

**Title: “Contribution of Ayurveda in management of Asthimajja Vidradhi (Chronic infective Osteomyelitis) - A Case Report”****Authors: Gaurav Sawarkar*¹ Punam Sawarkar²**

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Corresponding Author: drsawarkar.gaurav@gmail.com; Phone -08956977899*Abstract:**

Osteomyelitis is an inflammation of the bone caused by an infecting organism. The overall incidence of osteomyelitis is higher in developing countries. Early and specific treatment and identification of the causative microorganisms are essential in osteomyelitis. Treatments (debridement, incision and drainage) are aimed at suppressing infection and improving vascularity. Inadequate therapy may lead to relapsing infection and progression to chronic infection. Chronic osteomyelitis is curable only with radical resection or amputation.

A substantially high cost of surgical approach, high recurrence, resistance to antibiotics demands to search supportive, effective and safe treatment in *Ayurveda*. Through it is clear that various modes of *Ayurvedic* therapy can offer us good supportive treatment protocol.

Objectives- To study supportive and effective role of *Ayurvedic* therapies in Chronic Infective osteomyelitis .

Material and Methods:- A 41 years female patient who was known case of Chronic infective osteomyelitis since 9 months and who underwent for surgery and contemporary medicines but having no any radiological and symptomatic improvement. After 3 months of disease she approached to *Ayurvedic* hospital and was prescribed *ayurvedic* treatment including local *Snehana* with *Murivenna* and *Dhanavantara Oil*, *Lepa* with *Punarnavadi Lepa*, *Dhanvantara Taila Dhara* externally and for internal administration *Asthimajjapachaka Choorna* and combination of *Samirpannaga Rasa* + *Sukshama Triphala Guggulu* + *Guduchi Satva* was started along with *Phalatrikadi Qwath*. These treatment was continued for consecutive 6 months. Outcome of these treatment was so encouraging to us.

Result: After 6 months, the patient was found to have a substantial recovery in symptoms and radiological findings without any recurrence. Results obtained in this case demonstrate that management of infective osteomyelitis with support of various modes of *Ayurvedic therapy* may offer a good approach to manage this deficit.

Conclusion: *Ayurvedic* management can play good supportive role to manage critical condition such as infective osteomyelitis .

Keyword: Infective osteomyelitis, Radical resection, *Suvarna Samirpannaga Rasa*, *Dhara*,

Introduction:

Osteomyelitis is defined as an inflammatory and infective condition affecting the bone, which begins as an infection of the medullary cavity, rapidly involving the harversian systems, then extending to involve the periosteum of the affected area. The condition leads to gross morbidity to the patient, owing to its intricate progress, associated chronicity and severe complications. But Ayurveda offers us good treatment protocol on the basis of *Ayurvedic* principles related with pathophysiology of the disease and gives ray of hope to such patient.

According to Ayurveda, *Vidhradhi* is classified as *Bahya Vidradhi* (external part of body) and

Antar Vidradhi (internal part of body)[1].

Asthividhradhi can be correlated with Brodie's abscess or infective osteomyelitis.

As chronic infective Osteomyelitis can be correlated with *Asthimajjagata Vidhradhi*

or *Dushta Vrana*. *Acharya Charaka*

described that due to very early or acute suppuration by vitiated blood in abundance, it is called *Vidradhi*. There is more involvement of *Rakta Dushti* and by this *Rakta Dushti*, pus formation (*Paka*)

takes place predominantly. The *doshas* located around the *Asthi* or bone tissue, on getting vitiated will contaminate *Twak*

(skin), *Rakta* (blood), *Mamsa* (muscle) and *Meda* (fat)[2]. According to *Sushruta*, it is

condition of *Asthimajjanirodhana* having discharge as *Medoprabha Snigdha*,

Shukla, Shita, Guru. Burning sensation is the prominent feature. He has given much

importance to multidisciplinary

management for the all sorts of surgical wounds. Treatment principle of

Asthividhradhi includes *Snehana*,

Swedana, *Raktavasechana* and use of *Tikta Kashaya* and *Tiktasarpi*[3]

However, he has specifically mentioned specific *Strotoshodha*, *Raktaprasadkar* drugs having capable for blood purification and enhancing microcirculation. The *Mridu Virechana*[4] *Karma* (therapeutic purgation) and *Shamana Chikitsa* had been planned for this case study. So general line of treatment for *Asthimajjagata Vidhradhi* or *Dushta Vrana* was adopted to treat this condition. The *Shastiupkarma* could rightly be explored in a novel way for the treatment of chronic osteomyelitis.

