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 & Dashmool.

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

INTRODUCTION
Prepatellar bursitis is an inflammation of bursa present in front of patella & skin over patella¹. 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 ². Apart from this people suffering from gout or
rheumatoid arthritis are also susceptible to prepatellar bursitis. Symptoms include 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. 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.

Cases of Prepatellar bursitis requiring frequent aspirations, steroid injections or surgical management 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 herLt. 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 3rd 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 2nd 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 2nd 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 x1 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 ecuterus, 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 patient 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 & decoc- tion of Punarnava coarse power (Boerhavia diffusa) 2gm, Guduchi (tinsipora cordifolia) coarse powder 2 gm & Dashmul coarse powder 5gm (mixture of 10 different 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, 1/4th 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. 2nd sitting of leech application was done on 7th day after 1st 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 2nd sitting of leech application was not as significant as after 1st 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 3rd 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. 3rd 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 prepetaller 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*. Among different methods of bloodletting 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 –paitik 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 Raka & *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 which are anti-inflammatory substances, an enzyme called hyalauronidase which digests proteins & have antibiotic property, & some anaesthetic substance causing no pain at the bite site. 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 hyalauronidase, 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).  

Kaishor Guggulu mentioned in Sharandhar Samhita 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 Rakta-tashodhan (purification of blood), pacification of Vata.  

Chandrakala rasa mentioned in Yogaratnakar 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 & Dashmool was used. Punarnava (boerhevia diffusa) is shothahara (reduces inflammation, 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. 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).  

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. 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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Complete recovery after 3rd sitting of Leech Application.

Source of Support: Nil
Conflict Of Interest: None Declared