texts i.e. Chitraka Haritaki Avleha & Hingwadi Tail (Nasya) were evaluated under the title “A Case study to Evaluate the Effect of Chitraka Haritaki and Hingwadi Tail Nasya in management of Dushta Pratishyaya w.s.r. to Chronic Sinusitis”. The duration of trial was 28 days with 2 weeks follow up evaluation based on subjective criterion. On the completion of trial i.e. after 28 days, subjective and objective (X-ray PNS W/V) criteria were taken into consideration. So Patient had 81.25% change in signs and symptoms So Patient was markedly improved.

KEYWORDS: Dushta Pratishyaya, Chronic sinusitis, Chitraka Haritaki Avleha, Hingwadi Tail, Nasya.
INTRODUCTION

_Dushta Pratishyaya_ is explained in Ayurvedic system of medicine as on & off discharge from nose, stuffy nose, smelly breathe, absence of sense of smell etc. The clinical features of _Dushta Pratishyaya_ as explained in Ayurvedic literature have the relevance with Chronic sinusitis. Sinusitis is a common problem among all age groups and is a leading cause of hospital visits worldwide. Around 134 million Indians suffer from chronic sinusitis which means 1 in every 8 is being suffered. This disease is characterized by tenderness over sinus region, headache, nasal blockage, nasal discharge, fever and bad breath.[1] Once sinus is infected, improper management and dietary habits lead the disease into a chronic phase this chronic sinusitis is too difficult to drain out completely. It is reasonable to expect that individual of sinusitis symptoms can result in more complex problems such as sleep disturbances, psychological disorders (changes in mood, depression, and anxiety), fatigue, and sexual dysfunction.

In modern medical system a wide range of antibiotics and decongestants are available. But these drugs have nothing to do with such a chronic condition. Antral puncture and antral irrigation is the commonest intervention, FESS (Functional Endoscopic Sinus Surgery), Caldwell-Luc operation, Haworth’s operation etc. are the chief operative procedures to drain the sinus if conservative measures fail.[2] All these costly surgical procedures will lead a lot of complications ranging from bleeding, oro-antral fistula, infra orbital anesthesia leads to neuralgia and paraesthesia.

This case study is planned to evaluate the Ayurvedic drug on the Chronicity of the disease. The detailed study of the disease, its nature & course and treatment with Ayurvedic Drug having minimal side effects & better efficacy. This work was planned with two formulations from classical texts i.e. _Chitraka Haritaki Avleha & Hingwadi Tail (Nasya)_ were evaluated under the title “A Case study to Evaluate the Effect of Chitraka Haritaki Ableha[3] and Hingwadi Tail Nasya[4] in management of Dushta Pratishyaya w.s.r. to Chronic Sinusitis”.

The duration of trial was 28 days with 2 weeks follow up evaluation based on subjective criterion. On the completion of trial i.e. after 28 days, subjective and objective (X-ray PNS W/V) criteria were taken into consideration.
DEFINITIONS

Defining "okra" as the "subjective evaluation and characteristics of the condition of Doshas," when Pratishyaya is not treated timely and person continue to indulge in unwanted food and regimen then the condition worsens and become chronic, which is called Dushta Pratishyaya. The word ‘Dushta’ itself suggests more vitiated condition of Doshas.

Lakshanas of Dushta Pratishyaya are mentioned in Brihattrayi, Madhavanidana[6], Yogaratnakara[7] and Bhavaprakasha.[8] Acharya Madhava, Yogaratnakara and Bhavaprakasha have followed Sushrutacharya’s opinion and along with those Lakshanas Krimi Utapatti is also mentioned.

CASE REPORT

A 45 years female patient came to us with chief complaints of
1. Nasal obstruction
2. Difficulty in breathing
3. Thick nasal discharge
4. Headache
5. Post Nasal discharge
Patient had above complaints since 3 months.