The present case study was carried out in IPD of *Panchkarma* Department, MGACHRC, Salod, on a 41 years old female patient suffering from chronic osteomyelitis in distal metaphyseal region of left tibia. *Shamana Chikitsa* having *Strotoshodhaka* properties was given for consecutive 6 months. Patient was assessed clinically and radio logically and significant improvement was observed during this period. Outcome of these treatment was so encouraging to us.

Need of study

Due to its intricate progress, chronicity, recurrence and associated severe complications like osteo necrosis, septic arthritis, altered joint mechanics, its treatment is a real challenge with the debatable outcomes.

Aim and objective of case study

- To study the efficacy of *Ayurvedic* treatment in management of chronic infective osteomyelitis.



- To establish the supportive and immunomodulatory role of ayurvedic treatment in management of *Asthimajjagata Vidhradhi* (Chronic Infective Osteomyelitis).

CASE REPORT

History of present illness

A 41 yrs old female presented with the pain, swelling around left ankle joint and decrease range of motion (flexion and extension) of left ankle joint since 9 months. Patient suffering from chronic osteomyelitis of distal metaphyseal region of left tibia. 9 months back patient was all right. Suddenly she developed throbbing pain (especially aggravated at night), fever

with chills, agitation, pus discharge from inner aspect of left ankle joint with swelling over it. She was investigated for all essential pathological and radiological investigations suggested by general surgeon and diagnosed as acute pyogenic osteomyelitis. For that she took conservative treatment and underwent with aspiration and multiple surgical debridement advised by him for consecutive 2 months. Pus discharge, fever and severe throbbing pain were subsided for 15 days. But again throbbing pain and swelling over left ankle joint with marked decreased range of motion reappeared again. Along with that deterioration in radiological findings of progressive osteomyelitis occurred. So she approached to *Ayurvedic* treatment. Then patient got admitted in *Panchakarma* female ward on same day (28/07/17) for further *Ayurvedic* management.



Chief complaints and its duration:

K/C/O Chronic infective osteomyelitis	
C/O Swelling over left ankle joint ++++	Since 9 months
Throbbing Pain ++++	
Tenderness over left ankle joint on medial aspect +++	
Decreased range of motion of left ankle joint	
Inability to climb upstairs	
Tingling sensation in ankle region to left foot	

Associated complaints and its duration:

Intermittent constipation (unsatisfactory bowel evacuation)
Lack of appetite
General Weakness
History of allergic rhinitis since childhood
K/c/o Elephantitis of Right leg
No history of any trauma /DM/HTN
/Koch's/steroid intake

Not specific any family history

General examination:-

On general examination patients higher mental functions were intact.

Ashtavidha Pariksha: -

<i>Nadi</i> (Pulse)	84/min
<i>Mala</i> (Stool)	Intermittent constipation(Unsatisfactory bowel involvement)
<i>Mutra</i> (Urine)	<i>Samyaka</i>
<i>Jivha</i> (Tongue)	Alpasama
<i>Shabda</i> (Speech)	<i>Spashta</i> (Clear)
<i>Sparsha</i> (Touch)	<i>Anushnasheet</i> (Normal)
<i>Druka</i> (Vision)	Good
<i>Akruti</i> (Posture)	<i>Krishha</i>

