

Frequency of Sciatica in Women after Normal Vaginal Delivery in Lithotomy Position

JAWAD HUSSAIN¹, MUHAMMAD SAQIB², NADIA KHAN³, SOHAIL KHAN⁴, FAWAD JAN⁵, MUHAMMAD SHAHID IQBAL⁶

¹Assistant Professor Neurology department Ayub Teaching Hospital, Abbottabad

²Senior Registrar Neurology department Ayub Teaching Hospital, Abbottabad

³Assistant Professor Gynaecology Jinnah Hospital, Abbottabad

⁴Assistant Professor Neurology department Rehman Medical Institute, Peshawar

⁵Assistant Professor Neurology department Gajju Khan Medical College, Swabi

⁶Assistant Professor Neurology department Rehman Medical Institute Hayatabad, Peshawar

Corresponding Author: Dr. Jawad Hussain, E-mail: drjawadhussain@yahoo.com, Cell No. +923329238320

ABSTRACT

Background and aim; Reflex changes, distal motor, and sensory involvement are the primary manifestations of secondary sciatica. Sciatica can be diagnosed with a dural mobility test due to pain sensitivity of dura nerve roots and their sleeves. The present study aimed to determine the frequency of sciatica in women after normal vaginal delivery in the lithotomy positions.

Materials and Methods: This cross-sectional study was carried out on 56 pregnant women with sciatica from March 2020 to February 2021 at Neurology and Gynaecology departments of Ayub Teaching Hospital, Abbottabad. A conventional sampling technique was used for sample and data collection. Ethical approval and consent were taken from all the individuals who met the inclusive criteria. All the pregnant women of age 25-45 years old with multigravida, primigravidas and neuropathy were enrolled in this study. All the women below or above 325-45 years and who had trauma and surgical intervention before conception were excluded. Symptom-based proforma was used for demographic and baseline characterization. SPSS version 20 was used for statistical data analysis.

Results: According to the data of 56 multigravida pregnant women, sciatic nerve compression, and involvement during pregnancy in multigravida women. The mean age of all the women was 35.6 ± 5.73 with an age range between 25 years and 45 years. Sciatica mostly occurs in pregnancy 3rd trimester. The muscles weakness, mild function loss, increased weight, bad posture, and poor economic status are sciatica complications. The prevalence of mild muscle weakness, moderate weakness, and severe weakness were 23 (41%), 25 (44.72%) and 8 (14.28%) respectively. The mild function loss or weakness was 39 (70.51%) while moderate muscle weakness was 17 (29.49%).

Conclusion: The present study found that in pregnant multigravida women, the commonly involved nerves are the sciatic nerve and median. Compression neuropathies are common in the third trimester of pregnancy. Compression neuropathies are caused by an increase in weight during pregnancy (above 55 kg), a low socioeconomic status, and poor posture.

Keywords: Compression neuropathies, Sciatica, Multigravida

INTRODUCTION

Reflex changes, distal motor, and sensory involvement are the primary manifestations of secondary sciatica. Sciatica can be diagnosed with a dural mobility test due to pain sensitivity of dura nerve roots and their sleeves. Sciatica is a compressed nerve root presented with reflex changes, sensory involvement, and defined distal motor. The dural nerve roots are sensitive to the pain along with their sleeves. Sciatica diagnosis can be assisted by the dural mobility test [1, 2]. Sciatica with lesions mostly caused by disc prolapse in L4-L5 and L5-S1 segments [3]. Sciatica is a focal lesion of nerve formed when continual pressure is applied either internal or external to the localized part of the nerve caused by differential pressure [4]. This differential pressure exists on nerve either portion. Sciatica during pregnancy is the common compression of nerve due to fetus weight [5]. Neuropathy compression is caused by child weight, increased tissue circulating gradient, hormonal changes, posture, and fluid retention [6]. The six different symptoms of sciatica were suggested by various researchers. These symptoms are atrophy or weakness, Phalen's sign, two-point discrimination, numbness and tingling, Tinel's sign, and nocturnal sign.

Carpal tunnel syndrome in pregnant women is caused by musculoskeletal changes, hormones fluctuation, and fluid shift [7]. The prevalence of sciatica is higher (41%) in third-trimester pregnancy due to immunosuppression and extracellular fluid content among women. These two suffer women from Bell's palsy because of pressure and compression on the vena cava, aorta, and nerve roots [8]. It also radiates the pregnant women's legs due to neurovascular structure and faulty posture passes through syndrome occurring in the space of thoracic and thoracic outlet [9]. The nerve palpation, passive moment's analysis, active analysis, peripheral nerve sensitization, and provocation test of the peripheral nerve are the compressed neuropathy in physical therapist assessment. The previous studies suggested that the post-partum period and neuropathy are the common causes of nerve compression during pregnancy and childbirth [10]. Complications after delivery could be in the form of several types of neuropathy. Sciatica among them is relatively a rare neuropathy [11]. A number of studies reported sciatic neuropathy after cesarean section. However, rare studies focused on neuropathy after normal deliveries. Taking into the increasing risks and cases of sciatica during pregnancy

in clinical practice, the present study was conducted on sciatica during pregnancy. This study mainly focused to evaluate the frequency of sciatica and neuropathy cases among pregnant women.

