

Role of Acharya Sushruta in Ophthalmology Surgery– *Arma Chhedana* (Pterygium Excision)

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Abstract

Background: *Acharya Sushruta*, being the father of surgery has described various surgical disorders with their respective detailed interventions. He depicted *Ashtavidha Shastra-Karma* like *Chhedana* (Excision), *Bhedana* (Incision), *Lekhana* (Scraping), *Vyadhana* (Puncturing), *Eshana* (Probing), *Aaharana* (Extraction), *Vistravana* (Drainage), *Seevana* (Suturing). He described 76 *Netra Rogas*, including 40 diseases which are surgically curable and with elaborative depiction of indications, contra-indications, pre-para-post operatives of *Utsangini* (Trachoma), *Arma* (Pterygium), *Pakshmakopa* (Trichiasis), *Lingnasha* (Cataract) etc. is practiced in contemporary science with similar concepts that are mentioned by *Acharya Sushruta*. Till now, there is less work done on *Arma Chhedana* (Pterygium excision), so this topic has been selected. **Aims and Objectives:** To study the concepts of *Acharya Sushruta* and correlate with modern surgical practice of ophthalmology. **Materials and Methods:** *Arma* described in *Sushruta Samhita* with various commentaries and Pterygium with available sources of modern literatures is studied and analyzed. **Result:** If the root of surgery is traced, *Acharya Sushruta* is the pioneer of the various surgeries, that can be seen through the comparison of *Arma Chhedana* with Pterygium excision.

Keywords: *Arma, Chhedana, Shastra Karma, Pterygium, Excision*

Introduction: *Acharya Sushruta* has mentioned eight branches of *Ayurveda*, *Shalaky Tantra* is one of them. It is the science dealing with upper clavicular diseases such as Ophthalmology, Otorhinolaryngology and Dentistry. There is detailed description of Eye disorders in *Sushruta Samhita-Uttara Tantra*. Among them *Arma* is depicted in *Shuklagata Rogas*. There are five types of *Arma* described in *Sushruta Samhita*.¹

1. *Prastaari Arma*: It is *Prathita* (wide), *Tanu* (thin), *Vistirna* (spreading), *Rudhira-Prabha Sanila* (red structure having blue tinge) tissue in *Shukla-Bhaga* (white part).
2. *Shukla Arma*: It is *Shukla* (whitish), *Mrudu* (soft), *Sama* (uniform) and *Vradhate Chirena* (slow spreading tissue) in *Shukla-Bhaga*.
3. *Lohita Arma*: It is a *Padmabham* (growth resembling lotus) in *Shukla-Bhaga*.
4. *Adhimamsa Arma*: It is *Vistirna* (spreading), *Mrudu* (soft), *Bahala* (thick), *Yakruta-Prakasha* (resembling liver) and *Shyava* (blackish) tissue in *Shukla-Bhaga*.
5. *Snayu Arma*: It is *Pishitam* (fleshy tissue) in *Shukla-Bhaga*, which is *Khara* (rough), *Vridhhita* (hypertrophied) and *Pandu* (whitish).

Arma can be correlated with Pterygium. It is a wing-shaped fold of conjunctiva encroaching upon the cornea from either side within the interpalpebral fissure. Pathologically pterygium is a degenerative and hyperplastic condition of conjunctiva.ⁱⁱ

ⁱⁱⁱTypes: Depending upon the progression it may be progressive or regressive pterygium.

1. Progressive pterygium: It is thick, fleshy and vascular with a few infiltrates in the cornea, in front of the head of the pterygium (called cap of pterygium).
2. Regressive pterygium: It is thin, atrophic, attenuated with very little vascularity. There is no cap. Ultimately it becomes membranous but never disappears.

Aims and Objectives: To study the concepts of *Acharya Sushruta* and correlate with modern surgical practice of ophthalmology.

Materials and Methods: *Arma* described in *Sushruta Samhita* with various commentaries and Pterygium with available sources of modern literatures is studied and analyzed.

^{iv}**Chhedana Karma of Arma:** *Arma* is described as *Chhedana Sadhya Vyadhi*, but it cannot be done in all types of *Armas*. *Acharya Sushruta* has given certain indications.

Indications: *Arma* which is *Charmabham* (skin like), *Bahala* (thick), *Snayu-Mamsa Ghanavritta* (fibrous, covered with fleshy part) and *Krushna Mandalaga* (one with encroaching cornea) is indicated for excision.

Purva Karma:

- Collection of the materials and equipments:
 - *Badisha Yantra*
 - *Muchundi Yantra*
 - *Suchi Yantra*
 - *Mandalagra Shastra*
 - *Pichu*
 - *Patta-Sutra*
 - *Pratisarana Dravya*
 - *Aschyotana Dravya*
 - *Anjana Dravya*
- Patient should be given *Sarvadehik Shodhana*.
- Patient should be given *Snigdha Ahara* (oily food) before the surgery.
- Patient should be given supine position.
- *Nayana Samroshana:* Eyes of the patient should be sprinkled by *Saindhava Lavana*, in order to loosen out the *Arma*.

