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SCIATICA (*IRQ-UN-NASA*) IN MODERN AND UNANI PERSPECTIVE

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ABSTRACT

Sciatica is a type of neuropathic pain and commonest variation of low back pain. It is known by a range of terms in the literature, such as lumbo sacral radicular syndrome, radiculopathy, nerve root pain and nerve root entrapment or irritation etc. The intense leg pain may be accompanied by neurological ch anges of muscle weakness and wasting, sensory changes in the nerve root distribution. There may be intra-spinal, intra-pelvic and extra-pelvic causes compressing the nerve and producing inflammation.

In Unani medicine the term *"Irq-un-Nasa"* is used to describe such pain that initiates from lower back and radiates up to knee or ankle joint posterolaterally.[4,5] Most of the Unani scholars have mentioned it as a subtype of *Wajaul Mafasil.*

The most common cause is the infiltration (*nufooz*) of abnormal homours in the fluid of hip joint, such as *Ghair tabayi Balgham, Safra or Dam or* admixture of *Balgham* and *Safra*, such infiltration for a prolonged period result into *Tahajjur-e-Mafasil* and even *Irq-un-Nasa*. Whenever the nerve becomes weak due to any reason the susceptibility for the accumulation of any morbid matter is increased. There may be *sue mizaj damwi/ safravi/ balghami/ saudawi* as active cause of *Irq-un-Nasa.* By now it is understood that this is the disease of nerve, and it is diagnosed and managed accordingly.

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INTRODUCTION

Sciatica, as defined in conventional medicine, is considered a type of neuropathic pain and is one of the commonest variations of low back pain (LBP). It is known by a range of terms in the literature, such as lumbo sacral radicular syndrome, radiculopathy, nerve root pain and nerve root entrapment or irritation.[1]Sciatica is a severe form of low back pain that is characterized by radiating leg pain below the knee. The intense leg pain may be accompanied by neurological changes of muscle weakness and wasting, sensory change and diminished reflexes in a nerve root distribution.Most common causes of the sciatica include lumbar disc herniation while bony or vascular compression, infection or malignancy are the other les s common causes.[2]There are also some rare causes for sciatic pain such as tumors, cysts or other extra spinal cause. In most cases, the main cause of symptoms is believed to be inflammatory changes resulting from irritation or compression of the affected nerve root by its surrounding tissues.[3]

In Unani medicine the term *"Irq-un-Nasa"* is used to describe such pain that initiates from lower back and radiates up to knee or ankle joint posterolaterally.[4,5] Most of the Unani scholars have mentioned it as a subtype of *Waja-ul Mafasil.*

Prevalence rate of sciatica differs widely among studies partly due to difference in definition of sciatic symptoms. Annual prevalence rate vary from 2.2%-34%.[6]Exact data on the prevalence of sciatica is lacking. A recent review of sciatica prevalence studies reported a substantial variation in estimate ranging from 1.6%-43%.[3]

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For prompt diagnosis and effective management, it is of vital importance to understand the disease, the pathophysiology and its clinical presentation.

HISTORICAL BACKGROUND

Pain in sciatic nerve distribution was known to the ancient Greek and Roman physicians, but it was considered as the diseases of the hip joint. Perhaps it was Hippocrates (460 B.C.), the first physician to use the term 'sciatica'.

Caelius Aurelianus, born in Algeria (400 A.D.), was the first author to describe the clinical picture of sciatica very clearly. He mentioned it as severe pain starting from the lower back and radiating into the buttocks, perineum, and even the popliteal fossa, calf, foot, and toes, accompanied by a severe low-back spasm, sensory disturbances, and wasting of the leg.

In 1764, Domenico Cotugno of Naples, distinguished an '*arthritic sciatica*', identifiable with hip pain and a '*nervous sciatica*', which was further classified as '*postica*' (posterior) or '*antica*' (anterior). Therefore, it was Cotugno, who differentiated sciatic nerve pain from arthritis of the hip joint. Cotugno's syndrome was subsequently applied to unilateral sciatic neuralgia that was generally considered an 'interstitial sciatic neuritis' for the next 150 years.

