

## **MANAGEMENT OF PREPATELLAR BURSITIS BY LEECH APPLICATION: A CASE STUDY**

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### ABSTRACT

Prepatellar bursitis is an inflammation of bursa present between patella & skin over it. It is characterised by gross swelling of knee, fluid accumulation, severe burning pain, feeling of warmth at knee, severe tenderness & difficulty in movement. The condition is usually managed by conservative treatment in modern system of medicine by giving Rest to the part, knee cap, anti-inflammatory, analgesic drugs & antibiotics if infection is present. Some patients need aspiration of fluid & steroid injection. In spite of this treatment some cases doesn't resolve & needs surgery (bursectomy). Such cases can be effectively managed by Ayurvedic treatment. One of our patients having prepatellar bursitis was effectively managed by leech application, *Kaishor Guggulu*, *Chandrakala rasa*, & decoction of *Punarnava*, *Guduchi* & *Dashmoola*.

**Keywords:** Prepatellar bursitis, Leech application, *Kaishor Guggulu*, *Guduchi*, *Punarnava*,

### INTRODUCTION

Prepatellar bursitis is an inflammation of bursa present in front of patella & skin over patella<sup>1</sup>. It is caused by repetitive friction at the site particularly during kneeling. Plumbers, carpet layers, gardeners, housemaids are at high risk of developing prepatellar bursitis as their job demands constant kneeling which causes constant frequent pressure on prepatellar bursa. Direct blow resulting due to trauma or fall on

anterior aspect of knee may also cause prepatellar bursitis. Athletes who participate in sports have direct blow on knee or falls on knee are at risk of developing prepatellar bursitis. Insect bite or wound at the anterior aspect of knee may cause bacterial infection of bursa & may result in this condition. This is called as suppurative prepatellar bursitis<sup>2</sup>. Apart from this people suffering from gout or

rheumatoid arthritis are also susceptible to prepatellar bursitis. Symptoms includes pain particularly burning sensation at the anterior part of knee, Rapidly increasing fluctuant swelling around knee, loss of mobility, severe pain during flexion as it causes stretching of prepatellar bursa, Redness around the knee & feeling of warmth at patellar region. Irritation of bursa causes secretion of fluid which accumulates between patella & skin overlying it. These results in gross anterior swelling of knee may also come down at lower part of leg at shin of tibia & also near ankle joints. Treatment for nonsuppurative (aseptic) type of prepatellar bursitis includes rest to the Part, application of ice packs, leg elevation, anti-inflammatory, analgesic drugs & knee cap. By this conservative treatment usually patient gets relief. Cases which don't respond to this conservative management need aspiration of fluid & injection of steroids under aseptic precaution. If infection is there (septic bursitis) antibiotics are to be added. If septic bursitis condition doesn't improve in 36 hours incision & drainage of pus is necessary. Surgery is not indicated usually but it has to be done in cases which remain unresolved in spite of conservative treatment or it is indicated in recurrent prepatellar bursitis<sup>3</sup>. Open surgical removal of the bursa called as open bursectomy is the surgical management of non responding or recurrent prepatellar bursitis. New surgical modalities include arthroscopic or endoscopic bursectomy have shown significant success rates with lesser complications as compared to open excision<sup>4,5</sup>.

Cases of Prepatellar bursitis requiring frequent aspirations, steroid injections or surgical man-

agement can be effectively managed by ayurvedic treatment & surgery can be prevented. One of our patients who was suggested surgery was effectively managed by leech application, Tab. *Kaishor Guggulu*, Tab. *Chandrakala rasa* & decoction of *Punarnava*, *Guduchi* & *Dashmool* powder. Thus the surgery was prevented.

### Case Report

A 53 yrs old lady presented to our Ayurved hospital, station road, Akola (R.T.Ayurved college attached hospital) at Rog Nidan - Chikitsa opd with following complaints - burning pain since 12 days, swelling at Lt. knee since 9 days, difficulty in walking since 12 days, wound (abrasion) at knee since 12 days.

### History of present illness

As per history narrated by patient & documents she presented to us patient was apparently all aright 12days back. She felled from bike on her Lt. knee due to RTA while coming from marriage ceremony & got injury to her Lt. Knee. Since then she got pain & abrasion. She consulted a family physician on the same day he gave her inj. TT, analgesic & anti-inflammatory ( Tab.flozen aa bd containing aceclofenac, paracetamol & seratiopeptidase) & antibiotic (Tab zifi 200 containing cefixime bd) but on 3<sup>rd</sup> day after fall she got gross swelling at Lt. knee severe burning pain on movement. So she consulted an orthopedic surgeon. He diagnosed the case as a prepatellar bursitis. He aspirated the accumulated fluid & continued the treatment as given by her family physician & added enzymatic prepara-

tion Tab. chimera fort tads (containing trypsin, chymotrypsin). After aspiration swelling was reduced completely but fluid appeared with the same intensity on 2<sup>nd</sup> day. After 7 days she again consulted the same orthopaedic surgeon. He again aspirated the fluid & asked her to come after wound gets completely healed for taking steroid injection & suggested that if that doesn't work surgical intervention may be needed. Again fluid accumulated on 2<sup>nd</sup> day. However intensity of burning pain reduced this time. As the patient was reluctant to take injection, repeated aspirations & surgery she consulted at our hospital.