Specific examinations:**1]Local Examination (entire lower limb)**

1	Inspection	<ul style="list-style-type: none"> Fibrotic scarring mark with blackish discoloration(dark,) poor nourished skin over left ankle joint on medial and distal aspect with swelling over it No s/o fresh wound or any discharge No varicosity in the affected limb No sign of acuteness or effusion of Left ankle Altered joint mechanics(joint stiffness) S/o elephantitis of Right lower limb
2	Palpation	<ul style="list-style-type: none"> Slightly raised local temperature with mild tenderness over joint line and around the scar at site of debridement Restricted joint movement of left ankle joint (extension & flexion) No lymphadenopathy occur

**Left Ankle Joint of patient**

Nidana (Etiological factors)-

Angatuja or *Sankramanajanya* (??? polymicrobial nfection *Staphylococcus aureus* ,*Streptococcus pneumonie*)

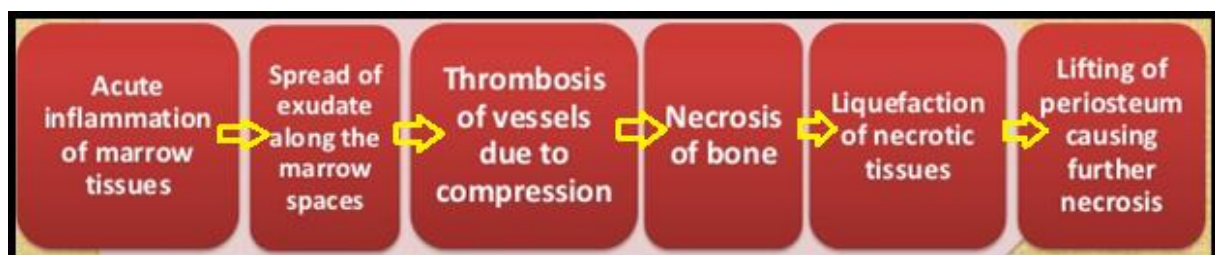
Predisposing factor –,Underweight (malnutrition),Hb electrophoresis is doubtful

Constipation –*Vataprakopa* in all body


Aharaja (dietary)-*Vishamashana* (irregular food habits with excessive intake of pungent and sour food

Patho-physiology of the disease (Samprapti Ghataka of Asthi Majja Vidhradhi)

<i>Dosha</i>	<i>Kapha –pitta Pradhana Tridoshaja</i>
<i>Dushya</i>	<i>Rakta, Kandara, Asthi,Majja</i>
<i>Dosha Adhasthan</i>	<i>Asthi</i>
<i>Agni</i>	<i>Jatharagnijanya, Dhatvagnijanya</i>
<i>Strotas</i>	<i>Rasa, Rakta, Asthi, Majjavaha,Purishavaha</i>
<i>Strotodusti</i>	<i>Sanga, Vimargamanam</i>
<i>Udbhavastana</i>	<i>Amashaya (Kapha, Pitta), Pakvashaya (Vata)</i>
<i>Adhasthan</i>	<i>The Adhithana Was Asthi And Majja With Vata-Pitta- Kapha Predominance.</i>
<i>Roga Marga</i>	<i>Madhyama</i>
<i>Vyadhi Swabhav</i>	<i>Chirkala</i>

**□ Investigations and previous treatment details :**

	Date	Type of investigations	Impression /result	Type of Intervention done
1	14/04/17	X-ray Left ankle joint (AP &Lat.View)	Periostitis with sclerosis with thickened cortices visualized lower half shaft of tibia	-

	29/04/17	MRI Left leg	Peripherally enhancing intramedullary lesion in distal shaft of tibia with surrounding medullary and soft tissue oedema suggestive of infective etiology, mostly osteomyelitis. Confirm with FNAC	-
	7/05/17	HIV	Non Reactive	Admitted patient in private hospital under orthopedic surgen Antibiotics (Augmentin IV)+Analgesic Aspiration soft tissue draining from bone marrow
		BSL (R)	56MG/DL	
		ESR	66	
		Sickle cell	Doubtful	
		CRP	75	
	11/05/17	Pus for culture	No growth	-
	12/05/17	TB PCR (Nucleic acid amplification Test (CBNAA) for Mycobacterium Tuberculi)-pus specimen	Not detected 	-
	14/05/17	Report on microbiology: Blood for aerobic culture	No growth (after 5 days)	-
		CBC	Hb%-10.5 P-84	
	15/05/17	Histological study of aspirated tissue	Histological study done .Detected as Pyogenic Osteomyelitis. No E/O T.B. Pyogenic Osteomyelitis of shin tibia (Left leg) with brodie's abscess with soft tissue	Curettage tissue from left tibia ½ distal part
	08/06/17		-	
				Analgesic Ca supplement TabLimcee(VitC)

