

Original Article

Frequency of Meralgia Paresthetica during Third Trimester of Pregnancy: A Cross-sectional Study

Nimrah Tahir¹, Muhammad Nouman Tabssum², Raheel Munawar³, Sumbal Salik², Alvina Sajid³, Hanan Azfar⁴

¹Ghurki Trust and Teaching Hospital, Lahore, Pakistan. ²Lahore College of Physical Therapy, Lahore Medical and Dental College, Lahore, Pakistan. ³Johar Institute of Professional Studies, Lahore, Pakistan. ⁴Bhatti Hospital, Gujranwala, Pakistan.

ABSTRACT

Background: Meralgia paresthetica is one of the most common painful mononeuropathy among pregnant females, characterized by pain sensation on the anterolateral aspect of the thigh. It is the entrapment of lateral femoral cutaneous nerve, which causes a tingling and burning type sensation in the area undersupplied by this nerve. **Objective:** To determine the frequency of meralgia paresthetica during the third trimester of pregnancy. **Methods:** This descriptive cross-sectional study was conducted at Gurkhi Trust Teaching Hospital and Jinnah Hospital Lahore between June to December 2020 after receiving permission from the Ethics Committee of Lahore College of Physical Therapy. The sample size of 63 patients was calculated through the WHO calculator. These patients were enrolled in the study through non-probability convenient sampling. Females who were in their third trimester and had a complaint of discomfort around the hip and thigh were included in the study. Furthermore, females who reported a history of lumbar spine and groin surgery, chronic back pain, traumatic injury of hip joint, fracture, and dislocation were excluded from the study. A written and verbal consent was taken from each patient and a detailed questionnaire was filled. The questionnaire included demographic variables like age and body mass index, neuropathic pain scale and pelvic compression test. Data was analyzed by using SPSS version 26 and results were described in frequency and percentage. **Results:** Out of 63 participants total discriminant function scale was in the neuropathic range in 14(22.2%) participants. The total score was in the neuropathic range in 15(76.3%) and non-neuropathic range in 48(76.2%) participants. Out of 63 participants pelvic compression test was positive in 15(23.8%) and negative in 48(76.2%) participants. Overall results showed that out of 63 participants, 13 were those who had total discriminant function scale and total score in the neuropathic range along with a positive pelvic compression test showing the frequency of meralgia paresthetica to be 20.63% in pregnant females during their third trimester. **Conclusion:** This study concluded that the frequency of meralgia paresthetica is low in females during their third trimester of pregnancy.

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*Corresponding

Author: Sumbal Salik, Lahore Medical and Dental College, Lahore, Pakistan

Email: sumbalsalik1@gmail.com

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INTRODUCTION

Meralgia paresthetica (MP) is one of the most painful mononeuropathies also known previously by the name of Bernhardt-Roth syndrome or LFCN (lateral femoral cutaneous nerve) neuralgia.¹ It is defined as localized pain sensation on the anterolateral aspect of the thigh. Meralgia paresthetica is the entrapment of the femoral cutaneous nerve which causes tingling and burning type sensation in the area undersupply by this nerve.² Entrapment results in the damage of this nerve due to many different causes but the most common of them is entrapment at the level of the inguinal canal. Meralgia paresthetica is more common than it is considered in previous literature.³ Its incidence rate varies among different age groups but with increasing knowledge and understanding, diagnosis of meralgia paresthetica has increased.⁴ Meralgia paresthetica has no association with gender but typically it is more common among females. It has been most commonly seen in the fourth and fifth decades of life but can be present in any age group.⁵ Meralgia paresthetica is more common in obese and pregnant patients. Due to increasing intra-abdominal pressure in pregnancy, excessive pressure on the inguinal ligament results in symptoms like a burning sensation as seen in Meralgia Paresthetica.^{6,7} Symptoms vary from individual to individual as some patients have a burning pain sensation in the anterolateral aspect of the thigh or a feeling of numbness, coldness, muscle aches, buzzing or lightening pain in the area supplied by the nerve.⁸ It affects their physical activity and results in difficulty in carrying out their routine tasks. Prolonged standing or walking and tension from the inguinal ligament may present as one of the aggravating factors while Sitting results in relieving symptoms.^{8,9}

The MP is diagnosed through pinprick and light touch, approximately 10" x 6" oval area over the anterolateral thigh.⁶ Nerve conduction studies (NCS), Tinel's sign, pelvic compression test and LCNT nerve

block.^{10,11} Gooding et.al reported carpal tunnel syndrome and meralgia paresthetica are common neuropathies in pregnancy and can result in significant impairment. Accurate diagnosis is possible during pregnancy and can usually be accomplished with bedside neurologic tests.⁴ Similarly, Weng et al. frequency of developing MP was relatively even among women of all ages.⁵ Previous literature has focused on meralgia paresthetica during pregnancy but lack to specify the trimester. The current study was conducted to identify the frequency of meralgia paresthetica during the third trimester and helps women health care professionals in timely assessment and management of the condition particularly in the third trimester.