In 19th century when disc diseases including prolapse were recognised, and Lase`gue described the sign to indicate stretching of the sciatic nerve; the leg pain of 'nervous' origin was distinguished from that of the pain of 'arthritic' origin.[7]

THE ROOT WORD OF SCIATICA

The term 'sciatica' has been derived from a Greek word “Ischia”, standing for the 'hip', as the ancient Greek physicians believed that the pain is coming from hip region. The term “scia” refers to the collective of the regions of buttocks, thigh, and hip. Such term for sciatica was first described by Hippocrates as “Ischias” “Ischides” and “Ischiadon”.[8]

DEFINITION

Sciatica is a pain with other sensory symptoms such as numbness or tingling along the sciatic nerve sensory distribution. It usually includes the sciatic nerve trunk in the thigh and more than half of territory below the knee.[8]
Sciatica is generally defined as “pain in the lower back and hip radiating in the distribution of the sciatic nerve”.[9]
According to Harrison's principles of internal medicine, “the term sciatica is used when the leg pain radiates posteriorly in a sciatic or L5/S1 distribution”.[10]

Sciatica is commonly used to describe radiating leg pain which is caused by inflammation or compression of the lumbo-sacral nerve roots (L4-S1) that forms the sciatic nerve. Sciatica may cause severe discomfort and functional limitation and disability.[11]

Actually, Sciatica is a symptom and a clinical condition rather than a specific diagnosis.[12]

DIFFERENT NOMENCLATURES

Sciatica as a term is not thought to be exact representative of the nature of leg pain (which is due to lumbosacral nerve root involvement); therefore, many other vernaculars are being used to describe this clinical condition, like:

1. **Radicular low back pain:** Radicular pain radiates into the lower extremity along the course of a specific spinal (sciatic) nerve root. The most common symptom of radicular pain is sciatica (pain that radiates along the sciatic nerve-down the back of the thigh and calf into the foot). It is often caused by compression of the lower spinal nerve roots (L5 and S1).[13,14]
2. **Lumbosacral radicular syndrome:** The lumbosacral radicular syndrome (LRS) is a disorder with radiating pain in one or more lumbar or sacral dermatomes, and can be accompanied by phenomena associated with nerve root tension or neurological deficits.[15]
3. **Radiculopathy:** Radiculopathy is a condition due to a compressed nerve in the spine that can cause pain, numbness, tingling, or weakness along the course of the nerve. Radiculopathy can occur in any part of the spine, but it is most common in the lower back (lumbar radiculopathy) and in the neck (cervical radiculopathy). It is less commonly found in the middle portion of the spine (thoracic radiculopathy).[16]
4. **Nerve root pain:** Affection of L3-L4 segment may cause muscle pain, discogenic pain, radicular (nerve root) pain, and/ or radiculopathy (neurologic deficit) that typically affects the lower back and/or the legs.[13]
5. **Nerve root entrapment or irritation**: Nerve entrapment syndromes (meaning a common group of signs and symptoms), occurs in individuals as a result of swelling of the surrounding tissues, or anatomical abnormalities.[17] It is identified by radiating leg pain below the knee in one or more than one lumbar or sacral dermatomes.[18]
6. **Nerve root compromise:** Nerve root compromise is also widely used for such conditions, where there is

any kind of hindrance in the normal functioning of sciatic nerve. Nerve may compromise due to disc herniation or stenosis in every possible location from central to extra-foraminal region, and it should be explored for accurate symptomatic correlation and diagnosis.[19]

7. **Sciatic neuralgia**: Sciatic neuralgia, or Sciatica, is a common medical condition in which there is a disruption in the function of the sciatic nerve, typically due to inflammation or compression of the nerve.[20]
8. **Sciatica:** Sciatica is one of the most common forms of pain caused by compression of a spinal nerve in the low back. It often will be caused by compression of the lower spinal nerve roots (L5 and S1)[13]

MEANING OF *IRQ-UN-NASA*

Irq-un-Nasa is a specific Arabic term, which is composed of two words. "First word is *Irq,* which stands for nerve; whereas, the word *Nasa* stands for a specific nerve i.e. sciatic nerve. Hence the term *Irq-un-Nasa* gives the specific meanings for "Sciatic nerve".

Second perception is pathological, that *Nasa* is an "ailment", that affects this specific nerve and thus the word *Irq-un-Nasa* has been considered as the name given to this ailment [as it also specifies the area where the nerve is causing pain.

