



AYURVEDIC MANAGEMENT OF POST TRAUMATIC ARTHRITIS OF KNEE: A CASE REPORT

Prasad Mamidi *, Kshama Gupta

Associate professor, Dept of Kayachikitsa, Faculty of Ayurved, Parul University, Vadodara, Gujarat, India

*Corresponding Author Email: drprasadmamidi@gmail.com

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ABSTRACT

Joint injuries are becoming increasingly common in younger adults. The cascades of events that follow these joint injuries have been shown to increase the risk of post – traumatic osteoarthritis (PTOA) by 20-50%. Unfortunately, current treatments for joint injuries all too often fail to prevent the development of PTOA. Works on Ayurvedic management of acute knee injury with meniscus tears or anterior cruciate ligament tears are negligible. The present report deals with a case of acute knee injury with grade III meniscus tear managed by Ayurveda. Ayurvedic diagnosis of 'Agantuja sandhi vata' is made and to assess the efficacy of treatment 'Knee injury and Osteoarthritis Outcome Score (KOOS)' was used. Total two assessments were carried out, before treatment and after 3 weeks of treatment. Panchakarma procedures like Upanaha sweda (poultice sudation) and vasti (enema) were implemented. Upanaha sweda and vasti were found beneficial in reducing the swelling, pain, restriction of movements and for improving the quality of life in acute knee injury with meniscus tear.

Key Words: Acute knee injury, PTOA, Meniscus tear, Ayurveda, Panchakarma, KOOS

INTRODUCTION

Joint injuries like, sprains, dislocation, fractures, anterior cruciate ligament tears, meniscal tears and others are becoming increasingly common in younger adults especially aged between 8-44 years. The cascade of events that follow these joint injuries have been shown to increase the risk of Post – traumatic osteoarthritis (PTOA) by 20-50%.¹ PTOA develops after joint injury and causes lifelong pain as well as disability for millions of people. Mechanical causes of PTOA fall in to two categories; acute structural damage which is induced by the intense loads occurring at the instant of joint injury and gradual onset structural damage with compositional degradation of joint cartilage due to chronic loading abnormalities of injured joints.²

Unfortunately, current treatments of joint injuries all too often fail to prevent the development of PTOA.² Currently the only treatment available for joint trauma is surgical interventions and some experimental approaches which involve engineering of joint cartilage but these are still in developmental stage. None of these are able to regenerate normal adult hyaline cartilage which would be able to perform required functions, sustain the load and integrate with the host tissue. Therefore there is an unmet need in the development of novel therapeutic approaches which stimulates biological repair of PTOA, delay or prevent the need of surgery or when used prior, during or soon after surgery to improve the outcome of surgical intervention.³

Even though there are plenty of studies conducted on osteoarthritis of knee, works on Ayurvedic management of acute knee injury with meniscal tears or anterior cruciate ligament tears are negligible. The present report deals with a case of acute knee injury with meniscal tear came for Ayurvedic treatment. Written informed consent was obtained from the patient for publication of this case report and accompanying images.

CASE DESCRIPTION

A 51 year aged male patient, came to our care (09.05.2016) with the complaints of, severe pain and swelling at left knee joint, decreased tolerance for walking, sports, stairs and other activities that stress the joint. Patient had the history of injury (due to a fall) to the left knee (on 02.05.2016) and he has developed swelling and pain since then. Patient approached orthopedic surgeon immediately after knee injury and took internal medicines for the same. Undergone MRI report and it revealed, grade III medial meniscus tear. Patient didn't get relief in pain and swelling by modern medicine and he opted for Ayurvedic treatment.

Examination of left knee revealed, huge swelling towards the medial side of left knee. There was no redness and tenderness. Crepitations were present at left knee joint. Full flexion and extension of knee was possible but all movements were associated with severe pain. Popliteal cyst was present at left knee. Patient has complained that, he is getting a feel of foreign body inside his left knee joint. Patient was known case of diabetes mellitus (since 2001) and he has been taking medicines for the same.

Hematological, biochemical and random blood sugar levels were within normal limits (09.05.2016). MRI (Magnetic resonance imaging) of left knee joint (07.05.2016) revealed, 'Hyper intense signal is seen in body and posterior horn of medial meniscus reaching up to the free edge and represent grade III tear; Medial collateral ligament is hyper intense and swollen suggestive of edema / contusion; Globular hyper intense signal is seen in the body and posterior horn of medial meniscus and represents myxoid degeneration (grade I); Mild synovial effusion is detected and postero medial popliteal cyst found; Posterior anterior cruciate ligament mucoid degeneration / mild contusion'.

Diagnosis, Assessment & Treatment

Diagnosis of ‘Post traumatic arthritis of knee’ was made based on history, physical examination and MRI report. Total two assessments were carried out, before treatment and after 3 weeks of treatment. To assess the efficacy of treatment ‘Knee injury and Osteoarthritis Outcome Score (KOOS)’ was used. KOOS is a questionnaire designed to assess the short and long term outcome following knee injury. It is self administered and assesses five outcomes: pain, symptoms, activities of daily living, sport and recreation function, and knee-related quality of

life. The scores are transformed to a 0-100 scale, with zero representing extreme knee problems and hundred representing no knee problems. KOOS is a likert type of scale with all items having five possible answer options scored from 0 (no problems) to 4 (extreme problems).⁴ The patient was diagnosed as “Agantuja sandhivata” according to Ayurveda.

Treatment is aimed to reduce the pain and swelling at knee joint and to improve the range of movements. Panchakarma procedures like Upanaha sweda (application of medicated paste) and vasti (enema procedures) were implemented (Table 1).

