Review Article.

International Research Journal of Ayurveda & Yoga

An International Peer Reviewed Journal for Ayurveda & Yoga

A Systemic Review Of Ilio Tibial Band Syndrome With Its *Ayurved* Treatment Perspective

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ICV-70.44- ISRA-1.318

VOLUME 4 ISSUE 3 March 2021

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Article received on 11th Feb 2021 Article Accepted 29th March 2021 Article published 31st March 2021

ABSTRACT: -

Iliotibial band syndrome/ilio tibial band friction syndrome is one among the 3 common pathological conditions of knee joint like ITBS, Chondromalacia patella, & OA knee. Knee joint is the most complex joint in human system which undergoes continuous wear & tear, while trying to stabilize during various activities. This continuous wear & tear results in knee pain which ranges from minor to unbearable morbidity. As the knee joint is the constant pressure joint, it facilitates the pathology to manifest easily. ITBS is the 2nd most common knee related pain which affects runners after patello-femoral dysfunction. Also, it is the common injuries of lateral side of knee in athletes mainly runners with an incidence estimated to be between 5% and 14%. Now a days, this morbidity has emerged in the front line among sports population & so further studies are needed for fruitful outcome. Ayurvedic science can impart a huge result in the area of sports medicine likewise in ITBS. Various *Bheshaja chikitsa* (treatment through medicines) and some of the para surgical procedures can be applied for patient satisfaction and thereby can reduce the morbidities associated with the same.

Key Words -*Agnikarma*, Athletes, Ilio tibial band, Rehabilitation, *Srunga*

Review Article.

How to cite this article: - Dr Akhila A R Dr Vishnu Dutt Sharma Dr Rajesh Kumar Gupta,A Systemic review of Ilio tibial band Syndrome with its *Ayurved* treatment perspective, IRJAY, March: 2021, Vol-4, Issue-3; 76-80; DOI: https://doi.org/10.47223/IRJAY.2021.43011

INTRODUCTION

ITBS was first described in 1973 is an over use, non-traumatic condition affecting the most complex joint. Relative incidence among runners has been increased by many folds in the past few decades. Sports persons are more suspected categories as they are having regular physical activity. Competitive cyclists frequently peddling against high resistance are also at high risk. This syndrome is not repeated in those who don't do exercises. There is an existing controversy in the pathology whether the syndrome is due to friction alone or underlying pathology of bursa between the band and lateral femoral epicondyle causing pain.

ITBS is one of the common pathology that causes lateral knee pain due to the inflammation of distal portion of IT band. It is the 2nd most commonest injury among athletes and its incidence within sports persons are also not negotiable. ITBS contributes 20% of all lower extremity injuries in runners[1]. The main clinical feature is the sharp or burning pain 2cm superior to lateral joint line. Stinging sensation and needle like pricks are also seen. This is an over use injury in which pathological manifestations adds up with non-traumatic causes seen commonly in athletes especially long distant athletes[2], cyclists etc.

Ilio tibial tract or ilitibial band/Massiant's band/IT band originates at the antero lateral iliac tubercle portion at the external lip of the iliac crest, runs downwards through the lateral aspect of the thigh between the layers of tensor fascia and *attaches* to the anterior surface of lateral condyle of the tibia at Gerdy's tubercle[3]. At the distal portion, the band crosses the lateral femoral epicondyle thereby providing an additional lateral expansion of the patella. Proximally tensor fascia latae, gluteus maximus, gluteus medius and vastus lateralis all have connections to iliotibial band. There is broad attachment to multiple structures like lateral knee including quadriceps-patella-patellar tendon complex, lateral femoral epicondyle and biceps femoris muscle-tendon-fibula complex. This anatomical structure stabilzes the knee joint.

MATERIAL AND METHODS

Ayurvedic samhitas, medical text books,websites,journals and articles which are peer reviewed and published.

DISCUSSION

IT friction syndrome, commonly affects physically active young age group, occurs as a result of chronic inflammation due to repeated friction of iliotibial band against lateral epicondyle. During flexion, band slides anteriorly to the condyle and it slides posteriorly during extension. This repeated gliding along with band tension causes excessive friction and thereby inflammation to the band and causing pain outside knee which may radiate proximally or distally. Pain is 2cm superior to lateral joint line which is lateral to the patella tendon. Impingement zone at or below 30^0 flexion at early phase of running, during this phase extensive contraction of gluteus maximus and tensor fascia latae causes tightness to the band.This tightness further provokes friction of band over the epicondyle. Pain increases on activities and it subsides on cessation of activities in less severe cases.

As this is a non-traumatic over use injury, pain

increases on running, moving downstairs, long distance running etc. Combination of issues adds upto the pathology such as improper training, weakness of hip abductor muscles, other mechanical imbalances in pelvis, knee, hip and low back. Anatomical issues like leg-length disparity, abnormal pelvic tilt, genu varum further causes excessive tightness to the band and thereby causes potential friction. Also in high or low arches, uneven leg length, bowed legs[4] or weakened thigh muscles, supination where the feet turn outward and can cause friction and inflammation, worring shoes that may have worn too much. Running through uneven road causes pelvic tilt, running downwards is more stressful and improper posture in cyclists leads to tightness of band.

Clinical diagnosis is sufficient and itself confirmatory. History taking is very much important. No other diagnostic methods are needed for diagnosis, but needed for excluding some of the intra articular problems like meniscal tear, ligament tear etc. Sometimes MRI can appear as normal in ITBS. Renne's test and Noble Compression test are the 2 important diagnostic and relevant clinical tests that itself gives the confirmation. Renne's test can be done in addition to noble test when patient complains of lateral knee pain.