History of personal illness: According to the patient, she was asymptomatic before 3 months. Then patient have been suffering from nasal obstruction and headache. It gradually increases and She also developed thick discharge from nose on and off. The nature of discharge was mucopurulent. Patient is also having complaints of general weakness. She was already taking modern medication but got no relief, then she decided to take Ayurvedic management. THEN She came to R.G.G. P.G. Govt. Ayu. College Paprola.

Personal history
Diet: Mixed
Surroundings: Neat and clean
Occupation: Housewife
Bad habits: No addications
O/E
1. General condition of patient is moderate
2. Pulse rate: 76/min
3. B.P. 130/78 mmof Hg
4. Weight-52kg, Height-156cm
5. Respiratory System : Clear Air Entry
6. CVS-S1 S2 normal, no abnormal sound
7. CNS- well conscious, oriented place, person, time
8. Ear: B/L Retracted TM
10. Throat: Lymphoid tissue increased on post. Pharyngeal wall

Drug schedule
1. *Chitraka Haritaki* 10 gm twice a day for 4 weeks with hot water.
2. *Hingwadi Tail Nasya* - 6 drops in each nostril every morning for 7 days. 2 cycles of *nasya* (days interval).

Duration of Treatment: 4 weeks.

Follow up: Two weeks.
### Table No.1: Rasa Panchaka of Contents of Drug Formulation Chitraka Haritaki[^9]