Table 1: Intervention

Duration	Medicine	Dose	Frequency	Anupaana
16.05.2016 to 31.05.2016	1. Mustadi marma kashayam	20 ml	twice a day, before food	with equal quantity of water
	2. Panchatikta ghritam	10 ml	twice a day, before food	with hot water
	3. Amrita mehari choornam	5 gm	twice a day, after food	with water
Panchakarma intervention				
09.05.2016 to 16.05.2016	1. Upanaha sweda with Grihadhoomadi choornam			
09.05.2016 to 16.05.2016 (Yoga vasti schedule)	Sarvanga abhyanga with Murivenna oil & Bashpa sweda & Niruha vasti (A. Erandamoola & Rasna saptaka kwatha - 500 ml B. Madhu - 150 ml C. Sahacharadi tailam - 150 ml D. Gomutra arka (distilled cow urine) - 100 ml E. Hingu vachadi choorna kalkam - 20 gm F. Saindhava lavana - 6 gm) (or) Anuvasana vasti with Pippalyadi anuvasana tailam - 100 ml			

Table 2: Efficacy of treatment on KOOS

Time of Assessment	Pain	Other symptoms	Function in daily living (ADL)	Function in Sports & Recreation	QOL (knee related)
Pre treatment (09.05.2016)	63.89	42.86	50	25	6.25
Post treatment (29.05.2016)	86.12	89.29	85.3	50	37.5



Figure 1: Upanaha sweda

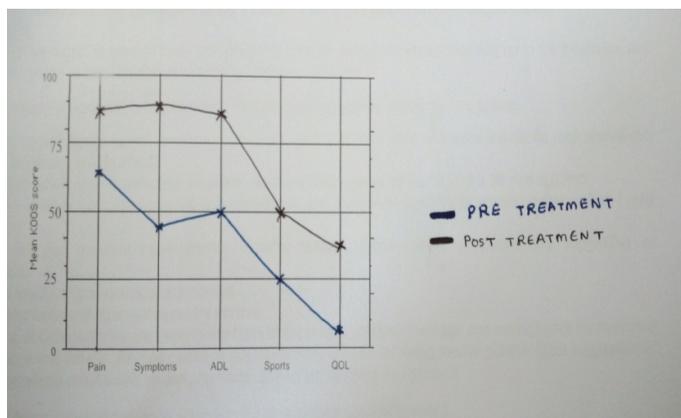


Figure 2: Pre and Post treatment scores on ‘KOOS’

DISCUSSION

Charaka has explained a condition called “Sandhigata anila”, which is characterized by shotha (on palpation feels like a bag filled with air) and shula (pain) on prasarana (extension) and on akunchana (flexion).⁵ Sushruta has explained that, in “Sandhi vata” along with pain and swelling there will be complete disorganization of joint leading to severe disability.⁶ In present case the pain, swelling and restricted movements were occurred

after the knee injury, so the diagnosis of “Agantuja sandhi vata” is made and treated accordingly.

Upanaha sweda is an ekanga sweda (local sudation) which is meant to pacify vata dosha where there is pain and swelling in a localized area. Upanaha means bandhana (bandage). It is of two types, saagni (with heat) and niragni (without heat). Upanaha sweda is proved beneficial in reducing the inflammation and pacifying pain, stiffness, tenderness, swelling and restricted

movements according to a previous work in frozen shoulder.⁷ In present case, upanaha sweda was applied over the left knee joint for the period of 8 days, once daily. In upanaha procedure, initially sahacharadi taila is applied over the left knee joint followed by application of Grihadhoomadi choorna (which is made in to paste by adding butter milk) over the left knee with uniform thickness. Arka patra (leaves of *Calotropis gigantea*) were put over this paste / lepa to cover the area. Over the Arka patra bandaging is done by using cotton cloth. This bandage was kept for 6 hours (Figure 1).

Vasti is the best treatment for vata dosha.⁸ In present case along with upanaha sweda, one yoga vasti schedule was implemented. Yoga vasti schedule contains 8 vasti's (5 anuvasana vasti's & 3 niruha vasti's) and it starts with anuvasana vasti followed by 6 vasti's (3 niruha vasti's and 3 anuvasana vasti's alternatively) and ends with anuvasana vasti (Table 1).

A normalized score (100 indicating no symptoms and 0 indicating extreme symptoms) was calculated for each subscale of KOOS at pre treatment (09.05.2016) and post treatment (after 3 weeks of treatment period). Good improvement was observed in 'knee related quality of life', 'Activities of Daily living (ADL)', and in 'other symptoms', subscales of KOOS. In 'function in sport and recreation' subscale 50% of improvement was noticed (Table 2). Swelling was totally disappeared after 8 days of treatment (immediately after vasti and upanaha sweda). Pain was reduced and patient was able to walk, use stairs with ease. Range of movements was improved in left knee. Patient was unable to sit on the floor or squat at the time of discharge (16.05.2016). The results obtained on KOOS were plotted as an outcome profile (Figure 2). Mustadi marma kashayam was prescribed to deal with the pain and panchatikta ghrutam was prescribed for the healing of tear / cartilage damage at the time of discharge.

Encouraging results were found with upanaha sweda and yoga vasti in present case. However further studies are required to evaluate the efficacy of Ayurvedic medicines and various panchakarma procedures in PTOA on parameters like, chondroprotection, anti inflammatory, matrix protection and pro-anabolic (stimulating cartilage remodeling and regeneration).

CONCLUSION

The Ayurvedic diagnosis of 'Agantuja sandhi vata' is suitable for acute knee injury / meniscus tears of knee. Upanaha sweda and vasti are very effective in reducing the swelling, pain, restriction of movements and for improving quality of life.

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