23/06/17	X-ray Left ankle joint (AP & Lat. View)	Periosteal/endosteal sclerosis medial aspect medial condyle region distal 2/3rd Lt. Tibia. • Cavitation/lytic lesion in above said region • ? Sequestrum with peripheral sclerosis. • Sclerotic changes in medullary cavity.	
28/07/17	LFT	SGOT-35 SGPT-19	Ayurvedic Treatment started
15/09/17	X-ray Left ankle joint (AP & Lat. View)	1]Moderate Sclerosis is present 2]Healing medullary cavity,resolving cavity 3]Resolving sequestration	Ayurvedic Treatment continued.....
5/12/17	X-ray Left ankle joint (AP & Lat. View)	1]Mild Sclerosis is present suggesting complete healing 2]No medullary cavities seen 3]No sequestration at present	Ayurvedic Treatment continued.....

Diagnosis: Chronic Infective Osteomyelitis, *Asthimajjagata Vidhradhi*)



Treatment Plan:

- *Asthividhradhi* is *Pratyakheya* in nature[5]. *Vidhradhi Samanya Chikitsa*(*Vimlapana* i.e. light massage), *Avsechana/Raktamokshana*, *Mridu Virechana* (mild purgation), *Laghu Anna* (light digestible food), *Upanaha*, *Patana* (operative measures),*Ropana* (healing),*Vaikrutapaha*(normal colour), *Swedana*(fomentation) except in *Pittaja Vidradhi*[6]. *Acharya Charaka* & *Sushruta* specifically mentioned *Strotoshodha*, *Raktaprasadkar* drugs having capable for blood purification and enhancing microcirculation.

Bhavaprakasha advised *Shothahara, Parisechana, Pachana* & *Bhedana* Treatment are advised in this entity[6-a]

- In case of chronicity, microorganisms typically grow in biofilm, which protects bacteria from antimicrobial treatment and decrease host immune response, so required *Srotoshodhak* ,*Kaphahar* ,*Sukhsma* and *Tikshana* and *Raktaprasadkar Chikitsa*.

Ayurvedic Treatment was started as follows from 28/07/17. Treatment is divided in two stages-

- Stage I-*Aampachana* ,*Stothshodhanna*,*Shothahara*,*Raktashodhaka*
- Stage II- *Balya*, *Bruhana*,*Nourishing*

Stage I		Stage II	
Panchkarma Procedures	Duration of procedure	Panchkarma Procedures	Duration of procedure
<i>Sarvanga Snehana</i> with <i>Dhanwantar Oil</i>	2 months	<i>Dhara</i> over Left ankle joint with <i>Dhanavatar Oil</i>	1 month
<i>Punarnavadi Lepa</i> over left ankle joint	2 months	-	1 month