<table>
<thead>
<tr>
<th>Sr no.</th>
<th>Ingredients</th>
<th>Rasa</th>
<th>Guna</th>
<th>Virya</th>
<th>Vipaka</th>
<th>Dosha-karma</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Chitraka</td>
<td>Katu</td>
<td>Laghu, Ruksha, Teekshana</td>
<td>Ushana</td>
<td>Katu</td>
<td>Vatakaphashamaka, Pittavardhaka.</td>
</tr>
<tr>
<td>2</td>
<td>Amalaki</td>
<td>Amla, Madhura, Kashaya, Tikta, Katu</td>
<td>Guru, Ruksha, Sheeta</td>
<td>Sheeta</td>
<td>Madhura</td>
<td>Tridoshashamaka especially Pittashamaka</td>
</tr>
<tr>
<td>3</td>
<td>Guduchi</td>
<td>Tikta, Kashaya</td>
<td>Guru, Snigdha</td>
<td>Ushana</td>
<td>Madhura</td>
<td>Tridoshashamaka</td>
</tr>
<tr>
<td>4</td>
<td>Bilva</td>
<td>Kashaya, Tikta</td>
<td>Laghu, Ruksha</td>
<td>Ushana</td>
<td>Katu</td>
<td>Kaphavatashamaka</td>
</tr>
<tr>
<td>5</td>
<td>Agnimantha</td>
<td>Tikta, Katu, Kashaya, Madhura</td>
<td>Ruksha, Laghu</td>
<td>Ushana</td>
<td>Katu</td>
<td>Kaphavatashamaka</td>
</tr>
<tr>
<td>6</td>
<td>Shayonaka</td>
<td>Madhura, Tikta, Kashaya</td>
<td>Laghu, Ruksha</td>
<td>Ushana</td>
<td>Katu</td>
<td>Tridosha shamaka</td>
</tr>
<tr>
<td>7</td>
<td>Gambhari</td>
<td>Tikta, Kashaya, Madhura</td>
<td>Guru</td>
<td>Ushana (Fruit- Sheeta)</td>
<td>Katu</td>
<td>Tridoshashamaka</td>
</tr>
<tr>
<td>8</td>
<td>Patra</td>
<td>Kashaya, Tikta</td>
<td>Laghu, Ruksha</td>
<td>Ushana</td>
<td>Katu</td>
<td>Tridosha shamaka</td>
</tr>
<tr>
<td>9</td>
<td>Shalparni</td>
<td>Madhura, Tikta</td>
<td>Guru, Snigdha</td>
<td>Ushana</td>
<td>Madhura</td>
<td>Tridoshashamaka</td>
</tr>
<tr>
<td>10</td>
<td>Prishniparni</td>
<td>Madhura, Tikta</td>
<td>Laghu, Snigdha</td>
<td>Ushana</td>
<td>Madhura</td>
<td>Tridoshashamaka</td>
</tr>
<tr>
<td>11</td>
<td>Gokshura</td>
<td>Madhura</td>
<td>Guru, Snigdha</td>
<td>Sheeta</td>
<td>Katu</td>
<td>Kaphavatashamaka</td>
</tr>
<tr>
<td>12</td>
<td>Brihati</td>
<td>Katu, Tikta</td>
<td>Laghu, Ruksha, Teekshana</td>
<td>Ushana</td>
<td>Katu</td>
<td>Kaphavatashamaka</td>
</tr>
<tr>
<td>13</td>
<td>Kantakari</td>
<td>Tikta, katu</td>
<td>Laghu, Ruksha, Teekshana</td>
<td>Ushana</td>
<td>Katu</td>
<td>Kaphavatashamaka</td>
</tr>
<tr>
<td>14</td>
<td>Haritaki</td>
<td>Pancha Rasa; Kashaya Pradhana</td>
<td>Laghu, Ruksha</td>
<td>Ushana</td>
<td>Madhura</td>
<td>Tridoshashamaka especially Vatakaphashamaka</td>
</tr>
<tr>
<td>15</td>
<td>Guda</td>
<td>Madhura</td>
<td>Guru, Snigdha</td>
<td>Sheeta</td>
<td>Madhura</td>
<td>Vatakaphashamaka</td>
</tr>
<tr>
<td>16</td>
<td>Shunthi</td>
<td>Katu</td>
<td>Laghu, Snigdha</td>
<td>Ushana</td>
<td>Madhura</td>
<td>Vatakaphashamaka</td>
</tr>
<tr>
<td>17</td>
<td>Maricha</td>
<td>Katu</td>
<td>Laghu, Tikshna, Ruksha</td>
<td>Ushana</td>
<td>Katu</td>
<td>Kaphavatashamaka</td>
</tr>
<tr>
<td>18</td>
<td>Pippali</td>
<td>Katu</td>
<td>Laghu, Snigdha, Teekshana</td>
<td>Anushna- sheeta</td>
<td>Madhura</td>
<td>Kaphavatashamaka</td>
</tr>
<tr>
<td>19</td>
<td>Tvaka (Dalchini)</td>
<td>Katu, Tikta, Madhura</td>
<td>Laghu, Ruksha, Teekshana</td>
<td>Ushana</td>
<td>Madhura</td>
<td>Vatakaphashamaka</td>
</tr>
<tr>
<td>20</td>
<td>Sukshmaila</td>
<td>Katu, Madhura</td>
<td>Laghu, Ruksha</td>
<td>Sheeta</td>
<td>Madhura</td>
<td>Tridoshashamaka</td>
</tr>
<tr>
<td>21</td>
<td>Tejpatra</td>
<td>Katu, tikta, madhura</td>
<td>Laghu, Ruksha, Tikshna</td>
<td>Ushana</td>
<td>Madhura</td>
<td>Kapha-vatahara</td>
</tr>
<tr>
<td>22</td>
<td>Yava</td>
<td>Kshaya, Madhura</td>
<td>Ruksha,Guru,Pichchhila,Mridu</td>
<td>Sheeta</td>
<td>Katu</td>
<td>Kaphapitashamaka</td>
</tr>
<tr>
<td>23</td>
<td>Madhu (Honey)</td>
<td>Kashaya, Madhura</td>
<td>Laghu, Ruksha, Sukshma, Picchila</td>
<td>Sheeta</td>
<td>Madhura</td>
<td>Tridosha shamaka</td>
</tr>
</tbody>
</table>
### Rasa Panchaka of Contents of Drug Formulation Hingwadi Tail (Table no. 2)

