



Locked Knee Caused by Heterotopic Ossifications of the Greater Trochanter Compressing the Sciatic Nerve

Markus Beck^{1*}, Stephan Regenbogen¹, Jan Friederichs¹, Fabian Stuby¹ and Andreas Thannheimer²

¹Department of Trauma Surgery, BG Unfallklinik Murnau, Germany

²Department of Trauma Surgery, Klinikum Garmisch Partenkirchen, Germany

Abstract

We present a case of a 41 year old woman who presented to the ED after a yoga exercise where she performed extensive stretching of the hamstring muscles resulting in the inability to extend her knee. Furthermore she showed symptoms of perineal nerve palsy of the same leg. In the diagnostic course it was found that the sciatic nerve was compressed by a Heterotopic Ossification (HO) of the greater trochanter.

The stretching lead to a dislocation of the nerve around the HO, which prevented the nerve to slip back in its anatomical position.

Operation was performed and the neurological symptoms diminished.

Keywords: Sciatic nerve compression; Peroneus nerve palsy; Heterotopic ossification

Case Presentation

A 41 year old patient presented to our Emergency Department (ED) after performing a stretching technique derived from Yoga with the name „Ardha Paschimottanasana“. During this exercise one of the legs is bend in the hip and knee joint in a sitting position so that the foot is placed on the medial aspects of the contralateral thigh. Next step is to bend the upper body above the thigh which leads to stretching of the hamstring muscles.

While performing this exercise the patient felt a sudden pain in her posterior thigh which resulted in the inability to extend her knee. The knee was locked in 70° flexion.

In the past she has been treated due to algophobia (fear of pain) and she was diagnosed with a somatic disorder. Other than that she repeatedly suffered from muscle cramps in the posterior thigh. No further relevant past medical history was present.

On admission in the ED 3 days later she showed no pain in a relaxed position but still was not able to extend her knee. A passive movement of the knee was not possible because the patient felt uncomfortable and reported dysesthesia of her lower thigh and foot. A meniscal tear was assumed and a Magnetic Resonance Imaging (MRI)-scan was performed. There were no pathologic findings.

The patient was ambulating on crutches and Continuous Passive Motion (CPM) was applied. While walking her then expressed mild symptoms of sensory perineal nerve palsy.

OPEN ACCESS

*Correspondence:

Markus Beck, Department of Trauma Surgery, BG Unfallklinik Murnau, Professor-Küntschers-Str. 882418, Murnau, Deutschland, Germany, Tel: 08841/48 46-0;

E-mail: markus.beck@bgu-murnau.de

Received Date: 05 Jul 2022

Accepted Date: 18 Jul 2022

Published Date: 22 Jul 2022

Citation:

Beck M, Regenbogen S, Friederichs J, Stuby F, Thannheimer A. Locked Knee Caused by Heterotopic Ossifications of the Greater Trochanter Compressing the Sciatic Nerve. *Clin Case Rep Int*. 2022; 6: 1363.

Copyright © 2022 Markus Beck. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.



Figure 1: X-Ray: Lauenstein view of the right hip shows the ossification deriving from the greater trochanter.

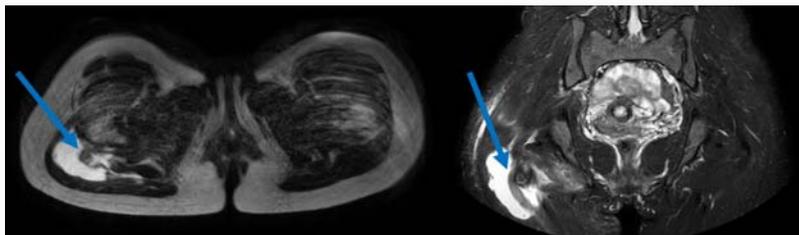


Figure 2: MRI: MRI scans in axial and ap show the elongated sciatic nerve (blue arrows) with the surrounding hematoma/fluid collection.

A neurological examination was performed but did not show typical symptoms that could be associated with a nerve root injury or a peripheral injury of the perineal nerve. Knowing that the patient had a somatizing disorder (alophobia). The neurologist assumed an interference of her symptoms.

However an MRI-scan of the lumbar spine was obtained to rule out nerve root injury or compression, it also showed no significant pathologies. To prevent ongoing lack of motion of her knee joint it was extended under mild analgosedation. The knee showed free Range of Motion (ROM) under sedation. A knee brace was applied to keep the knee in an extended position. The following day she presented with a foot drop.

Once more we asked the neurologist for a detailed examination including a Nerve Conduction Study (NCS). The NCS showed pathologic signals indicating an acute sciatic nerve injury.

Mean while the patient mentioned that she had been diagnosed with a bony tumor in her proximal right femur. An MRI-scan of that area was obtained externally just a few weeks before. The MRI images were not available but the results were reported negative regarding any compression of the sciatic nerve.

The X-ray showed a heterotopic ossification of approx. 16 mm × 13 mm emerging from the posterior aspect of the greater trochanter (Figure 1).

An MRI-scan of the proximal femur showed significant swelling of the sciatic nerve and a dislocation from its anatomical position. The nerve was strained around the ossification and showed signs of acute hemorrhage.

The patient then was operated *via* Kocher-Langenbeck approach and the ossification was removed. Intraoperatively the nerve presented with elongation and hematoma but its continuity was preserved.

