

Sildenafil-induced spinal cord infarction: A case report

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Abstract

Spinal cord infarction is a rare condition, accounting for only a small percentage of strokes. It can be classified into cervical and thoracolumbar infarctions, with various factors contributing to its occurrence. Sildenafil, a phosphodiesterase type 5 inhibitor commonly used for erectile dysfunction, has been associated with cardiovascular side effects, including transient hypotension. In this case report, we present the unusual occurrence of spinal cord infarction in a 65-year-old man who had self-administered high doses of sildenafil without a doctor's prescription. The patient experienced severe radicular pain in the lumbar region and subsequent weakness in the lower limbs. Evaluation revealed an anterior spinal cord infarction in the thoracic region, confirmed by MRI imaging. After excluding other potential causes, it was concluded that the intake of sildenafil likely led to systemic hypotension, resulting in spinal cord infarction. This case highlights the importance of considering sildenafil as a possible contributor to spinal cord infarction, particularly when used at high doses. Further studies are needed to better understand the relationship between sildenafil and vascular complications, including spinal cord infarction.

Introduction

Spinal cord infarction, which is not common and constitutes 0.3-1% of strokes, is specifically classified into two categories: Cervical & Thoracolumbar. Various factors can cause spinal cord infarction, including Atherosclerosis, Arterial Occlusion, Fibrocartilaginous Embolism, surgery, and Cervical Herniation of the spinal cord (1). Vascular and Venous abnormalities, Aortic Dissection and Aortic Aneurysm, Cardiac Arrest, and Cryptogenic Transient Ischemic Attack are also relatively common causes of spinal cord infarction (2).

Sildenafil is an inhibitor of cGMP-specific phosphodiesterase type 5 that hinders the hydrolysis of cGMP in the Corpora Cavernosa, thereby increasing the level of cGMP during sexual stimulation. This increased level of cGMP then causes vasodilation of the smooth muscles (3-4).

The reported cardiovascular side effects of Sildenafil Citrate are usually minor. The Vasodilation mechanism leads to a minimal decrease in systolic and diastolic blood pressure (3-8). Sildenafil usually causes a transient decrease of 5 to 6 mm/Hg in diastolic blood pressure and a decrease of 8 to 10 mm/Hg in Systolic Blood Pressure. This temporary hypotension usually returns to the normal baseline after 4 hours. In some patients, after taking sildenafil, symptoms such as Ischemic Optic Neuritis, Transient Ischemic attacks, and Transient Global Amnesia have been reported. In addition to Convulsions, Subarachnoid and Intracerebral hemorrhage have been noted after taking these pills (9-10).

This is a rare report of a patient with spinal cord infarction after high dose administration of sildenafil citrate (Viagra).

Case presentation

The patient is a 65-year-old man without any specific disease who had started taking Sildenafil tablets (100 mg) every 8 hours for 2 weeks before admission without a doctor's prescription. Since the morning before the admission, the patient has experienced severe radicular pain in the Lumbar region which was associated with weakness of the lower limbs after about an hour.

Upon admission to the hospital, the muscle strength of the Upper Limbs was 5/5 and in the Lower Limbs was 3/5. The Deep Tendon Reflexes were reduced by 1/2 and the Plantar Reflex was absent. He also complained of Urinary Retention. The patient had no history of recent vaccination or febrile illness in the past few months. He also had no family history of having special diseases or taking drugs or alcohol.

In the examination, the patient had sensory level in T8 region and a normal sense of position and vibration. The initial laboratory evaluations including CBC, ESR, CRP, Electrocytes, Viral markers, Vasculitis and NMO were normal. No Aortic Dissection was observed in chest CT Angiography, and the patient had no heart problems too. MRI imaging of Cervical and Thoracic Spine with DWI showed abnormal increase signal intensity in the Anterior spinal cord beginning from T8 and extending to L1 that these findings were consistent with Acute Cord infarction (Fig. 1).

Discussion

Cervical spinal cord infarction is very rare due to the rich anastomotic arterial network (3–4). In the Upper Cervical Spine, the Cord blood is supplied by the Vertebral Arteries and Posterior Inferior Cerebellar Arteries (5–6). The Thoracic region, having a lower blood supply than the Cervical and Lumbar regions, is more susceptible to Ischemia due to a decrease in Blood Pressure (7). After eliminating other causes as the source of the patient's spinal cord infarction (8–9), we concluded that the patient's symptoms are likely due to the intake of Sildenafil Citrate tablets. This drug has probably led to systemic Hypotension. Hypotension is the main cause of spinal cord infarction in the Cervical, Upper and Lower Thoracic regions (10–14).

Conclusion

The intake of Sildenafil can potentially cause Hypotension, leading to Ischemia in various tissues such as the Brain and optic nerve. The main possibility is that taking Sildenafil, especially at high doses, may significantly cause spinal cord infarction. However, it is generally recommended to conduct further studies in this field.

Declarations

Originality:

This manuscript is an original work that has not been published or submitted elsewhere.