<table>
<thead>
<tr>
<th>Sr no.</th>
<th>Ingredients</th>
<th>Rasa</th>
<th>Guna</th>
<th>Virya</th>
<th>Vipaka</th>
<th>Dosha-karma</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Hingu</td>
<td>Katu</td>
<td>Laghu, Snigdha,</td>
<td>Ushana</td>
<td>Katu</td>
<td>Kaphavatashamaka</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Teekshana, Sara</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Shunthi</td>
<td>Katu</td>
<td>Laghu, Snigdha</td>
<td>Ushana</td>
<td>Madhura</td>
<td>Vatakaphamaka</td>
</tr>
<tr>
<td>3</td>
<td>Maricha</td>
<td>Katu</td>
<td>Laghu, Tikshna,</td>
<td>Ushana</td>
<td>Katu</td>
<td>Kaphavata shamaka</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Ruksa</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Pippali</td>
<td>Katu</td>
<td>Laghu, snigdha,</td>
<td>Anushna-sheeta</td>
<td>Madhura</td>
<td>Kaphavata shamaka</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Teekshana</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Vidanga</td>
<td>Katu, Kashaya</td>
<td>Laghu, Ruksa, Teekshana</td>
<td>Ushana</td>
<td>Katu</td>
<td>Kaphavata shamaka</td>
</tr>
<tr>
<td>6</td>
<td>Katphal</td>
<td>Kashaya, Tikta, Katu</td>
<td>Laghu, Teekshana</td>
<td>Ushana</td>
<td>Katu</td>
<td>Kaphavatahara</td>
</tr>
<tr>
<td>7</td>
<td>Vacha</td>
<td>Katu, Tikta</td>
<td>Laghu, Teekshana, Sara</td>
<td>Ushana</td>
<td>Katu</td>
<td>Kaphavatashamaka</td>
</tr>
<tr>
<td>8</td>
<td>Kushtha</td>
<td>Tikta, Katu, Madhura</td>
<td>Laghu, Ruksa, Tikshana</td>
<td>Ushana</td>
<td>Katu</td>
<td>Kaphavatashamaka</td>
</tr>
<tr>
<td>9</td>
<td>Ela</td>
<td>Katu, Madhura</td>
<td>Laghu</td>
<td>Sheeta</td>
<td>Madhura</td>
<td>Tridosha-shamaka</td>
</tr>
<tr>
<td>10</td>
<td>Laksha</td>
<td>Kashaya, katu, tikta</td>
<td>Laghu, tikshna</td>
<td>Ushna</td>
<td>Katu</td>
<td>Kaphavatahara</td>
</tr>
<tr>
<td>11</td>
<td>Punarnava</td>
<td>Madhura, tikta, kashaya</td>
<td>Laghu, Ruksa</td>
<td>Ushana</td>
<td>Madhura</td>
<td>Tridosha-shamaka</td>
</tr>
<tr>
<td>12</td>
<td>Musta</td>
<td>Tikta, Katu, Kashaya</td>
<td>Laghu, Ruksa</td>
<td>Sheeta</td>
<td>Katu</td>
<td>Kaphapittashamaka</td>
</tr>
<tr>
<td>13</td>
<td>Kutaja</td>
<td>Tikta, Kashaya</td>
<td>Laghu, Ruksa</td>
<td>Sheeta</td>
<td>Katu</td>
<td>Kaphapittashamaka</td>
</tr>
<tr>
<td>14</td>
<td>Tulasi</td>
<td>Katu, Tikta</td>
<td>Laghu, Rukhsa</td>
<td>Ushana</td>
<td>Katu</td>
<td>Kaphavatashamaka</td>
</tr>
<tr>
<td>15</td>
<td>Sarshapa murchhita</td>
<td>Katu, Tikta</td>
<td>Snigdha</td>
<td>Ushana</td>
<td>Katu</td>
<td>Kaphavatashamaka</td>
</tr>
<tr>
<td>16</td>
<td>Gomutra</td>
<td>Madhura</td>
<td>Ushana, tikshna</td>
<td>Ushana</td>
<td>Katu</td>
<td>Tridosha-shamaka</td>
</tr>
</tbody>
</table>