Stage I			Stage II		
<i>Shamana chikitsa</i>	Dose with <i>Anupana</i>	Time	<i>Shamana Chikitsa</i>	Dose with <i>Anupana</i>	Time
<i>Suvarna Samirpannga Rasa</i> 20 tabs + <i>Sukshma Triphala</i> 60 tabs + <i>Guduchi Satva</i> 20 gms) 60 Dosage	1 dose with 5gms <i>Indukanta Ghrita</i>	BID	<i>Suvarna Samirpannga Rasa</i> 20 tabs + <i>Sukshma Triphala</i> 60 tabs + <i>Guduchi Satva</i> 20 gms) 60 Dosage	1 dose with 5gms <i>Indukanta Ghrita</i>	BID after each meal
<i>Kaishor Guggulu</i>	2 tabs (Each 250 mg) BID	twice daily 1 hour after meal	<i>Lakshadi Guggulu</i>	2 tabs (Each 250 mg) BID	twice daily 1 hour after each meal
<i>Asthimajja Pachaka Choorna</i> (<i>Guduchi</i> + <i>Musta</i> + <i>Amalaki</i>)- Combined in equal quantity	5 gms with lukewarm water	twice daily empty stomach (7 a.m.-5 a.m.)	<i>Asthimajja Pachaka Choorna</i> (<i>Guduchi</i> + <i>Musta</i> + <i>Amalaki</i>)- Combined in equal quantity	5 gms with lukewarm water	twice daily empty stomach (7 a.m.-5 a.m.)
<i>Aarogyavardhini Vati</i>	2 tabs (Each 125 mg) with lukewarm water	BID Before each meal	<i>Aarogyavardhini Vati</i>	2 tabs (Each 125 mg) with lukewarm water	BID Before each meal
<i>Phalatrikadi</i>	15ml	BID	<i>Phalatrikadi Qwath</i>	15ml	BID

<i>Qwath</i>		Before each meal			Before each meal
<i>Avipattikar powder</i>	10 gm	at bedtime with lukewarm water	<i>Avipattikar powder</i>	10 gm	at bedtime with lukewarm water

Results (Assessment of patient)

Patient is assessed before and after the *Ayurvedic* therapy on the basis of clinical features and radiological findings.

- Significant improvement was seen in throbbing pain & swelling and tenderness over left ankle joint

- Range of motion of left ankle joint is completely restored.
- Difficulty and pain while walking and climbing upstairs was much reduced.
- Constipation is relived
- No general malaise
- Significant radiological improvement

Type of assessment	Symptoms	Before treatment	After 3months	After 6 months
Subjective	Throbbing pain & swelling of left ankle joint	4+	1+	Absent
	Tenderness	4+	2+	Absent
	Range of motion of left ankle joint	Restrictions of flexion and extension	Moderate restriction	Mild
	Difficulty and pain while walking and climbing upstairs	4+	1+	1+
	Constipation	Present	No	No
	General malaise	Severe	moderate	Mild
Radiologica		27/06/17	15/09/17	5/12/17

I Assessment		Periosteal/endosteal sclerosis medial aspect medial condyle region distal 2/3rd Lt. Tibia. • Cavitations /lytic lesion in above said region • ? Sequestrum with peripheral sclerosis. • Sclerotic changes in medullary cavity.	<ul style="list-style-type: none"> • Moderate Sclerosis is present • Healing medullary cavity, resolving cavity • Resolving sequestration 	<ul style="list-style-type: none"> • 1] Mild Sclerosis is present suggesting complete healing • No medullary cavities seen • No sequestration at present
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27 Jun 2017	15 September 2017	5 December 2017
Periosteal/endosteal sclerosis medial aspect medial condyle region distal 2/3rd Lt. Tibia. • Cavitations /lytic lesion in above said region • Sequestrum with peripheral sclerosis. • Sclerotic changes in medullary cavity.	<ul style="list-style-type: none"> • Moderate Sclerosis is present • Healing modularly cavity, resolving cavity • Resolving sequestration 	<ul style="list-style-type: none"> • No Sclerosis is present suggesting complete healing • No modularly cavities seen • No sequestration at present

Discussions:

In *Ayurveda*, osteomyelitis is correlated with *Dushta Vrana* or *Asthi-vidradhi*. The *Vrana* more than a week called *Dushta Vrana* which fail to heal for a long period

and result into chronic wound (*Dheergha Kalanubandhi Dushta*). As the experts of the wounds recommend *Virechana* (*Mrudu Virechana*) in wounds vitiated by

predominant *Vata* and *Pitta Dosha* and which are chronic[7]

Among *Bahya chikitsa*

- *Sarvanga Snehana* with *Dhanwantar Oil*[8] increases blood circulation, relieves edema and pain, increases ROM. Local massage with *Dhanvantara Oil* reduces edema and congestion which results in relief in pain and

tenderness. It controls the vitiated the *Vata Dosha* by removing *Margaavarodh* and reduces *Vedana* (throbbing pain) and *Shotha* (swelling).