METHODS

This cross-sectional study was carried out on 56 pregnant women with sciatica at Neurology and Gynaecology departments of Ayub Teaching Hospital, Abbottabad during the period from March 2020 to February 2021. A conventional sampling technique was used for sample and data collection. Ethical approval and consent were taken from all the individuals who met the inclusion criteria. All the pregnant women of age 25-45 years old with multigravida, primigravidas and neuropathy were enrolled in this study. All the women below or above 325-45 years and who had trauma and surgical intervention before conception were excluded. Symptom-based proforma was used for demographic and baseline characterization. All the individual women who delivered babies through normal vaginal delivery one month prior and visited the hospital with lower extremity weakness complaints were enrolled. The 38 + 5 gestational weeks under epidural anesthesia were delivered in 6-hours duration. The delivery took place under epidural anesthesia for about 6 hours at a gestational age of 38 + 5 weeks. There were no dystocia or perinatal complications. The primiparous woman had previously been healthy except for a history of gestational diabetes. All the patients complained of the lower half thigh and posterior leg tingling sensations. Spinal nerve injuries patients were eliminated through electromyography (EMG) and nerve conduction study (NCS) during epidural anesthesia.

Lower extremity weakness (left ankle plantar flexor MRC grade III) and left posterior sole and the calf were revealed on physical examination. A significant abnormality of the lumbosacral spinal was revealed through simple radiography and MRI. The left sciatic neuropathy was resulted based on 6 weeks post dated EMG and NCS. Mild to moderate axonal involvement with biceps muscles femoris was reported to the branch proximal. A pelvic MRI was done to onset the symptoms after seven weeks. Based on these findings, all the patients were diagnosed with left sciatica and follow-up showed complete recovery of left sciatica neuropathy. The questionnaire was used for data collection from each participant. Statistical analysis was carried out through SPSS version 20. Frequency and percentage were calculated for categorical variables while the mean and standard deviation was expressed for continuous variables.

RESULTS

According to the data of 56 multigravida pregnant women, sciatic nerve compression, and involvement during pregnancy in multigravida women. The mean age of all the women was 35.6 ± 5.73 with an age range between 25 years and 45 years. Sciatica mostly occurs in pregnancy 3rd trimester. The muscles weakness, mild function loss, increased weight, bad posture, and poor economic status are sciatica complications. The prevalence of mild muscle weakness, moderate weakness, and severe weakness were 23 (41%), 25 (44.72%) and 8 (14.28%) respectively.

The mild function loss or weakness was 39 (70.51%) while moderate muscle weakness was 17 (29.49%). Figure-1 demonstrate the prevalence of mild, moderate and severe weakness I sciatica.

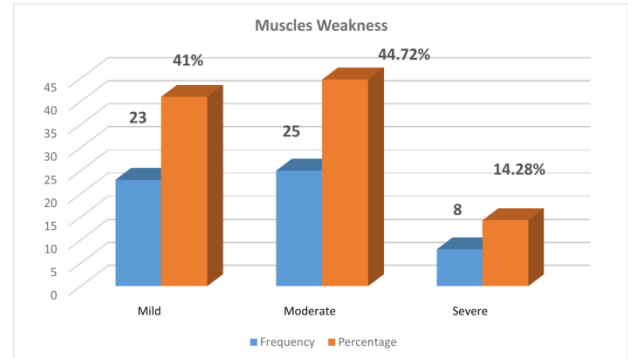


Figure-1 Prevalence of Mild, Moderate and Severe weakness

The prevalence of functional loss was 40 (71.4%) mild, 16 (28.6%) moderate and 0 (0%) severe as shown in Figure 2. Table-1 demonstrate the frequency of sciatica in pregnant women of 1st, 2nd and 3rd trimester.

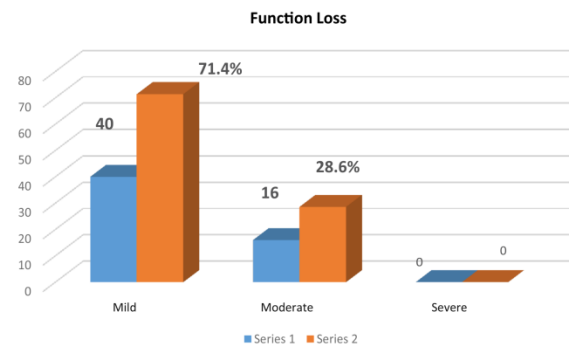


Figure-2 Prevalence of function loss with sciatica

Table-1. Frequency of pregnancy trimester (1, 2, 3) in sciatica women.