METHODS

This descriptive cross-sectional study was conducted at Gurkhi Trust Teaching Hospital and Jinnah Hospital Lahore between June to December 2020 after receiving permission from the Ethics Committee of Lahore College of Physical Therapy. The sample size of 63 patients was calculated through the WHO calculator. These patients were enrolled in the study through non-probability convenient sampling. Females who were in their third trimester and had a complaint of discomfort around the hip and thigh were included in the study. Furthermore, females who reported a history of lumbar spine and groin surgery, chronic back pain, traumatic injury of hip joint, fracture, and dislocation were excluded from the study. A written and verbal consent was taken from each patient and a detailed questionnaire was filled. The questionnaire included demographic variables like age and body mass index (BMI), neuropathic pain scale (NPS) and pelvic compression test. The NPS was designed to assess the distinct pain qualities associated with neuropathic pain. This discrimination was performed through Douleur Neuropathique 4 or Neuropathic Pain 4 questions in French (DN4) and Neuropathic Pain Questionnaire-Short form (NPQ). The DN4 is a 10-item simple

questionnaire on sensory descriptors and signs related to bedside sensory examination. Every 10 questions are easily answered by “yes” or “no” with 1 score for the positive item and a 0 score for the negative item. It has a predictive value of 86%, a sensitivity of 82.9%, and a specificity of 89.9%.¹²

The NPQ contains three items to help differentiate neuropathic pain patients from non-neuropathic pain patients. These included tingling pain, numbness, and increased pain due to touch. Each item was rated on a scale of 0 to 100, 0 being the least and 100 being the highest pain sensation. Each score is multiplied by its coefficient and then their sum is subtracted from a value of 1.302. A score greater than 0 then indicated neuropathic pain and lesser than 0 indicated non-neuropathic.¹² Pelvic compression test is a sensitive and specific test for MP, helping to distinguish it from lumbosacral radicular pain. The patient is side-lying with the uninvolved side on the examination table and downward pressure is applied and maintained for 45 seconds. A decrease in symptoms indicates a positive test. The pelvic compression test had a sensitivity of 95% and a specificity of 93.3% for this condition.¹³ Data was analyzed by using SPSS version 26 and results were described in frequency and percentage.

RESULTS

In this study, 63 participants were assessed by using NPS and pelvic compression tests as gold standard tests. The analysis of demographic variables was described in Table 1. The descriptive statistics showed that the age of participants was between minimum limits of 22 years and maximum limits of 38 years with a mean age of 30.13±4.23. Table 1 showed the BMI of participants was between the minimum limits of 22.08 and maximum limits of 32.16 with a mean BMI of 25.91±2.13. The results of the NPS were presented in frequency (percentage) in Table II. Out of 63 participants neuropathic pain, 4 questions in

French (DN4) were in the neuropathic range in 14 (22.2%) participants while the other 49 (77.8%) were in the non-neuropathic range.

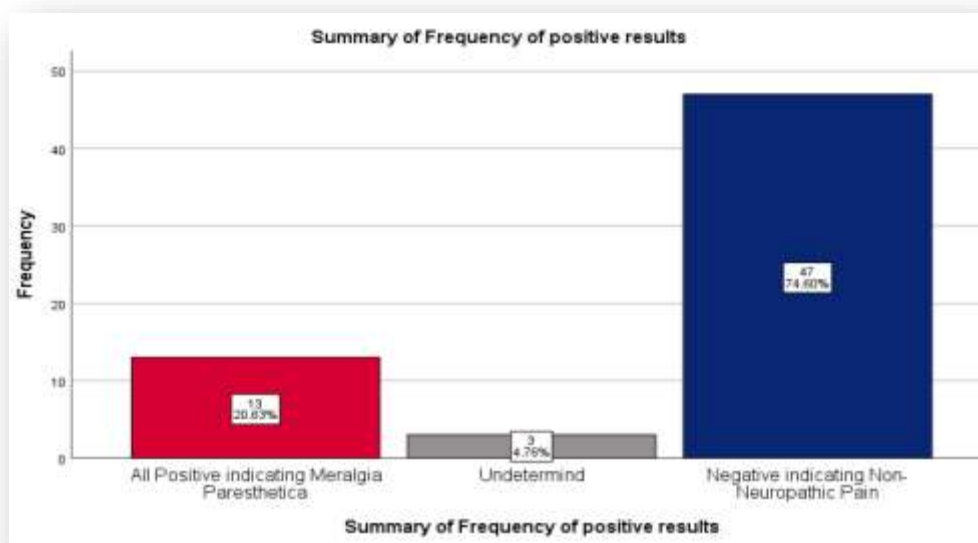
Table 1: Demographic Variables of Patients

