

A holistic approach to hepatitis-B induced osteoarthritis by ayurvedic management: A case report

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Abstract

A case of degenerative joint disease (acute osteoarthritis) with chronic hepatitis B radiologically diagnosed of a 46-year-old male patient presented with chief complaints of a pain in the right knee joint with crepitus and decrease range of flexion movement in the right knee joint associated with swelling. The patient was asymptomatic during clinical phase as hepatitis B causes no symptoms in about 69% of affected people. The patient was treated with *Panchakarma* therapy and some ayurvedic polyherbal alleviating (*Sanshamana*) drugs as per line of management of *Asthi* and *Sandhigata Vata*. Initially, the patient had been administered *Deepana* and *Pachana*. Further *Panchtikta Ksheer Basti* and *Sthanik Taila Dhara* were administered along with *Ashwagandha* and *Mulethi Churna*. This resulted with relief of the pain along with swelling and the investigation like hepatitis B virus (HBV) quantitative polymerase chain reaction (PCR) and hepatitis B surface antigen were repeated. The result of the investigation showed that range of HBV quantitative PCR came within normal limits. Follow-up for next 1-month showed normalcy of the effect of medicines. The results of the treatment were encouraging, and there were no side effects during the therapy.

Key words: *Ashwagandha Churna*, hepatitis B-induced osteoarthritis, *Mulethi Churna*, *Panchtikta Ksheer Basti*, *Sthanik Taila Dhara*

INTRODUCTION

Hepatitis B is called a “silent infection” because most people do not have noticeable symptoms when they are first infected. Hepatitis B causes no symptoms in about 69% of infected people.^[1] Hepatitis B virus (HBV) infects the liver, sometimes this disease also causes “extrahepatic” problems while uncommon, pain and inflammation in the joints are two such conditions that might occur in people infected with these viruses.^[2] Previous studies have found hypo complementary and circulatory immune complexes containing hepatitis B surface antigen (HBsAg), immunoglobulin G and immunoglobulin M, and anti-HBsAg suggested that immune complexes formation may be involved in the pathogenesis of arthritis.^[3] In the pathogenesis of hepatitis B, the immune system plays a major role. If the immune system is not able to control acute HBV infection within 6 months, symptoms of chronic hepatitis B are possible.^[4]

A patient present to us with complaints of mainly osteoarthritis, in this case, we planned to treat according to the line of management of *Asthi* and *Sandhi gatavata* (osteoarthritis). The case was well-managed and relieved significantly by *Panchtikta Ksheer Basti*, *Sthanik* (local) *Taila Dhara*, and by administration of some *Sanshamana* (alleviating) medicine. *Asthigata Vata*, *Vatavyadhi* occurs due to the vitiated *Vata Dosh* residing in *Asthi*.^[5] It presents with the clinical features such as *Bhedo-Asthi Parvanam* (piercing type of pain in bones), *Sandhishula* (joint pain), *Satata Ruk* (continuous pain), and *Aakunchan Prasarana Pravartivedana* (pain during flexion and extension movement of joint) which correlate with symptoms of osteoarthritis. Administration of

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Snehana (oleation therapy) both external and internal form is the best treatment modality. The external administration is performed by *Sthanik Taila Dhara* with medicated oils; internally it is administered in the form of *Basti* (oleation via rectal route).^[5] Therapeutic enema in painful diseased conditions of *Basti-Vankshana-Parshwa-Uru-Parwa-Asthi* (lower abdomen region and sacro-iliac joint) is the precise approach which are administered in the form of *Panchtikta Ksheer Basti*.^[6]

CASE REPORT

This is the case report of a 46-year-old, non-diabetic, and non-hypertensive, who came to the outpatient department on October 20th, 2012, presented with pain since 8 months in the right knee joint. The pain was continuous in nature and used to aggravate during walking and climbing upstairs with rest as a relieving factor. Then, patient approached ayurvedic treatment for further management.