- Local *Dhara* over left ankle joint with *Dhanavantara oil* to increase vascularity.
- *Punarnavadi Lepa* over left ankle joint

1	<i>Punaranava</i> [9]	<i>Tikta</i>	<i>Sheeta</i>	<i>Madhura</i>	<i>Kapha Vatahara</i>	<i>Shothahara</i>
2	<i>Dashmoola</i> [10]	<i>Tikta Madhura</i>	<i>Ushna</i>	<i>Katu</i>	<i>Tridosha Shamaka</i>	<i>Shothahara</i>
3	<i>Sariva</i> [11]	<i>Tikta, Madhura</i>	<i>Sheeta</i>	<i>Madhura</i>	<i>Tridosha Shamaka</i>	<i>Raktashodhaka, Shothahara, Dahaprasm</i>
4	<i>Manjistha</i> [12]	<i>Madhura Tikta,</i>	<i>Ushna</i>	<i>Katu</i>	<i>Kapha-Pitta Shamak</i>	<i>Varnya, Vishghna</i>
5	<i>Haridra</i> [13]	<i>Tikta, Katu</i>	<i>Ushna</i>	<i>Kapha-Pitta Shamak</i>	<i>Katu</i>	<i>Vranaropana, Vranashodhana, Raktaprashadan, Shothaghna</i>
6	<i>Daruharidra</i> [14]	<i>Tikta Kashaya</i>	<i>Ushna</i>	<i>Katu</i>	<i>Kapha-Pitta Shamak</i>	<i>Vedanasthapana, Vranashodhana-Ropana, Raktashodhaka</i>

Due to application of *Punarnavadi lepa* swelling was reduced and blackish discoloration also reduced due to above mentioned drugs having properties *Shothhara* and *Raktaprasadakar*[9][10][11][12][13][14].

- ***Aabhyana Chikitsa***

Main aim of treatment is

- ***To reduce vascular insufficiency by adequate drainage, increases revascularization to local soft***

tissues, obliteration of dead space, wound protection(dushta vrana and vidhradhi chikitsa) – shothahara and pachana

- ***to arrest its spread and repair the damage it has caused(kha viagynyhara chikitsa)***

Combination OF *Suvarna Samirpannaga Rasa, Guduchi Satva, Sukshma Triphala powder* with *Asthimajjapachaka Choorna*, *Kaishorguggulu* fulfils the above aim by

- Decreasing the bacterial load, removes dead necrotic tissues, and gives a chance for the host immune system to arrest infection
 - eliminating Doshas but also helps in removing the impurities of Rakta Dhatu, decreasing Strotorodha which augments the blood circulation and nutrition and formation of healthy granulation tissue (resolving in bone cavity with healing of bone).
 - Vatakaphahar of this combination helpful in regression of inflammation and avoid further necrosis and reduce ischemia, indirectly helpful for rejuvenation of bone.
 - All drugs which were used have the capabilities to address all the manifestations of Vidhradhi by penetrating into the biofilms which are associated with the refractory nature of chronic osteomyelitis.²³ Anwar H, Dasgupta M K, Costerton J W. Testing the susceptibility of bacteria in biofilms to antibacterial agents. Antimicrob Agents Chemother. 1990;34:2043–2046. [[PMC free article](#)][[PubMed](#)]
- **Suvarna Samirpannga Rasa**-In this *kalpa*, *Gandhaka* is *Rakashudhhikara* and increases vascularuty. *Hartala*, *Manashila* are *Raktapraadaka* in nature and are generally used in *Kustha*[15]. *Suvarna Samirpannga Rasa* generally use in weakness of *Snayu*, *Sandhigata Vata*, *Sannipataja* condition,