Trimester of Pregnancy	Frequency n (%)
1 st	2 (3.6)
2 nd	26 (46.4)
3 rd	28 (50)
Total	56 (100)

Table-2. Frequency of sciatica symptoms involvement in pregnant women.

Nerve Contribution	Yes n (%)	No n (%)	Total n (%)
Facial nerve	10 (17.9)	46 (82.1)	56 (100)
Sciatic nerve	25 (44.6)	31 (55.4)	56 (100)
Thoracic syndrome	13 (23.2)	43 (76.8)	56 (100)
Median nerve	24 (42.9)	32 (57.1)	56 (100)
Other nerve	16 (28.6)	40 (71.4)	56 (100)

The prevalence of facial nerve involvement and no involvement during pregnancy was 10 (17.9%) and 46 (82.1%) respectively. The sciatic nerve involvement and no involvement was 25 (44.6%) and 31 (55.4%) respectively in pregnant women. Similarly, thoracic outlet syndrome was persisted in 13 (23.2%) and no syndrome 43

(76.8%). Median nerve involvement and no involvements were 24 (42.9%) and 32 (57.1%) respectively. Other symptoms involvement and no involvement was found 16 (28.6%) and 40 (71.4%) respectively as shown in Table 2.

Pregnant women have a different prevalence of sensory symptoms and signs. The frequency of pain pares thesis, numbness and total sensory loss were 73.9%, 51.5%, 17.2%, and 5.81% respectively as shown in Table 3.

Table-3. Prevalence of sensory symptoms distributions among pregnant women (n=56)

Sensory Symptoms	Yes n (%)	No n (%)	Total n (%)
Pain	41 (73.9)	15 (26.1)	56 (100)
Pares thesis	29 (51.5)	27 (49.5)	56 (100)
Numbness	10 (17.2)	46 (82.8)	56 (100)
Sensory loss	3 (5.81)	53 (94.19)	56 (100)

DISCUSSION

Lateral femoral cutaneous neuropathy, lumbosacral plexopathy, and femoral neuropathy were included in common postpartum palsies. Regional anesthesia, cesarean section, lateral tilt position, large infant, nulliparity, short maternal stature and prolonged labor were the common risk factors. The mechanism of sciatic is relatively rare and its injuries remain unknown [12]. Postpartum sciatic neuropathy was found in rare cases and features were analyzed [13-15]. Another study found multiparous cases with epidural anesthesia in cesarean section delivery mode [16]. In a few cases, a drop in blood pressure was noted. The most prevalent risk factors were nulliparity and epidural anesthesia.

The vaginal deliveries nerve damage might be caused by various risk factors such as mother inappropriate position, fetal head pressure, improper vacuum, forceps operation [17]. The patient's posture might not be appropriately changed due to sensory block under labor anesthesia which causes nerve damages. Spine lithotomy position was followed without dystocia for 6 hours during deliveries. Therefore, the sciatic nerve injury mechanism was entrapped to prolong nerve damages due to an unsuitable lithotomy position. The current study investigated various factors such as frequency of sciatica, neuropathy compression in pregnant women, trimester of pregnancy, nerve involvement, and physiotherapy management of compressed nerves in women. A number of compressed nerve symptoms such as paresthesia, numbness, limited activities, and pain. The compressed nerve might be caused by weight gain and posture [18]. Mostly the symptoms appear in the nerve involvement area. Nerve roots experience pressure due to pregnancy fluid content increase. The multigravida women were studied with pregnancy challenges. The sciatic nerve was involved in 16 lumbar or back leg symptoms appearance.

The current study findings matched another study that reported that the postpartum period and neuropathies during pregnancy are the common factors for sciatica and neuropathy compression around childbirth and pregnancy [19]. Carpal tunnel syndrome, Bell's palsy, and lower neuropathy extremity are the common neuropathies. It also

found the frequency of compression neuropathies in the pregnancy trimester. Another study found carpal tunnel syndrome bilateral symptoms in 3rd-trimester pregnancy [20]. While others reported bilateral facial paralysis being the frequent in the 3rd trimester of pregnancy and early puerperium. Bad posture, weight gain, and water retention were the main causes of nerve compression. Another study also reported weight, water retention, and bad posture were the contributing factors for nerve compression.

CONCLUSION

The present study found that in pregnant multigravida women, the commonly involved nerves are the sciatic nerve and median. Compression neuropathies are common in the third trimester of pregnancy. Compression neuropathies are caused by an increase in weight during pregnancy (above 55 kg), a low socioeconomic status, and poor posture.

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