Authorship:

All authors have made substantial contributions to the conception, design, acquisition, analysis, or interpretation of data for the work. All authors have drafted or revised the work critically for important intellectual content. All authors have approved the final version of the manuscript and agree to be accountable for all aspects of the work.

The Signs are NOT APPLICABLE

Ethics:

This work has been conducted in accordance with the ethical standards of the responsible committee on human experimentation and with the Helsinki Declaration of 1975, as revised in 2013. Informed consent was obtained from the patient for the publication of this case report and any accompanying images. (IR.SUMS.MED.REC.1402.469)

Competing interests:

The authors declare that the competing interests do not compromise the scientific rigor or ethical standards of the research or its findings. The authors have read and adhered to the journal's policy on competing interests.

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Author's contribution:

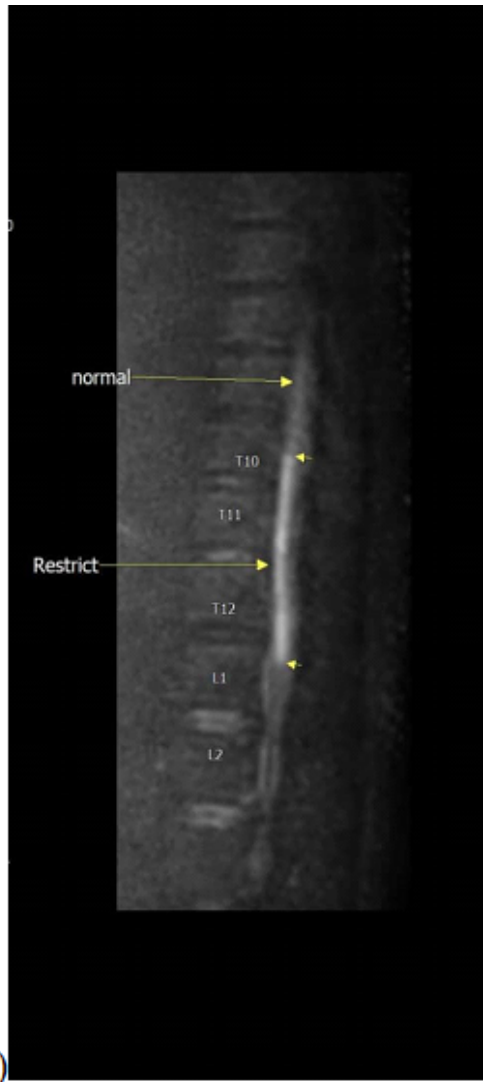
Mohsen Gholami and Maryam Poursadeghfard conceived and designed the study, M. Gholami followed the patient and was the first person who examined him and prescribed. Maryam Fard wrote and revised the manuscript. Maryam Poursadgfar provided ethical guidance and supervised the study and contributed to the data interpretation. All authors read and approved the final manuscript.

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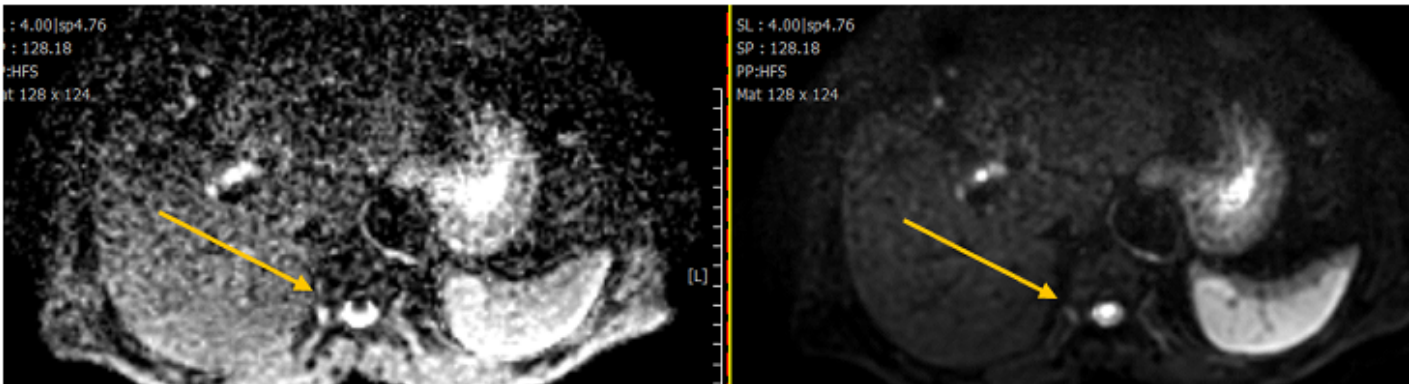
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Figures



(A)



(B)

Figure 1

(A): Midsagittal T2 STIR image shows high signal intensity (arrow) in the lower of the Thoracic spinal cord predominantly in its anterior aspect. (B): Axial DWI shows high signal intensity (arrow) in the spinal cord, which corresponds to low signal intensity (arrow) in the same location on the apparent diffusion coefficient (ADC) map.