The patient was asymptomatic before 2009, during a routine check-up, he was diagnosed as hepatitis B with symptoms as reduced appetite and flatulence. The patient had not taken any treatment for this as he did not have any difficulty in carrying out routine activities. Then in 2012, he felt pain in the right knee with mild swelling and difficulty in flexion and extension of the right knee joint and the pain become severe after few months of onset which restricted his movements. He consulted allopathic doctors, during radiologically investigations he diagnosed as a degenerative joint disease - advanced osteoarthritis knee with chronic hepatitis B infection.

Personal history revealed mixed diet, reduced appetite, regular bowel habit, flatulence occasionally, and disturbed sleep (due to pain).

Systemic Examination

- Locomotor system examination revealed pain during flexion of right knee joint at 30°, moderate crepitus were found along with mild swelling
- The patient has normal muscle bulk and tone
- Cardiovascular and respiratory system were in normal limits.

Investigations

- HBsAg - Positive
- Quantitative polymerase chain reaction (PCR) for HBV (July 5th, 2012) - 689 IU/ml
- Liver function test - within normal range
- Magneto - resonance imaging revealed (September 13th, 2012):
 1. Cartilage loss in the medial patellar facet with

minimal underlying marrow edema and mild knee joint effusion

2. Degenerative joint disease - Advanced osteoarthritis knee chronic hepatitis B infection.

Treatment Schedule

Deepana and *Pachana* (carminative and digestive) treatment was adapted by administration of *Hingvastak Churna*^[8] for 5 days to relieve *Ama* (a state where metabolism is hampered) symptoms such as *Aruchi* (lack of appetite and lack of interest in food), *Aadhmana* (flatulence), and *Angagauravata* (heaviness in body). The treatment was aided at *Ama Pachana* (to facilitate digestion in the intestine at the tissue and cellular level) and *Vata anulomana* (downward movement of *Vata Dosha*) effect.

As alleviating drugs *Ashwagandha* and *Mulethi Churna* were added in a dose of 5 g twice a day with milk to combat the hampered immune system in the body and general stability of the patient.

Later *Panchtikta Ksheer Basti* (therapeutic enema) was planned as *Kala* schedule in amount 640 ml along with local *Taila Dhara* of the right Knee joint with *Mahanmarayan Taila*^[9] for 15 days and second sitting of both therapies is done for 15 days after 1-month.

After *Basti* and local *Taila Dhara* pain intensity reduced, improvement in strength and range of movements was observed.

In *Sthanik Taila Dhara*, the patient is asked to lie in the supine position, and medicated oil is poured on specified localized area based on therapeutic value for certain duration.

The total duration of treatment is 2 months.

Contents of *Panchtikta Ksheer Basti*

1. *Makshik* (honey): 1 *Prasrita* (80 ml)
2. *Saindhava Lavana*: 1 *Aksha* (10 g)
3. *Panchtikta Guggulu Ghrit*: 2 *Prasrita* (160 ml)
4. *Kalka* (*Patola, Nimba, Vasa, Guduchi, Kantakari*): 1 *Prasrita* (80 g)
5. *Godugdha* (cow milk): 4 *Prasrita* (320 ml).

RESULT

Pain, swelling, and range of movements were assessed. The pain is assessed by using visual analog scale (VAS) where 0-4 mm is no pain, and 75-100 mm is severe pain. Circumference of the knee joint in inches was observed before and after the treatment to assess the swelling. The range of movements assessed objectively.

Pain

On the day of admission, pain graded as 55 mm on VAS. After administration of treatment, pain reduces to grade 5 mm.

VAS

Measurement instrument that measures a characteristic that is believed to range across a continuum of values and cannot be easily measured. Using a ruler, the score is determined by measuring the distance (mm) on the 10 cm line between the “no pain” anchor and the patient’s mark, providing a range of scores from 0 to 100.

HBV

Quantitative real time-PCR was reduced from 689 to 207 IU/ml. The investigation viral load via HBV-DNA (quantitative) was again repeated by real time PCR. On January 16th, 2013, the result was 207 IU/ml (the sensitivity of the HBV refer normal range DNA test may vary, the lower end of the range is 300 IU/ml or less). Below the threshold of the test, the viral load is considered undetectable.^[10]

Range of Movements

Initially, the patient was able to flex his knees at an angle up to 30°. At the time of discharge, he started to extend and flex his knees up to an angle of 70°.

