

A CRITICAL REVIEW ON MAMSAVAHA SROTAS AND ANATOMICAL STRUCTURE WITH SPECIAL REFERENCE TO ROTATOR CUFF INJURY IN FAST BOWLERS IN CRICKET

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ABSTRACT

Strotas formulation takes place in intrauterine life with appropriate *Agni* and differentiation takes place, *Vayu* is responsible in generation of *strotas*. The internal transport system of the body represented by *strotamsi*, has given a place of fundamental importance in Ayurveda both in health and disease. According to Acharya *Sushruta Mamsavaha Strotas* are two in numbers having roots viz. *Snayu*, *twacha* and *raktavahini dhamanees*, symptoms of damage or injury of *mamsavaha strotas shwayathu*, *mamsashosha* and *siragranth* can occurs. The muscles and tendons in the rotator cuff group may be damaged in a variety of ways. Damage can occur from an acute injury (for example from a fall or accident), from chronic overuse (like throwing a ball or lifting), or from gradual degeneration of the muscle and tendon that can occur with aging. Cricket has traditionally been regarded as a sport that is relatively injury free, although classified as a sport with a ‘moderate’ injury risk. Among cricketers, bowlers are more prone to injuries, specifically of the lower limb and back. The throwing mechanism of baseball or cricket ball players, as required by fast bowlers, is a whip-like activity of the arm which places repetitive traction strain on the shoulder and elbow joints, although there is no norm of shoulder external rotator strength in cricketers. Physiotherapists need to consider the strength ratios of the shoulder rotators when preventing injuries in cricketers and in their rehabilitation programmes.

Keywords: *Snayu*, *twacha*, *shwayathu*, *mamsashosha*, *bowlers*, *traction*.

INTRODUCTION

Sushruta sharirsthana has great anatomical importance, therefore it is said that, *Sharir sthana* of *Sushrut Samhita* is best. *Strotas* formulation takes place in intrauterine life with appropriate *Agni* and differentiation takes place, *Vayu* is responsible in generation of *strotas*. This process of differentiation of fertilized zygote arises many *strotas* in which body entities take their origin.¹

The term *strotas* means a channel. *Mamsa* (Muscular) Channels – *mamsavahastrotas*. It is derived from the ‘root’ *susravane*” Meaning to exude, to ooze, to filter. *Strotas* is Unique concept of Ayurveda, *Charak* has defined it is “*Srawanaat srotansi*” meaning the structure through which *sravanam* takes place.

According to Ayurveda, the whole body is made up of *Srotas*. The number of *Srotas* is as many as the number of cells, tissues and organs put together. This explains that every human cell is possibly a *Srotas*.

Mamsavahastrotas:

The internal transport system of the body represented by *strotamsi*, has given a place of fundamental importance in Ayurveda both in health and disease. Two types of *vyadhies* are mentioned. (*Chikitsa sadhya & Shalyakarma sadhya*). When *mamsavahastrotas* get vitiated then some diseases occurs these are *Aadhimamsa*, *Arbuda*, *Arsha*, *Adhijivha*, *Upakush*, *Galashundika*, *Aalji*, *Galaganda*, *Gandamala*. *Arsha* is mentioned in *Mamsadoshaj Vikar* by *Acharya Sushruta*.²

Mamsavaha Srotas are two in numbers having roots viz. *Snayu*, *twacha* and *raktavahini dhamanees*, symptoms of damage or injury of *mamsavaha strotas shwayathu*, *mamsashosha* and *siragranth* can occurs. *Twacha* is *upadhatu* of *Mamsa*.³

Muscular channels, which originate in the ligaments, tendons, and skin, supply nutrients to the muscle *Dhatu* (all over the body). Impairment of these channels is due to regular intake of heavy, greasy foods, excessive sleep, sleeping after meals, and sedentary lifestyle. The symptoms of vitiation are usually benign tumors produced by the muscular system, tonsillitis, a swollen uvula, hemorrhoids, and swelling of the thyroid glands and adenoids. The emotional symptoms are lack of mental clarity and nervous tension.