### Murchhana drugs: As per Ayurveda Sara Sangraha

<table>
<thead>
<tr>
<th>Sr no.</th>
<th>Ingredients</th>
<th>Rasa</th>
<th>Guna</th>
<th>Virya</th>
<th>Vipaka</th>
<th>Dosha-karma</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>Haridra</td>
<td>Tikta, Katu</td>
<td>Ruksha, Laghu</td>
<td>Ushana</td>
<td>Katu</td>
<td>Tridosha-shamaka</td>
</tr>
<tr>
<td>18</td>
<td>Manjishtha</td>
<td>Madhura, Tikta, Kashaya</td>
<td>Guru, Ruksa</td>
<td>Ushana</td>
<td>Katu</td>
<td>Kaphapittashamaka</td>
</tr>
</tbody>
</table>

### Plan of work:
The study was planned in different steps as mentioned below.

1. **Proforma**: A special Proforma was prepared to maintain the records of the entire observations regarding the disease.
2. **Investigations:** The following laboratory investigations were carried out to assess the condition and to exclude any other pathology of the patients.

(a) Haematology: Hb%, TLC, DLC, ESR
(b) Biochemistry: Fasting Blood Sugar
(c) Radiology: X-Ray P.N.S. Water’s View

**CLINICAL ASSESSMENT**

To assess the improvement in symptoms of Sinusitis symptoms were graded in 4 gradations on the basis of severity & duration.

**Criteria for the Assessment**

The efficacy of the therapy was assessed on the basis of subjective as well as objective criterion. Most of the symptoms & signs of Sinusitis described in texts are subjective in nature. **Clinical Assessment: on the basis of subjective criterion:**

**Facial pressure or pain or local sinus tenderness**

Grade 0 – No pain or local sinus tenderness
Grade 1 – Present but no interference with daily Activities
Grade 2 – Present and some interference with daily activity
Grade 3 – Present with incapacitation.

**Post nasal drip**

Grade 0 – Nil
Grade 1 – infrequent
Grade 2 – frequent
Grade 3 – very frequent

**Headache**

Grade 0 – No headache
Grade 1 – Occasional headache not interference with daily activity
Grade 2– Intermittent headache and some interference with daily activity
Grade 3 – Continuous headache

**Congestion or Stuffy nose**

Grade 0 – Absent
Grade 1 – Occasional (1-2 episodes in a day not at regular intervals)
Grade 2 – More than 2 episodes in a day at regular intervals
Grade 3 – Continuous

**Nasal discharge**
Grade 0 – Absent
Grade 1 – Occasional scanty discharge
Grade 2 – Intermittently mucoid discharge
Grade 3 – Continuous muco-purulent nasal discharge with foul smell.

**Fever**
Grade 0 – Absent
Grade 1 – Low fever (99-100 degree F)
Grade 2 – Fever 100 degree F - 102 degree F
Grade 3 – Fever more than 102 degree F

**Bad breath**
Grade 0 – Absent
Grade 1 – Occasional
Grade 2 – Intermittently
Grade 3 – Continuous

**Pain in upper teeth**
Grade 0 – Absent
Grade 1 - Present but no interference with daily activities
Grade 2 – Present and some interference with daily activity
Grade 3 – Present with incapacitation

**Sense of smell**
Grade -0 – Normal
Grade -1- mild hyposmia
Grade -2- Hyposmia
Grade -3- Anosmia

**On the basis of objective criterion**
For the purpose of assessing Chronic Sinusitis objectively, X-ray PNS Water’s view was evaluated before and after the treatment.
Protocol of radiological evidence: on the basis of opacity.

Grade - 0 - Normal
Grade - 1 - ¼ of the sinus involved
Grade - 2 - ½ of the sinus involved
Grade - 3 - Whole of the sinus involved

Grading On the basis of Subjective criteria (Table No:3)

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Signs And Symptoms</th>
<th>Before Trial</th>
<th>After Trial</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Facial pressure or pain</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>2.</td>
<td>Post nasal drip</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>3.</td>
<td>Headache</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>4.</td>
<td>Congestion or stuffy nose</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>5.</td>
<td>Nasal discharge</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>6.</td>
<td>Fever</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>7.</td>
<td>Bad breath</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>8.</td>
<td>Pain in upper teeth</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>9.</td>
<td>Sense of smell</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