Advice on Discharge

1. *Ashwagandha (Withania somnifera) Churna*: 3 g twice a day with milk. It possess *Sothahar* property (anti-inflammatory effect) and *Rasayana* (rejuvenation) effect and it relieves pain and act as an immunomodulator^[11]
2. *Mulethi (Glycyrrhiza glabra) Linn.*: 3 g twice a day with milk. *Vata-Pitta Shamak*, *Madhura Rasa*, *Shita Virya*, thus it pacifies *Vata*, improves the *Dhatu Upachaya* (metabolic state), and it has *Rasayana* effect (rejuvenation effect)^[12]
3. *Pravala Panchamrita Rasa* (1 g): Rich in calcium, highly effective in combating arthritis. The calcium salts aids in bone remineralization
4. *Swarna Vasanta Malati Rasa* (100 mg): It is an immunity enhancer used for the treatment of general fatigue and weakness. It has great curative action in hepatitis B infection^[13]
5. *Panchtikta Ghrith Guggulu*: 500 mg thrice a day mainly indicated in *Asthi*, *Sandhi*, and *Majjagata Vikaras*. It also contains *Tikta Rasa Pradhana Dravya* possess *Prithvi Mahabhuta*, which helps in bone formation.

Follow-Up after 1-month

During the follow-up, the patient presented with a significant improvement and second course of *Panchtikta Ksheer*

Basti with *Sthanik Taila Dhara* with above medicine was administered.

Progress Assessment

Assessment criteria	Before treatment	After treatment
Quantitative real time PCR value	689 IU/ml	207 IU/ml
Pain (VAS)	55 mm	5 mm
Range of movements	Flex his knees at 30°	Flexion movement up to 70°

DISCUSSION

The treatment was planned as per the line of management of *Asthi-Sandhigata Vata* also keeping in mind to reduce the viral load and also to provide symptomatic relief in hepatic dysfunction.

After treatment during the assessment, it is observed that *Panchtikta Ksheer Basti* with *Shaman* drug has given significant relief in hepatitis B. It has improved hepatic function along with viral overload.

Hepatitis B-induced arthritis is a disorder in which microbes (virus) plays an important role in the causation of disease. As per Ayurveda science, it is considered as *Agantuja Hetu* (exogenous factor) resides in liver (*Sthana - sanshraya*) and causes *Dhatu Sthailyata* leads to *Sanga* type of *Srotodushti*.

This *Sanga Srotodushti* causes pathological mechanism in two pathways:

- *Yakrit Karma Kshaya* (reduction in normal function of liver) due to which symptoms such as *Aruchi* (lack of appetite), *Ajirna* (indigestion), and *Aadhman* (flatulence) arises
- Leads to vitiation of *Vata* get localized in joints causes *Sandhivata (Ashraya-Ashrayi Bhava)*
- *Sanga* type of *Srotodushti* leads to *Asthidhatu Agnimandya*; hence, proper formation of *Sthayi Asthi Poshaya Rasa* will not be possible which ultimately results in degeneration of bone.

So, the treatment is planned by keeping following facts in mind:

- Which helps in boosting immune system
- Works at the level of pathophysiological level (micro channels) so, it does *Srotoshodhana* (purifies the channels)
- Have the property of antiviral (antagonist to the favorable environment of microbes).

Hingvastak Churna was administered to increase the appetite as they contain ingredients such as *Hingu (Ferulan arthex)*,

Trikatu (*Pippali - Piper longum*, *Maricha - Piper nigrum*, *Sunthi - Zingiber officinale*) *Ajmoda* (*Apium graveolens*), *Saindhava*, *Jiraka* (*Cuminum cymium*), and *Krisna Jiraka* (*Carum carvi*) which predominant in *Katu Rasa* (pungent taste) and *Ushna Virya* (hot in potency). These qualities increase *Jatharagni* (digestive power) and help to regulate *Apana Vayu*.