allergic rhinitis., vitiated and stagnated *Kapha*, *Mandagni*, *Dhatugata Dosha*. It is the best medicine use in *Sannipataja* condition. *Suvarna Samirpannga Rasa* acts effectively in *Asthishosha*, *Janghasthi Vedana*[16]. Due to its properties such as *Vyavayi*, *Vikasi* (Loosening/dispersibility) and *Sookshma* (Minuteness), *Tikshna* (Sharpness), *Ushna* (Hotness) and *Vikashi*, it spreads in all minute channels, decreases obstruction in channels and quickly reach up to cellular level where the nexus of toxins with tissues exists. In order to break down the complicated nexus, the *Ushna* property of drug softens the chemical bonds of the toxins. There after they are broken down by *Teekshna* property, into smaller and relatively less harmful molecules which can be removed out of the cell accelerates the wound healing process. *Suvarna Samirpannga Rasa* which have action such *Vatakaphahar* which also helpful in regression of inflammation and avoid further necrosis and reduce ischemia, indirectly helpful for rejuvenation of bone.

- **Sukshma Triphala Powder:-** *Uttam Rechaka*, *Dipana*, *Pachana*, *Rakta Shodhaka*. It penetrates at deep channels and acts as antiseptic and antibiotic. Best use in septic tonsillitis and follicular tonsillitis which are caused due to staphylococcus infection[17][18].
- **Guduchi satva:-** It acts as possessing detoxifying property,

anti-inflammatory, hematogenic in nature. It is best *Rasayana*, *Pittashamana* and rejuvenation of bone tissue and immunomodulator. Helps in formation of red cells. It improves body defense mechanism and liver function. It has *Yogavahi* property which augments the effect of *Suvarna Samirpannaga Rasa*. It improves the *Dhatu Upachaya* (metabolism of the tissues) and acts as a rejuvenator of the body[19]. Combination OF *Suvarna Samirpannaga Rasa*, *Guduchi Satva*, *Sukshma Triphala powder* with *Asthimajjapachaka Choorna*, *Kaishorguggulu* not only eliminates *Doshas* but also helps in removing the impurities of *Rakta Dhatu*, decreasing *Strotorodha* which augments the blood circulation and nutrition and formation of healthy granulation tissue (resolving in bone cavity with healing of bone).

- **Indukanta ghrita**; Used as *Anupana* for above mentioned herbomineral combination. It is best *Strotoshodhaka*, *Yogavahi* and *Dipana*, *Pachana* as well as immunomodulator[20].

In *Vidhradhi*, *Anupana* should be *Gomutra* or *Ghrta*[21].

Kaishor guggulu: It increases vascularity, useful in *Vata* and *Rakta Dushtijanya Vikara*, *Vrana*, *Vatarakta*. It is a drug of choice in *Vatarakta* in which obstruction in blood vessels is main pathology more keeping this in view it was used[22].

- **Asthimajja pachaka choorna** (*Guduchi* + *Musta* + *amalaki*)

Guduchi-Antiinflammatory, Immunomodulator, hepatoprotective, antioxidant. Aqueous extract have as best phagocytic index[23]

Musta-As it is *Kapha Pitthara*, *Dipana* and *Pachana* and scrapping properties. Best use in *Rakta Vikara*, *Visarpa*[24].

Aamlaki- Antiinflammatory, anti microbial activity, antioxidant hepatoprotective in nature[25].

Over all combination acts as best *Strotoshodhaka* for *Asthi* and *Majja Dhatu*, increases vascularity and formation of osteoclast and speedy recovery of bony lesion.

- **Aarogyavardhini Vati Uttam Pachana**, *Dipana*, *Sharirstrotoshodhana*, *Mal ashudhhikara*, *Balya* for *Yakruta* and *Pliha*. It is excellent in *Malavarodha*, *Dushta Vrana*, predominance of *Vatapitta*, conditions of *Rakta* and *Mansadushti*[26]
- **Phalatrikadi Qwath** Best for *Virechana* in vitiation of *Rakta* and in liver impairment[27]
- **Avipattikar powder**- Excellent for *Virechana* in *Paittika* condition, *Jatharagni Dipana*[28]. It is for *Mrudu Virechana* which is remedy for *Vatavyadhi* [29].