Third perception is clinical, where this describes the "severity" of the pain caused in this disease. It has been mentioned that *Irq-un-Nasa* is such a severe pain that makes the patient to forget any other pain in the body; here the term *Nasa* has been derived from *Nasyan,* meaning "to forget".

Nasa/ An-Nasa is the nerve of the gluteal region which extends from buttock to ankle joint.[21,22]

An-Nasa is a subtype of joint pain (*WajaulMafasil*/ arthritis) which starts from the thigh and extends up to the knee joint or foot.

DEFINITION OF *IRQ-UN-NASA*

Eminent scholar Rabban Tabri (780-850 A.D.) writes, *Irq-un-Nasa* is a neuritic pain of thigh that radiates towards the toes.[23]

Zakariya Razi (865-925 A.D.) described *Irq-un-Nasa* as a subtype of *Wajaul Mafasil*, which develops due to collection of thick morbid phlegm within the joints (hip joint). This pain is felt at gluteal region (gluteal depression), thigh and near the knee, and when it becomes severe then radiates to the toes.[24]

Majusi (930-994 A.D.) also described *Irq-un-Nasa* as a subtype of *Wajaul Mafasil,* which initiates in the joint of thigh (hip joint), then radiates to the lateral aspect of it (thigh), knee, ankle and lateral aspect of foot.[25]

According to Ibn-e-Sina (980-1037 A.D.), *Irq-un-Nasa* is a type of *Wajaul Mafasil*, which the pain gets initiated from hip joint and radiates to back of the thigh and sometimes to the knee, ankle and toes. Ibn-e-Sina further explains that due to its chronicity and excess of morbid matter, the affected leg and thigh become weak and asthenic, that ultimately results in inability to bend or to stand upright.[26]

Abu Marwan Abdul Malik Ibne Zohr (1092-1163 A.D), mentioned that pain sometimes starts from foot and radiates upwards upto the thigh. The pain is associated with muscle cramps and is usually found in one side of the leg.[27]

Mohammad Ismail Jurjani (12th cent A.D) described that, any pain which originates from hip joint and radiated towards leg is called *Irq-un-Nasa*.[28]

Ibn Hubl Baghdadi (1122-1213 A.D.) defined, *Irq-un-Nasa* is the pain that starts from hip and radiates towards the "lateral aspect" of the thigh upto the calf muscle, and even below upto the foot.[29]

Azam Khan (1813-1902 A.D.) described *"Rengan Bao"* as a synonym of *Irq-un-Nasa;* defining it as a pain which starts from hip joint and reaches the lateral aspect of the thigh up to the toes. Azam Khan also mentioned that if the hip joint pain persists for a longer duration may progress into *Irq-un-Nasa*.[30]

According to Sharah Mojiz, there are three subtypes of joint pain (*Waja-ul-Mfasil*) viz. *Irq-un-Nasa, Waja-ul-warik* and *Niqras. Irq-un-Nasa* is a pain which initiates from the hip joint radiates to the thigh and even up to the ankle joint, and to the toes. If the pain of sciatica persists for a longer duration, the thigh and leg become asthenic, and resulting into limping.[31]

PATHOPHYSIOLOGY OF SCIATICA

There may be different intra and extra-spinal causes ranging from primary nerve disorders to tumors and metabolic disorders, which can develop sciatica.

First, there is a mechanical component that consists of compression of the nerve root by a herniated disc. Many Neuroradiologic studies confirm that approximately 90% of cases of sciatica are associated with a disc disorder.

However, there are many other causes of compression of Sciatic nerve that may be classified into intra-spinal, intra-pelvis and extra-pelvis causes.

Intra-spinal causes

- Herniated disc/ prolapsed intervertebral disc (L4-S3) (90%)
- Lumbosacral strain
- Neoplasms of spine
- Lumbar stenosis
- Other vertebral disease which may compress and irritate sciatica nerve

Herniated disc/ Prolapsed intervertebral disc

It is one of the most common conditions that produce low back pain and/or leg pain in adults.[33] Herniated disc is a displacement of disc material (nucleus pulposus or annulus fibrosis) beyond the intervertebral disc space. Prolapsed disc, slipped disc or spinal disc herniation, herniated nucleus pulposus and discus protrusion are another terms used to describe this type of pathology.[33]

Intra pelvic causes[34]