Ashwagandha (*W. Somnifera*) and *Mulethi* (*G. glabra*) *Churna* were administered as they have *Rasayana* and *Balya* property and *Vatashamaka*. A series of animal studies shows *Ashwagandha* to have profound effects on the hematopoietic system, acting as an immunomodulator and act as a liver tonic.^[14] Glycrrhizin is a compound found in *G. glabra* has antiviral activity against many viruses such as HBV, hepatitis C virus, and HIV infection.^[15]

Panchtikta Ksheer Basti

This treatment modality have a dual mode of action as it works at the level of both hepatic and *Asthivaha Srotas*. By keeping above view in mind, *Panchtikta Ksheer Basti* was planned for strengthening the *Asthi* and rejuvenation of liver function. *Panchtikta* contains *Tikta Rasa*, which have antiviral property (*Krimighana* action).^[16] Ingredients of *Panchtikta Ksheer Basti* have *Tikta Rasa*, *Ushna Virya* and *Madhur*; and *Katu Vipaka* favors normal functioning of *Dhatavagni* (metabolic stage), facilitating increased nutrition to the *Asthi Dhatus*, and abolishing the pathological mechanism (*Sanga Srotodushti*). As a result degeneration of *Asthi* reduced helping its regeneration.

According to *Charak*, in *Asthi Dhatu Dushti* and in *Krimi Chikitsa Tikta Rasa* dominant treatment should be given. In *Panchtikta Ksheer Basti*, the predominance of *Tikta Rasa* is there. *Tikta Rasa* has got *Deepana*, *Pachana*, and *Rochana* property which helps in combating the features of degenerative functions of liver like anorexia, indigestion, flatulence results in the improving the general condition of health and strengthens the whole body as well as joints.

Tikta Rasa has a predominance of *Vayu* and *Akasha Mahabhuta*. Hence, it got affinity toward the body elements such as *Asthi* which has same *Mahabhautika Tattva*. *Kshira* has *Madhura* and *Snigdha* properties which help to control *Vata Dosha* and acts as *Brimhana* (nourishing), improves the *Dhatu Upachaya* (metabolism of the tissue), and acts as a rejuvenator of the body. Milk contains Vitamin D and calcium which plays an important role in bone formation.

Ingredients of decoction (*Panchtikta Ksheer Kwath*) possess *Madhura*, *Tikta*, *Kasaya Rasa*, and *Ushna Virya*. The *Ushna* quality allows the herbs to penetrate up to the cellular level of the tissue thus helps in cleansing the microchannels. *Guduchi* by virtue of its *Rasayana* property acts as an immunomodulator.

Hence, *Panchtikta Ksheer Basti* provides a good result in pacifying the disease. It may produce reduction in pain, swelling, viral load in blood and slows down the degeneration process.

Sthanik Taila Dhara

Pouring the medicated oil for a specific period of time on the affected area may nourish the nerves, muscles, and joints in the particular region. *Mahanarayan* oil is used in the therapy is well-known for its *Vatashamak* effect. Due to its *Snigdha* and *Ushna Guna*, it can be used in degenerative disorders. In general, it causes vasodilation and improves circulation. It may activate the local metabolic process which is responsible for most of the relief of pain, swelling, tenderness, stiffness, etc.

At the end of treatment, the patient had marked relief in pain, swelling, reduced appetite, anorexia, flatulence, increased strength and range of movements. Viral load had been decreased from 689 to 207 IU/ml, and pain intensity gets reduced and graded as 5 mm on VAS.

CONCLUSION

The patient is presented with complaints of osteoarthritis, so treatment is planned as per line of management of *Asthi-Sandhigata Vata*. During the assessment, after completion of treatment, it has been found that patient got significant improvement in associated symptoms of hepatitis B along with inflammatory symptoms of osteoarthritis, and viral load has been reduced from 689 to 207 IU/ml. As *Panchtikta Ksheer Basti* works at the level of both hepatic function and *Asthi Dhatu*. Though the result was encouraging, it is finding on a single patient, so clinical trial should be conducted in large sample size for evaluation of the efficacy of treatment to draw a concrete result. If the result sustained on larger sample size, then it may open a new era for treatment and research in hepatitis B.

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