Variables	Mean ± S.D	Mini-Max
Age	30.13 ± 4.23	22 - 38
BMI	25.99 ± 2.14	22.08 - 32.16

Table 2: Frequency of Neuropathic Pain Scale Scoring

Variable	Neuropathic Pain	Non-Neuropathic Pain
Neuropathic Pain 4 questions in French	14 (22.2%)	49 (77.8%)
Neuropathic Pain Questionnaire-Short form	15 (23.8%)	48 (76.2%)

Similarly, the neuropathic pain questionnaire-short form analysis was in the neuropathic range in 15 (23.8%) and non-neuropathic range in 48 (76.2%) participants. Out of 63 participants pelvic compression test was positive in 15 (23.8%) and negative in 48 (76.2%) participants. Pelvic compression test results were described in Figure I. Overall results showed that out of 63 participants, 13 were those who had total discriminant function scale (TDFS) and a total of 20 in the neuropathic range along with positive pelvic compression test showing the frequency of meralgia paresthetica to be 20.63% in pregnant females during their third trimester. Furthermore, 3 (4.8%) patients had an undetermined result of the pelvic compression test and 47 (74.6%) had a negative result in the determination of MP during the third trimester.

Figure 1: Bar Chart Showing Frequency of Pelvic Compression Test

DISCUSSION

The purpose of this cross-sectional study was to determine the prevalence of meralgia paresthetica in the third trimester of pregnancy. A review was performed in 2020 to see the existing literature diagnosis, treatment, and prognosis of carpal tunnel syndrome and MP, specifically looking at the implications during pregnancy. The study concluded that neuropathies are common in pregnancy and can result in significant impairment. Accurate diagnosis is possible during pregnancy and can usually be accomplished with bedside neurologic tests.⁴ In the current study patients with complaints of any neurological symptom in the lateral aspect of the thigh were included and the frequency of Meralgia Paresthetica is measured by using a neuropathic pain score scale and pelvic compression test as a gold standard. The current study showed that the frequency of MP is higher in pregnancy. Previously, van Slobbe et al. concluded that the overall incidence rate was 4.3 per 10,000 persons. The MP is more common in patients with carpal tunnel syndrome and is also related to pregnancy.¹⁴ In the current study, the frequency of meralgia paresthetica in pregnant females during their third trimester is 20.63%. Similarly, Rosier et al. reported that neuropathic disorders are less

common in pregnant females. However; the physiological changes during pregnancy led to the development of multiple lesions in the nerve and the most common neuropathies were focal neuropathies involving carpal tunnel syndrome, Bell's palsy, MP and Intercostal neuralgia.¹⁵

Cheatham et al. reported that MP remains a diagnostic challenge since it can mimic other common diagnoses. Understanding the literature surrounding the diagnosis and treatment of MP is essential for clinicians.⁸ In a study neuropathic pain score scale is used, first to differentiate between neuropathic and non-neuropathic pain and then a pelvic compression test was performed to confirm the diagnosis as it is the gold standard for the diagnosis of MP. Mondelli et al. and Ercan et al. described the relationship between MP and BMI was evaluated. The study concluded that high BMI was associated with MP and it may be related to increased pressure due to abdominal protrusion.^{16,17} Similarly Coffey et al. stated that increased BMI in obesity and especially in pregnancy leads to creating a sudden increased pressure on the LFCN that cause the entrapment of the nerve in the inguinal canal.⁶ In the current study, the majority of the patients have higher BMI.

Despite its uniqueness, the study had some limitations. Firstly, this study was conducted during COVID-19. Due to this pandemic and strict lockdown nationwide, it got difficult to collect data from multiple settings. Therefore, it is necessary to conduct a study within a restriction-free environment for better analysis of the study. Secondly, the sample was collected from only two hospitals. Therefore, it is recommended to conduct a study for a longer duration in multi-center medical setups for the availability of more participants. Fourthly, the study did not find any significant association of MP with other risk factors of pregnant women excluding BMI, it is highly recommended to analyze the association of neuropathic pain with any risk factor that causes the pain in pregnant women during their third trimester. Foreshore, future studies should be on other determinants (CTS, diabetes mellitus, osteoarthritis of the hip) of MP. Future studies could be interventional to see the effects of physical therapy in the treatment of MP.

CONCLUSION

This study concluded that the frequency of meralgia paresthetica is having a low prevalence in pregnant females during their third trimester of pregnancy.

DECLARATIONS

Consent to participate: Written consent had been taken from patients. All methods were performed following the relevant guidelines and regulations.

Availability of data and materials: Data will be available on request. The corresponding author will submit all dataset files.

Competing interests: None

Funding: No funding source is involved.

Authors' contributions: All authors read and approved the final manuscript.

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