Pradhana Karma:

- Thus, loosen *Arma* of its attachment with eyeball by *Samroshana*, should be given *Mrudu Swedana* on it.
- Ask the patient to look laterally towards *Apanga Sandhi* (outer canthus).
- *Arma* should be lifted with the help of *Badisha Yantra*.
- Then it should be held with *Muchundi Yantra* or with *Suchi Yantra* and elevated.
- The lids should be held apart tightly as there is a risk of being hurt by the instrument.
- The *Arma*, thus loosened and suspended by these three instruments should be dissected from all sides with *Mandalagra Shastra*.

- After it has been freed from all sides and also from *Krushna* and *Shukla Mandala*, it should be dissected from all attachments, sparing one-fourth part at *Kaninika Sandhi* (inner canthus).
- In case there is injury to the *Kaninika Sandhi* (inner canthus), there will be haemorrhage or a sinus.
- In case of inadequate excision, *Arma* may grow very soon.

Paschata Karma:

- *Pratisarana:* After the operation, eyes should be smeared with *Yava-Kshara*, *Trikatu* and *Saindhava Lavana*.
- *Swedana:* Hot fomentation should be given on eyes.
- *Netra Bandhana:* Eye bandaging should be done.
- On the third day, bandage should be opened and eyes should be fomented.
- *Aschyotana:* *Karanja-Beeja*, *Amalaki*, *Yashtimadhu* mixed with milk should be used as eye drop.

Samyak Chhinna Arma Lakshana: In properly excised *Arma*, *Vishudhh Varna* (eye looks normal in colour), *Kriyasvakshi* (proper functioning of eyes), *Gata-Klama* (no tiredness) and *Anupdrava* (free from all complications).

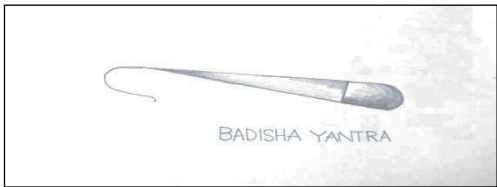
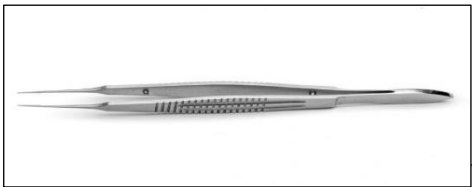
Treatment of complications: If part of *Arma* is still remaining, application of *Lekhana-Anjana* should be done.

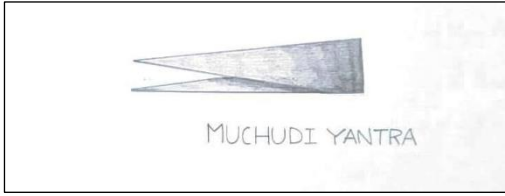
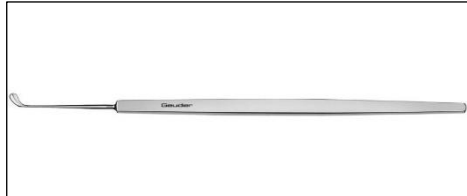


Pterygium Excision:

^vIndications:

- Cosmetic Reasons.
- Continued progression threatening to encroach onto the pupillary area (once the pterygium has encroached pupillary area, wait till it crosses on the other side).
- Diplopia due to interference in ocular movements.

Analogous Steps:

<i>Arma Chhedana</i> ^{vi}	Pterygium Excision ^{vii}
<p>Indications:</p> <ul style="list-style-type: none"> • <i>Krushna Mandalaga</i> (one with encroaching cornea) 	<p>Indications:</p> <ul style="list-style-type: none"> • Continued progression threatening to encroach onto the pupillary area (once the pterygium has encroached pupillary area, wait till it crosses on the other side)
<p><i>Arma</i> is lifted with the help of <i>Badisha Yantra</i>.</p> 	<p>Pterygium head is lifted with Castroviejo forceps.</p> 
<p>For separation and elevation of <i>Arma</i>, <i>Badisha</i> and <i>Muchundi Yantras</i> are used.</p>	<p>Cap is dissected by dry surgical sponges, scraping with crescent or scarifier blade.</p>