Sciatic nerve may be affected in its course right from the neural foramina to the greater sciatic notch, the course of the nerve within the pelvis. Few common causes are:

- Tumors
- Hematoma in the Psoas muscle
- Endometriosis
- Tubo-ovarian abscess
- An intrauterine device after uterine perforation and
- Aneurysms (e.g. abdominal aortic aneurysm)

Extra-pelvic causes[34]

The Sciatic nerve may be irritated/ inflamed in extra-pelvic region after coming out from the greater sciatic notch. Few common causes are:

· Gluteal artery aneurysm
· Pseudoaneurysms
· Tumors
· Gluteal abscess
· Piriformis muscle syndrome

Second, it has been hypothesized that inflammation may play a role in patients with low back pain and sciatica, the elderly in particular. Many anti-inflammatory proteins have been found in serum, CSF and biopsies of patients with sciatica, including interleukin (IL)-1β, IL-6, IL-8 and tumor necrosis factor (TNF)-α.

Third, in patients with sciatica there is also a possibility of neuropathic component caused by nerve damage at the level of the nerve root, e.g. Diabetic neuropathy etc.

PATHOPHYSIOLOGY OF *IRQ-UN-NASA*

Abul Hasan Ali Ibn Rabban Tabri mentioned in his marvelous writing "*Firdosal-Hikmat*" with respect to *Maddi Asbab*, that following may be the cause of *Irq-un-Nasa*:[23]

- Derangement of Khilt-e-Safra
- Prolonged sun exposure causing dryness of fluid in the hip joint (synovial fluid).
- Admixture of Khilt-e-Radi with blood

According to **Zakariya Razi** the most common cause is the *nufooz* (infiltration) of abnormal humours in the fluid of hip joint, such as *Ghair tabayi Balgham*, *Safra or Dam or* admixture of *Balgham* and *Safra.* When such morbid humour stays in the joint for prolonged period, may become thick and hard in inconsistency, resulting into *Tahajjur-e-Mafasil* and even *Irq-un-Nasa*.[24]

Predisposing factors are as follows:

- Sedentary life style
- Physical inactivity
- Excessive use of *Hammam*
- Eating at an inappropriate time and quantity
- Diet with poor quality/ temperament (*kaifiyat*)

Ibn Sina has categorized the causes into active and passive causes. Whenever the nerve becomes weak due to any reason the susceptibility for the accumulation of any morbid matter is increased.[26]

The active causes are as under:

- Simple derangement of temperament (*Sue Mizaj Sada*)
- Derangement of temperament with involvement of substance (*Sue Mizaj Maddi*)

Sue-MizajSada: due to this cause development of sciatica is very rare. If it happens, the pain will be mild, without any sign of inflammation.

Sue-Mizaj Maddi viz. *Damwi* (sanguineous), *Safrawi* (bilious), *Balghami* (phlegmatic) and *Saudawi* (melancholic)

Clinical Features according to affected morbid matter[26]

Sue-Mizaj Damwi: in this case pain is severe, and felt along the course of sciatic nerve.

Sue-Mizaj Safrawi: in *sue mizaj safrawi* the affected part becomes hot and tender.

Sue-Mizaj Balghami: in this case no inflammatory signs are found. Usually there is no change in colour of the affected part, but sometimes it may become dusky in colour. Although the inflammation is mild, the pain is continuously present.

Sue-Mizaj Saudawi: in case of *sue mizaj saudawi* it is difficult to treat, although the inflammation and tenderness are mild.

There are more or less same description as mentioned above about the predisposing factors and the etiopathology of *Irq-un-Nasa* in the Kamil-us-Sana and Zakhira Khwarzam Shahi.[28,35]

CONCLUSION

Going through the literature of Unani medicine and Conventional medicine, it may be concluded that Sciatica was considered as a disease of Hip joint by both system of medicine; later when its clinical features got proper understanding, it was proposed as a disease of nerve. There are many pathological conditions that compress the sciatic nerve root, leading to inflammation and appearance of symptom. However, in Unani medicine, *Irq-un-Nasa* is the name of the specific nerve, as well as the disease itself, but most of the Unani scholars mentioned *Irq-un-Nasa* is a subtype of *Wajaul Mafasil*'. Finally at this moment Sciatica and *Irq-un-Nasa* is accepted as a disease of nerve, therefore diagnosed and treated accordingly.

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