Most of the above mentioned medicines are specifically mentioned for *Asthi Sandhigata Vikara* due to its *Tikta Rasa* help to reach *Asthi*, *Sandhi* because *Tikta Rasa* is having predominance of *Vayu* and *Akasha Mahabhuta*. Hence, it has got affinity toward the body elements like *Asthi* which has same *Mahabhautika Tattva* (subtle constituents of matter). Due



to its *Sukshma Guna* may help to open fresh blood supply and because of *Tikta Rasa* may reduce the *Kleda* and *Kotha* and by virtue of *Snigdha Guna* and *Balya* and *Brimhana* action nourishes the *Asthi* and *Sandhi* along with *Raktaprasadkar* property which induces revascularization and thus helps in the *Samprāpti Vighaṭana* (breaking down of pathology) of the *Ashti Majja Vidhradhi*.

To establish structural stability-use of dhatuposhaka chikitsa (asthi and majja, rasa and raktadhatu)

➤ **Lakshadi guggulu**

It is excellent medicine for bone disorders, trauma, erosions in bone, pain in bone, bone fracture. *Lakshadi guggulu* having property of *Bhagna Sandhana*, *Vedanahara* having property of *Vata pitta Shamaka*, *Jeevniya*, *Sandhaniya*, *Rasayana*, *Balya*. Repair process triggered by necrotic bone which includes osteoclasts, osteoblasts, histiocytes and vascular elements. There will be new bone formation over the dead bone and forms a thick layer on the dead bone which prevents revascularization of the dead/necrotic bone[30].

- **Kaishor guggulu:** It increases vascularity, useful in *Vata* and *Rakta Dushtijanya Vikara, Vrana, Vatarakta*
- **Asthimajja pachaka choorna (Guduchi +Musta +amalaki)-acts as best Strotoshodhaka for Asthi and Majja Dhatu, increases vascularity and formation of osteoclast and speedy recovery of bony lesion.**

- *Most of the above mentioned medicines are specifically mentioned for Asthi Sandhigata Vikara due to its Tikta Rasa has got affinity to reach Asthi, Sandhi*
- *Due to its Sukshma Guna may help to open fresh blood supply and because of Tikta Rasa may reduce the Kleda and Kotha and by virtue of Snigdha Guna and Balya and Brimhana action nourishes the Asthi and Sandhi along with Raktaprasadkar property which induces revascularization and thus helps in the Samprāpti Vighaṭana (breaking down of pathology) of the Ashti Majja Vidhradhi.*
- All drugs which were used have the capabilities to address all the manifestations of *Vidhradhi*. Biofilms are typically composed of cells embedded in a highly hydrated polysaccharide matrix with nucleic acids and proteins throughout. These biofilms are associated with the refractory nature of chronic infections such as osteomyelitis[31]
- *The reason for the reduced ability of antimicrobial agents to eradicate these infections is due to the reduced antibiotic penetration and the very slow growth rate and differential upregulation of stress response genes by cells within the biofilm.*

A good result was obtained in this case. Results obtained in this case demonstrate that management of chronic infective Osteomyelitis with Ayurvedic treatment and may offer a good approach to manage the



condition clinically as well as radio logically. This approach may be useful for clinical practices and further studies on treating chronic osteomyelitis.

Results:

After 6 months, the patient was found to have a substantial recovery in symptoms and radiological findings without any recurrence. Results obtained in this case demonstrate that management of infective osteomyelitis with support of various modes of *Ayurvedic therapy* may offer a good approach to manage this deficit.

Conclusion:

This case offers one important bearing to current medical practice pertaining to Chronic infective Osteomyelitis. It offers a novel approach of accelerating the healing effect *Ayurvedic* therapy in patients suffering with chronic infective Osteomyelitis. And avoid its recurrence. This case report express the utility of Ayurveda as a composite intervention for the purpose of clinical practice and research

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Contribution of Ayurveda in management of Asthimajja Vidradhi (Chronic infective Osteomyelitis) - A Case Report”

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