 <p>MUCHUDI YANTRA</p>	 <p>ix</p>
<p>After it has been freed from all sides and also from <i>Krushna</i> and <i>Shukla Mandala</i>, it should be dissected from all attachments.</p>	<p>Corneal portion is stripped by blunt dissection technique.</p>
<p><i>Arma</i> is excised with <i>Mandalagra Shastra</i>.</p>  <p>MANDALAGRA SASTRA</p>	<p>Pterygium is excised with Westcott Scissors.</p>  <p>x</p>
<p>Excision is done sparing one-fourth part at <i>Kaninika Sandhi</i> (medial canthus), In case there is injury to the <i>Kaninika Sandhi</i> (medial canthus), there will be haemorrhage or a sinus.</p>	<p>In approaching to medial canthus, while dissecting prolapsed orbital fat, caution must be exercised to avoid severing blood vessels, which can be extremely difficult to cauterize.</p>
<p><i>Lekhana-Anjana</i> is done post-operatively to avoid recurrence.</p>	<p>Conjunctival limbal autograft (CLAU), Amniotic membrane graft and mitomycin-C application, Lamellar keratectomy and Lamellar keratoplasty is done to avoid recurrence.</p>
<p><i>Swedana</i> and <i>Aschyotana</i> is given to combat pain.</p>	<p>Topical antibiotic, NSAIDs, Corticosteroids are given.</p>

Discussion:

- *Acharya Sushruta* has mentioned various surgeries with their respective pre and post operatives. He has mentioned whole chapter on *Trividha Karma- Poorva, Pradhana* and *Paschata Karma*. In that chapter he has included whole procedure from collection of the materials upto post-operative wound management.
- There is description of different types of incision for different body parts. Oblique incision is advised in eyebrows, eyelids and forehead – same is practised in contemporary science.
- Although Pterygium surgery is performed under local anaesthesia, *Acharya Sushruta* has described *Madhya* as Anaesthetic agent – in modern science also first ever used Anaesthetic agent was Ethyl Alcohol.
- The procedure described by *Acharya Sushruta* is widely used in modern science, as seen in the similarity in the process of steps.

- *Lekhana-Anjana* described by *Acharya Sushruta* plays a huge role in preventing recurrence of *Arma* and the same is adopted at present where they use anti mitotic drug (Mitomycin-C) to check the recurrence.
- There are various aspects where modern science is still behind:
 - Indication of surgery depicted by *Acharya Sushruta* on the basis of characteristics of *Arma*.
 - Types of *Arma*.
 - *Nayana Samroshana* is itself important in order to loosen out the *Arma*,
 - Treatment of *Alpa Arma* by medicines and *Lekhana-Anjana* (*Shukravata Chikitsa*). Modern science does not have any effective medicine.
 - Low recurrence rate due to effectiveness of *Lekhana-Anjana*.

Conclusion: *Acharya Sushruta* is known as Father of Surgery. It is need of an hour to practice and understand the concepts of surgical views given by *Acharya Sushruta*. If the root of surgery is traced, *Acharya Sushruta* is the pioneer of the various surgeries, that can be seen through the comparison of *Arma Chhedana* with Pterygium excision.

References:

1. Sushruta, Sushruta Samhita, Edited with Ayurveda-Tatva-Sandipika by Kaviraj Ambikadutta Shastri, Uttara Tantra, Chap 4/5-6 Varansi: Chaukhambha Sanskrit Sansthan, Reprint 2018, Page no. 26
2. Khurrana A K, Comprehensive Ophthalmology, 6th Edition, New Delhi: The Health Sciences Publisher, Reprint 2015, Page No. 87
3. Khurrana A K, Comprehensive Ophthalmology, 6th Edition, New Delhi: The Health Sciences Publisher, Reprint 2015, Page No. 88
4. Sushruta, Sushruta Samhita, Edited with Ayurveda-Tatva-Sandipika by Kaviraj Ambikadutta Shastri, Uttara Tantra, Chap 15/3-19 Varansi: Chaukhambha Sanskrit Sansthan, Reprint 2018, Page no. 68-70
5. Khurrana A K, Comprehensive Ophthalmology, 6th Edition, New Delhi: The Health Sciences Publisher, Reprint 2015, Page No. 88
6. Sushruta, Sushruta Samhita, Edited with Ayurveda-Tatva-Sandipika by Kaviraj Ambikadutta Shastri, Uttara Tantra, Chap 15/3-16 Varansi: Chaukhambha Sanskrit Sansthan, Reprint 2018, Page no. 68-69
7. John A Hovanessian, Pterygium Techniques and Technologies for surgical success, USA: SLACK incorporated, Reprint 2012, Page No. 61-63
8. Website: <https://www.wpiinc.com/wp5025501-castroviejo-suturing-forceps-11-cm-straight>
9. Website: <https://crestpointophthalmics.com/g14010-kuhnt-corneal-scarifier.html>
10. Website: <https://altomed.com/product/westcott-tenotomy-scissors-110mm-4-5-curved-rounded-tips/>