**Past history (P/H):** - k/c syst. HT on Tab starpress T50 xl od

**Family history (F/H):-** not significant

**Personal history:** - not significant

**Drug history:** - allergy to any drug yet not known.

**O/E** - GC – fair, afeb p-68/min B.P. – 140/90, no pallor, no ecerus, no cyanosis, CVS - S1 S2 (N), RS – chest clear, CNS – conscious / oriented , P/A – soft, L/E – grossly

swollen, red ,hot Lt. knee, fluctuation +, abrasion + wound covered with scab, severe tenderness at upper outer part of the patella (site of direct trauma), mild oedema over leg pitting in nature up to ankle joint 2-3 echymosis spots noted over shin of tibia, joint instability +. Her Lab. investigations (CBC, BSL (R), Sr. Calcium) were normal, X-ray Lt. Knee AP & Lat. was also normal. Patient came with both these investigations as these investigations were asked by an orthopedician to whom she consulted. As per the complaints, clinical examination & reports she had we diagnosed the pa-

tient as prepatellar bursitis. We applied 4 leeches around her knee & started medication as follows – Tab. *Kaishor Guggulu* 250 mg 2 tds, *Chandrakala rasa* 250 mg 2 BD & decoction of *Punarnava* coarse power (*Boerhavia diffusa*) 2gm, *Guduchi* (*tinispora cordifolia*) coarse powder 2 gm & *Dashmul* coarse powder 5gm ( mixture of 10 differnt ayu.herbs ) in a dose of 40 ml bd . She was asked to take rest. We advised her to take analgesics only if the pain is unbearable. We stopped her allopathic medication. However antihypertensive which she was taking was allowed to continue. Immediately after application of leeches there was considerable reduction in burning sensation over knee, 1/4<sup>th</sup> of the size of swelling reduced, & patient felt lightness in knee. We advised her to take rest & apply knee cap. She was asked to come for follow up after 7 days for next session of leech application. 2<sup>nd</sup> sitting of leech application was done on 7<sup>th</sup> day after 1<sup>st</sup> sitting of leech application. Again 4 leeches were applied. In follow up she reported that she didn't have to take analgesics at home, pain was present only during movement. There was no burning at all & the swelling was reduced to 1/2 of its previous size. The swelling which was present in follow up was not freely fluctuant, it was somewhat hard indicating that the fluid inside is organised. Range of mobility also increased.

Reduction in size of swelling immediately after 2<sup>nd</sup> sitting of leech application was not as significant as after 1<sup>st</sup> sitting of leech application she was advised to do stretching & hamstring exercise 3 to 4 times in a day. We continued the same medication. In her 3<sup>rd</sup> follow

up there was very less swelling which was hard, no burning, mild tenderness on deep palpation was present. She was having mild pain during movement. 3<sup>rd</sup> sitting of leech application was done & kept her on same medication, asked to come for follow up again after 7 day. Now in this follow up there was absolutely no swelling & no tenderness. Patient was able to walk freely. There was mild discomfort on flexion only. This time we stopped her decoction & Tab.chandrakala rasa & continued only Tab. Kaishor Guggulu 250 mg bd for 15 days. Thus patient got complete relief in symptoms.

#### DISCUSSION & RESULT: -

Management of Prepatellar bursitis & its recovery particularly depends on aetiology. If it is due to trauma, friction usually it is managed conservatively but if it is of infectious origin incision & drainage, with antibiotics is necessary. Some cases of prepatellar bursitis doesn't respond to conservative management & remains unresolved or there are repeated episodes of prepatellar bursitis leading to fluid accumulation. Such cases need to be managed by surgical procedure. Recovery of prepatellar bursitis depends on age, aetiology & underlying joint disorder. It may take few weeks to some month to recover completely. Ayurveda can do better in such type of cases which doesn't respond to modern conservative management & need to undergo surgery.