EFFECT OF THERAPY ON RADIOLOGICAL INVESTIGATIONS

(X.RAY PNS water's view)

Note the haziness in maxillary sinus reduced after treatment

(Arrows pointing the changes after treatment in two different trial patients)

Assessment of effect of therapy: The effect of the therapy was assessed in terms of cured, markedly improved, improved and unchanged.
The details are as follows-

1. **Cured**: 100% relief from all signs & symptoms was considered as totally cured.
2. **Markedly improved**: 76% to 99.99% relief from the signs & Symptoms was considered as markedly improved.
3. **Moderately improved**: 51% to 75.99% relief from the signs & Symptoms was considered as markedly improved.
4. **Improved**: 26% to 50.99% relief from the signs & Symptoms was considered as improved.
5. **Unchanged**: Less than 26% or no relief from the signs & Symptoms was considered as unchanged.

SO Patient had 81.25% change in signs and symptoms So Patient was markedly improved.

**DISCUSSION**

*Pratishyaya is a Vata-kapha predominant Tridoshaja disease in which kapha etc dosha show movement towards nose under the influence of vata dosha.*

The trial drug *Chitraka Haritaki* is having Tikta, Madhura rasa (26.92% each) predominance followed by katu rasa (23.07%). The rest of indices there is predominance of laghu guna (28.07%), ushana veerya (69.56%), madhura vipaka (56.53%) and vata-kaphashamaka properties which are counteracting the samprapti (pathogenesis) of dushta pratishyaya.

The drug *Chitraka Haritaki* is having tikta & madhura rasa predominance. Tikta rasa as per Ch.Su.26 has been credited with krimighana & jwaraghna properties which help to reduce infection & fever respectively. In the same context lekhana, shleshma-upshoshana etc. properties help to reduce kapha i.e. discharge in the sinuses. The madhura rasa being marutaghana helps to reduce excessive discharge tendency. Similarly madhura vipaka acts. Third dominant rasa is katu i.e. 23.07% having properties like ghranam asravayati, shwayathu anupahanti, krimi hinasti, marga vivrinoti as per Ch.Su.26 helps a lot in reduction of signs & symptoms of chronic sinusitis, which will be discussed under following mode of action of Hingwadi tail. The dominant Guna of the annexed drug *Chitraka Haritaki* is laghu, that helps in relieving symptoms like heaviness around the area of paranasal sinuses. As the *Pratishyaya* is aggravated or initiated with cold food habits & environmental conditions, ushana veerya predominance leads to combating with this precipitating factor. Also ushana
veerya affects in reducing kapha i.e. discharge or over secretions & helps to reduce kapha and vata, so acts against the vata kaphaja predominance of Dushta Pratishayaya.

The other trial drug i.e. Hingwadi Tail as Nasya is having predominance of Katu rasa (37.83%), laghu guna (36.58%), ushana veerya (77.78%), katu vipaka (77.78%) and kapha-vata shamaka dosha karma which is also counteracting the samprapti of Dushta Pratishayaya.

The drug Hingwadi Tail was used as nasya (nasal drops). There is katu rasa predominance, the actions of which like ghranam asravayati, shwayathu anupahanti, krimi hinasti, marga vivrinoti as per Ch.Su.26 helps a lot in reduction of signs & symptoms of chronic sinusitis. Ghranam asravayati property acts as mucolytic i.e. thinning of secretions, shwayathu anupahanti property reduces regional oedema around ostia and marga vivrinoti helps to opening of channels i.e. ostia of sinuses. Along with krimighna i.e. action of contents of Hingwadi Tail nasya helps to clearance of sinuses through their respective ostia. Again laghu guna relieves the oedema of nasal mucosa and clears the osteo-meatal complex. Ushana veerya affects in reducing kapha i.e. discharge or over secretions. Katu vipaka also serves same functions as explained in katu rasa actions.
Probable mode of action of both the drugs in chart form is as follows

REFERENCES