Once the ossification was resected the nerve slipped back into its anatomical position. It then was tested to remain in place while moving the hip and knee joint (Figure 2, 3).

A few days after the operation the sensory function of the nerve started to recover mean while the drop foot remained.

The patient was discharged eight days later to a rehabilitation facility.

Discussion

A rare case of a locked knee and foot drop due to sciatic nerve compression is presented.

Peroneus nerve palsy is common in trauma patients often caused by proximal fibular fractures or compartment syndrome.

However compression syndrome the sciatic nerve can also lead

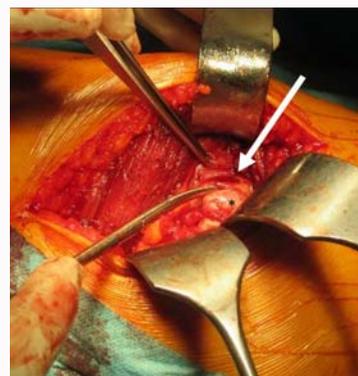


Figure 3: OP situs (*) marks the bony tumor with the elongated nerve around it (white arrow), there is a remarkable hematoma in the nerve itself.

to this entity.

These symptoms have different reasons. There are numerous case reports about compression syndromes caused by veins, pseudoaneurysms of the gluteal artery, heterotopic ossifications or hematoma following surgery [1-10].

The number of patients suffering from sciatic nerve palsy is unknown since most of the literatures are case reports only.

Correct interpretation of this patient's symptoms was difficult due to a known somatic disorder. She was sometimes comfortable with her situation and did not express any signs of severe pain, while few minutes later she was crying in bed due to unbearable pain not responding to any medication. As complicating factor she was diagnosed with a bony tumor "possibly resulting from a fall a few years earlier. Unfortunately we did not get this information on admission. Retrospectively the patient reported periodic cramps and pain in her posterior thigh ongoing for several months. An MRI-scan of that area was performed externally shortly before was reported to show no signs of sciatic nerve compression at that time.

This might have been one of the reasons why we first did not focus on a possible nerve injury but rather on the locked knee and the lower spine. Therefore the MRI of the pelvis and thigh was the last of three MRIs performed.

The symptoms were inconclusive and only the nerve conduction study objectified the injury of the sciatic nerve. Once it was diagnosed operation was performed immediately to decompress the nerve and to prevent long term symptoms [11].

Conclusion

In cases with nerve palsy especially in young and healthy patients a thorough neurological examination and a nerve conduction study should be performed as soon as possible to differentiate between

central or peripheral causes. If a peripheral cause is assumed an MRI-scan of the nerve from its origin to its end is advisable not to over look a mechanical compression of the nerve in an uncommon location.

References

1. Abayev B, Ha E, Cruise C. A sciatic nerve lesion secondary to compression by a heterotopic ossification in the hip and thigh region--an electrodiagnostic approach. *Neurologist*. 2005;11(3):184-6.
2. Di Martino A, Papapietro N, Denaro V. Sciatic nerve compression by a gluteal vein varicosity. *Spine J*. 2014;14(8):1797.
3. Goddyn C, Passuti N, Leconte R, Redon H, Gouin F. Sciatic nerve compression related to ossification of the sacrospinous ligament secondary to pelvic balance abnormalities. *Orthop Traumatol Surg Res*. 2009;95(8):645-8.
4. Hu MH, Wu KW, Jian YM, Wang CT, Wu IH, Yang SH. Vascular compression syndrome of sciatic nerve caused by gluteal varicosities. *Ann Vasc Surg*. 2010;24(8):1134.e1-4.
5. Izgi E, Ayyildiz V, Ogul H. Inferior gluteal vein varices as an unusual cause of sciatic nerve compression syndrome: A case report and review of the literature. *Neurochirurgie*. 2020;66(2):133-4.
6. Macdonald J, McMahon SE, O'Longain D, Acton JD. Delayed sciatic nerve compression following hamstring injury. *Eur J Orthop Surg Traumatol*. 2018;28(2):305-8.
7. Mert M, Oztürkmen Y, Unkar EA, Erdoğan S, Uzümcügil O. Sciatic nerve compression by an extrapelvic cyst secondary to wear debris after a cementless total hip arthroplasty: A case report and literature review. *Int J Surg Case Rep*. 2013;4(10):805-8.
8. Poage C, Roth C, Scott B. Peroneal nerve palsy: Evaluation and management. *J Am Acad Orthop Surg*. 2016;24(1):1-10.
9. Salga M, Jourdan C, Durand MC, Hangard C, Denormandie P, Carlier RY, et al. Sciatic nerve compression by neurogenic heterotopic ossification: Use of CT to determine surgical indications. *Skeletal Radio*. 2015;44(2):233-40.
10. Waite J, Marks P, Young D. Acute sciatic nerve palsy caused by a polyethylene granuloma arising from a well-fixed total knee arthroplasty. *J Arthroplasty*. 2006;21(6):907-10.
11. Zafarghandi MR, Akhlaghi H, Shojaiefard A, Farshidfar F. Sciatic nerve compression resulting from posttraumatic pseudoaneurysm of the superior gluteal artery: A case report and literature review. *J Trauma*. 2009;66(6):1731-4.