*Raktamokshan* (bloodletting) is unique procedure mentioned in Ayurved. In *Shalyatantra* (surgical branch of Ayurved) blood letting is said to be half of all treatment regimen of all diseases arising from vitiation of *Rakta* (blood) due to three humors viz. *Vata*, *Pitta* &

*Kapha* <sup>6</sup>. Among different methods of blood-letting mentioned in Ayurved leech application is most convenient, safe & effective method. In present case if we try to understand the pathology in terms of Ayurved it is clear that *hetu* (i.e. aetiological factor) is trauma. This resulted in vitiation of *Vata* at the site of knee joint. Patient was coming from marriage ceremony after having lunch before she got trauma. She had taken oily –spicy food. *Ushna vidahi* aahar (i.e. oily spicy food) causes vitiation of *pitta*. Trauma also caused irritation at the site of joint. So, these all resulted in vitiation of *vata* & *pitta*. Thus *vata* & *pitta* were the responsible *samprapti ghatak* which got *sthansanshraya* (got collected) at knee joint particularly at bursa. This resulted in *Daha* (burning pain), *vata –paittik shotha* (swelling due to accumulation of fluid which is a serous red fluid secreted due to inflammation of prepatellar bursa i.e. inflammatory exudate), *sthambha* (*stiffness*), *Gaurav* (heaviness). Leech application is indicated in such types of cases where there is vitiation of *Rakta* & *pitta*. After leech application it gives immediate relief in *daha* & *shotha*.

According to modern science saliva of leeches contains hirudin an anti coagulant substance, Edelling & Bdellings <sup>7</sup> which are anti-inflammatory substances, an enzyme called hyaluronidase which digests proteins & have antibiotic property, & some anaesthetic substance causing no pain at the bite site <sup>7</sup>. In this case application of leeches resulted in reduction of inflammation & pain due to anti-inflammatory substances present in its saliva. It goes to deeper level by the action of hyaluronidase, hirudin causes more liquification

of accumulated fluid this literally resulted in sucking of accumulated serous fluid also. So there was significant reduction in size of swelling. According to Ayurved also leeches should be applied in diseases where there is *Avagadha dosh dushti* (doshas are at deeper level).<sup>8</sup>

*Kaishor Guggulu* mentioned in *Sharandhar Samhita*<sup>9</sup> contains *Guduchi* (*Tinospora cordifolia*), *Triphala*, *Shunthi* (*Zinziber officinalis*), *Guggulu* (*commiphora mukul*), *pippali* (*piper nigrum*). All these herbs exhibit its action as analgesic, anti-inflammatory, antibacterial & mild laxative. It is the best drug in lowering uric acid in patients of gout. It is best medication in pathologies where there is vitiation of *Rakta* by *Vata* & *pitta*. It brings about *Raktashodhan* (purification of blood), pacification of *Vata*.

*Chandrakala rasa* mentioned in *Yogaratanakar*<sup>10</sup> is best medicine for *pitta vridhi*. It contains drugs having *shita virya* (having cool action, pacifying *pitta* which is hot). It is useful in *Rakta-pitta*, diabetes & its complications like diabetic neuropathy. It can be used in any pathology where *pitta* is involved which causes *daha* (burning). According to Aired wherever *Doha* burning sensation is present it is considered to be due to *rakta-pitta dushti*. *Chandrakala rasa* is better in such type of condition. Here in this patient there was *rakta-pitta dushti*. So it worked better. Particularly burning sensation was reduced significantly.

Decoction is special concept of Ayurved. It is nothing but aqueous extract of herbs. Coarse powder of three herbs viz. *Punarnava*, *Guduchi* & *Dashmoola* was used. *Punarnava* (*boerhevia diffusa*) is *shothahara* (reduces in-

flammation, swelling due to fluid accumulation). It is diuretic & thus brings about reduction in swelling which occurs due to fluid accumulation. Generalised oedema -anasarca as seen in CRF or pedal oedema as seen in CCF can be effectively reduced by its diuretic action.<sup>11</sup>

*Guduchi* (*Tinospora Cordifolia*) is wonder drug of Ayurveda. It is the best anti-inflammatory, antipyretic, immunomodulator, blood purifier, *tridoshshamak* (brings about pacification of all three humors *vata*, *pitta* & *kapha*).<sup>12</sup>

*Dashmool* is combination of roots of 10 herbs (*Laghu panch mool* & *bruhat panch mool*). *Dashmool* as a whole is best known herbal formulation for *vata vridhi*. It is having *sunhat very* (hot in action) which is opposite to the action of *vata* which is having *shoat very* (cool in action). *Dashmool* is very good known anti-inflammatory and analgesic formulation.<sup>13</sup>

Thus decoction of these three reduced the inflammation to great extent & it can be used to any other condition where there is inflammation due to vitiation of *Vata*. Leech application, *Kais or Guggulu*, *Chandrakala Rasa* & decoction of above said drugs thus reduced fluid accumulation, inflammation, stiffness thereby giving full range of movement of joint & early recovery.

## CONCLUSION

Prepatellar bursitis can be effectively managed by leech application and *Kaishor Guggulu*, *Chandrakala rasa* & decoction of *Punarnava*, *Guduchi* & *Dashmool* powder. It is safe, cost effective, & easy management procedure. This



treatment can be applied to other similar conditions of bursitis & also ailment of joint where there is effusion & inflammation. As this is single case study, it needs to be applied on larger data of patients to draw appropriate statistical conclusion.

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### 1<sup>st</sup>sitting of Leech Application.



### 2<sup>nd</sup> setting of Leech Application.



## **Complete recovery after 3<sup>rd</sup> sitting of Leech Application.**



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