According to Ayurveda following are *Vidhhalaxnas* of *Mamsavaha srotas*:-

Symptoms:

The vitiated *Vayu* on getting lodged in the Shoulder joints of the body, causes *Vata prakop* develop following signs and symptoms of are –

- *Shula* (pain)
- *Atopa* (abnormal sounds due to damage of joints or crepitus)
- *Shotha* – Swelling of the joints
- *Prasarana Akunchanayoho pravritti savedana* – Painful movement of the joints including extension and flexion.

Causes for tear of rotator cuff muscle:⁴

The muscles and tendons in the rotator cuff group may be damaged in a variety of ways. Damage can occur from an acute injury (for example from a fall or accident), from chronic overuse (like throwing a ball or lifting), or from gradual degeneration of the muscle and tendon that can occur with aging.

Physical Exam:

According Ayurveda *Darshan* (visual inspection), *Sparshan* (Palpation) and *Prashna* (interrogation) are the method of examining the patients. The same examination can be done for this condition also.

The physical examination often involves observation to look for deformities, muscle wasting, and changes in the appearance of the damaged shoulder compared to the normal one.

X-rays:

Plain X-rays are usually taken as a screening exam to look for broken bones or arthritis within the shoulder joint. Sometimes, calcification can be seen along the tendon. Often, the plain X-ray findings are normal in rotator cuff injury.

Rotator cuff muscle and Cricket injury:

Cricket has traditionally been regarded as a sport that is relatively injury free, although classified as a sport with a 'moderate' injury risk. The T20I is the shortest format of game that makes it more fascinating; on the other hand due to aggressive in nature it could be more prone for risk of injuries to shoulder and wrist in fast bowlers. These injuries can be attributed to the skills involved in the game. Bowling, batting and fielding are three key skills in cricket. Much of the biomechanical research into this sport has focused on bowling and batting.⁵

Among cricketers, bowlers are more prone to injuries, specifically of the lower limb and back. Apart from over workload, poor condition of grounds and lack of knowledge over physiotherapy front are the major reasons behind the increasing injuries in the sport.

The throwing mechanism of baseball or cricket ball players, as required by fast bowlers, is a whip-like activity of the arm which places repetitive traction strain on the shoulder and elbow joints. The proximal humeral growth plate of the young person is at high risk for epiphysiolysis because it consists of cartilage, and an impulse of the whole arm exerts strain at this weak location.⁶

Prevalence of cricket injury:

In cricket, injury prevalence has been reported to be highest for pace bowlers (14%), while being 4% for spin bowlers, 4% for batsmen, and 2% for wicket keepers in Australian cricket at first class level.⁷ In cricket, injury prevalence has been reported to be highest for pace bowlers (14%), while being 4% for spin bowlers, 4% for batsmen, and 2% for wicket keepers in Australian cricket at first class level.⁸

The faster arm action places more stress on the shoulder joint, predisposing these bowlers to shoulder injuries. The muscle imbalance or dysfunctions where the eccentrically contracting external rotators are not strong to balance the concentric contraction against the internal rotators are the most common predisposing factor for shoulder injuries in cricket fast bowlers.⁹

CONCLUSION

Srotas formulation takes place in intrauterine life with appropriate *Agni* and differentiation takes place, *Vayu* is responsible in generation of *srotas*. Shoulder injuries specifically rotator muscle tear, both acute and chronic, have increased as the popularity of and competitive in sports layers particularly in cricket has grown.

The most frequently used 'bowling deliveries' by fast bowlers are 'Bouncers' and 'which suddenly causes injury to rotator muscle of shoulder joints. Chronic shoulder injuries are caused by the tremendous rotational force applied repetitively during cricket bowling. Most of these injuries will resolve with activity and physical therapy. Moreover, most of these injuries can be prevented with appropriate care and rest for specific duration in entire series or by reducing the over thrown by bowler. Although there is no norm of shoulder external rotator strength in

cricketers. Physiotherapists need to consider the strength ratios of the shoulder rotators when preventing injuries in cricketers and in their rehabilitation programmes.

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