There is no such evidence existing for a specific management protocol for ITBS.1st line of treatment ie; conservative management which is the prime concern in ITBS is very effective to bring back into the normalcy of pre injury level and also to reduce symptoms. Patient's usually responds to the conservative management, while refractory cases needs surgical correction. Conservative management collaborates rest, proper stretching, pain management, modifications to the habits of sports persons. These itself shows 44% cure rate in sports person who can return to their activity in 8 week and 91% cure rate with return to sports activity after 6 months of injury. Changing footwear and massage can also shows significant results. Some of the risk factors are ilio tibial band tightness ,high weakly mileage ,time spent walking or running on a track, muscular weakness of knee extensors ,flexion of hip abductors.

As the disease becomes more severe and worsens over time, conservative treatment fails to do the purpose. Thus in chronic cases with bursal and periosteal changes, surgical correction of band is indicated. Injections, IT band releasing surgery are also there for the management. According to some opinion, posterior fibers are more tight than anterior fibres in 30^0 flexion, in which surgical loosening of posterior fibers is a necessity[5].

On *Ayurvedic* parlance , *agni* is the basic cause of all disease pathogenesis.

"*Roga sarve api mandagne*"

This improper *agni* leads to the formation of *ama* and finally causes *srotorodha* (blockage of channels). *Srotorodha* (blockage of channels) and *dhatu ksaya* (depletion of tissues) are the causes of *vayu* vitiation. According to *Susruta* [6]"*vatadruthe nasti ruja*". Thus by basic principle, elimination of *ama* (un digested food) and thereby correcting *agni* (digestive fire) and *vata* is to be done properly. Firstly, *amasophahara* (anti-inflammatory) line of treatment can be adopted so that noticeable percentage of relief can be obtained. Medicines varies from person to person as per *roga avastha* (condition of disease) and *prakruti* (constitution) of *rogi* (patient). Internal *snehapana* (intake of oil) is a must to avoid recurrence. Modified *srunga* (blood letting technique) and *ruksa agnikarma* (dry cauterization) can be done in acute cases to reduce pain immediately. Sudden pain relief can be obtained by these methods, but it is not needed for all patients. These *anusatra prayoga's* (use of parasurgical procedures) an be properly administered at the most tender point so that immediate results can be obtained if the patient demands. *Agnikarma* (cauterization) is better avoided in pitta *prakopa* conditions. Most tender point is to be selected for the procedure.

"Snava sandi sira prapthe sneha daha upanahanam[9]

Upanaha (poultice) with many formulations like

Kottamchukkadi choornam, Ellum nishadi choorna etc. according to the condition. *Ruksa agnikarma* (dry cauterization) and one day bandage itself reduces morbidity. *Taila snehapana* (internal oleation) is advised after the procedure. 2-5 ml suction of blood using modified *srunga* (blood letting technique) also gives good relief from pain. After any of the procedures, internal *snehapana* (internal oleation)should not be forgotten as it has the role of preventing further occurrence of the condition.

Rehabilitation is a set of interventions needed when a person is experiencing or is likely to experience limitations in everyday functioning due to ageing or a health condition, chronic diseases or disorders, injuries or trauma . Exercises, fitting an orthosis are some of the rehabilitation methods that can be adopted by the sports persons since they have a greater chance for recurrence during sport activity. This should be done to achieve the maximum possible outcome and to prevent the further morbidity and delay in sports activity. From the very next day of the para surgical procedures, rehabilitation should be started before starting next sports activity. Using proper footwear, stretching and exercises, knee brace[7] etc helps in pain management.

Main exercises that can be adopted as a routine for rehabilitation are :-

1.Heel raise

Particularly for strengthening calf muscles and thus supports knee and hip[8].

2.Calf stretch

For loosening the tightened calf muscles particularly in athletes as it is common in them.

3.Slide leg lift(*Ananthasana)*

Very effective rehabilitation. This works for hip abductor muscles as well as glutes. Strengthening these muscles can prevent and treat pain in hips and knees.

4.Small step

Quadriceps, hamstrings, hip flexors and gluteal muscles are strengthened.

Rehabilitation along with other conservative management gives significant results. Some orthosis can also be used. Patellar strap can be used if the patient need to continue his sports activity otherwise it is not mandatory because it causes muscle wasting.

CONCLUSION

Knee joint, one of the strongest weight bearing joint in the human body which allows the lower leg to move relatively to thigh by supporting the body's weight. For everyday activities including walking, running, sitting and standing etc. knee joint movement can't be excluded. It is a synovial hinge joint formed between the femur, tibia, and patella. ITBS is the 2nd most common knee injury caused by inflammation on the lateral aspect of the knee due to friction between the iliotibial band and the lateral epicondyle of the femur. Pain is primarily associated with underlying injury and so utmost care is needed. *Agni* (digestive fire) is the basic principle for the causation of any disease pathology as per *Ayurvedic* view. *Mandagni* (weak digestive fire) which in turn leads to the formation of *ama* and thereby *srotorodha* (blockage of channels) .Vitiation of *vata* due to *srotorodha* (blockage of channels) imparts pain. So one should aimed at giving *Ayurvedic* formulations for *samprapti vighatana* (breakage of pathogenesis) as *agni dipana* (appetizer) and *pachana (digestives)* , medicines which removes *srotorodha* (blockage of channels) and *vatanulomana* . Proper rehabilitation along with proper *Ayurvedic* medicaments can provide best results for the symptoms associated with ITBS and also as preventive measures.

Acknowledgement- None

Financial Support: None.

Conflict of Interest: None

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