

Low-dose warfarin combined with low-dose aspirin associated Spinal intramedullary hemorrhage: a case report

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Case report

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Abstract

Background:

Spinal intramedullary hemorrhage is a rare event, the disease still has not received enough attention and many characteristics of the disease have not been sufficiently explored. Due to its rarity, it can easily be forgotten or misdiagnosed.

Case presentation:

We report a case of 72-year-old male patient with a medical history of coronary heart disease, atrial fibrillation (AF), hypertension, cervical spondylosis, carotid and vertebral artery stenosis with low-dose anticoagulation combined with low-dose antiplatelet therapy who suffered from sudden posterior neck and back pain for 3 hours visited our emergency department (ED). The International Normalization Ratio (INR) were controlled well, and other laboratory tests were within normal limits or only slightly abnormal. However, the patient was diagnosed with spinal intramedullary hemorrhage and died finally.

Conclusion:

Anticoagulation combined with antiplatelet-associated rare and life-threatening complications should be paid more attention.

Introduction

Spinal intramedullary hemorrhage is a rare myelopathy, trauma and vascular malformations are the most common causes[1]. Anticoagulation-associated spinal intramedullary hemorrhage have been reported in few cases, but these patients have poorly controlled INR values[2-6]; furthermore, a few cases of antiplatelet-associated spinal epidural hematoma have been described[7-10], while antiplatelet-related spinal intramedullary hemorrhage has never been reported. Herein, we present a case with long-term use of low-dose warfarin combined with low-dose aspirin-associated fatal spinal intramedullary hemorrhage, despite the patient's platelet count was normal and his INR was well controlled, results in a poor prognosis.

Case Report

A 72-year-old male patient who suffered from sudden posterior neck and back pain for 3 hours visited our ED. The patient had a history of coronary heart disease, AF, hypertension, cervical spondylosis, carotid and vertebral artery stenosis with oral warfarin (0.625mg per day), aspirin (75mg per day), amlodipine (5mg per day) and celecoxib occasionally. Warfarin therapy that results in an INR is 2.62 and other laboratory tests were in the normal range or only slightly abnormal. Cervical and thoracic spine x-rays just showed disc herniation. Ruled out acute myocardial infarction, acute aortic dissection, then the patient was diagnosed with deteriorated cervical spondylosis and treated with symptomatic treatment. However, 20 hours later, he revisited the ED complaining of dysuria, lower limbs weakness and reduced touch

sensation. He underwent the insertion of an indwelling urinary catheter, from which more than 1000 mL of pale yellow-colored urine. The computed tomography (CT) scan of his head suggested only atrophy and chronic white matter ischemic changes. Whereas, the magnetic resonance imaging (MRI) of the cervical and thoracic spine revealed an ill-defined mass with marked high-signal intensity on T2-weighted images at C7–T1(Figure 1). The patient was diagnosed with a spinal intramedullary hemorrhage and was rapidly admitted to our neurological intensive care unit. Due to progressive clinical aggravation, the patient underwent a surgery to relieve pressure immediately together with fresh frozen plasma and vitamin K1. As for the cause of bleeding, vascular anomaly and tumor were ruled out under microscopy which were confirmed by pathological examination. Accordingly, the patient was diagnosed with low-dose warfarin combined with low-dose aspirin-associated intraspinal hematoma. Postoperative, unfortunately, the patient presented with diaphragmatic weakness and developed a pneumonia caused by multidrug-resistant *Klebsiella pneumoniae* and died from severe sepsis. Regrettably, the family refused an autopsy.

Discussion

With the growing number of elders, warfarin and aspirin are used increasingly for a wide variety of applications [11, 12]. Although Intracerebral hemorrhage (ICH) is a well-known complication resulting from warfarin and aspirin, warfarin and aspirin associated intraspinal hematoma, especially spinal intramedullary hemorrhage, has been reported rarely. Therefore, this case reminds us that we should attach importance to similar patients to avoid poor neurological outcome or even death.

Although the exact mechanism of spontaneous spinal intramedullary hemorrhage is still unclear, anticoagulation or antiplatelet is an independent risk factor [1, 3]. Warfarin and aspirin have been administered to treat and prevent the thromboembolic disorders for a long time. The optimal therapeutic range using warfarin is 2.0-3.0 INR units[13]. However, there is obvious interindividual variability in the body's response to warfarin because many risk factors contribute to the response to the drug. These risk factors can be divided into two categories: genetic and non-genetic(height, weight, race, gender, medicine interactions, smoking and age)[11]. Similarly, recent data demonstrate that there may be a significant correlation between aspirin dose and body weight, affecting the pros and cons of aspirin[14]. Furthermore, warfarin and aspirin associated spinal intramedullary hemorrhage may be secondary to increased intra-abdominal and intrathoracic pressure leading to venous plexus and radicular arterioles rupture [1] and the patient's symptoms begin to worsen gradually. Thus, we can consider that the low-dose warfarin combined with low-dose aspirin may be associated with spinal intramedullary hemorrhage, even though, further studies are needed to elucidate the relationship.

The clinical presentations of spinal intramedullary hemorrhage depend on the location or level of hemorrhage[1]. The common feature is that a sudden onset of intense back or neck pain and the location of pain usually indicates the site of spinal intramedullary hemorrhage. With the progression of disease, the neurological symptoms present weakness and sensory loss at and below the level of the hemorrhage, or even bowel and bladder dysfunction. MRI with and without gadolinium enhancement is very significant

for the diagnosis of spinal cord hemorrhage, and contrast-enhanced computed tomography (CT) is another useful measure when MRI cannot be performed. Though there exists no clearly established consensus about the treatment of this disease, most experts believe that surgical decompression should be performed as soon as possible to minimize the neurological injury. Besides, conservative management may be considered in those with mild symptoms and neurological rapid recovery, or as a bridge for surgical[1]. In this case, the surgery was of a great success, however, the patient died from complications. Therefore, we consider that spinal intramedullary hemorrhage, especially intramedullary hemorrhage of the superior spinal cord, is a dilemma, and further studies are needed to targeting early diagnosis and accurate treatment.

Conclusion

In conclusion, this case demonstrates that doctors should be cautious in prescribing long-term anticoagulants combined with antiplatelet drugs. With the widely use of anticoagulant and antiplatelet drugs, including new oral anticoagulants and antiplatelet agents, bleeding in rare sites is increasing. In addition, anticoagulant and antiplatelet associated spinal intramedullary hemorrhage should be recognized early in order to prevent irreversible neurological sequelae.

Abbreviations

AF: atrial fibrillation

ED: emergency department

INR: International Normalization Ratio

CT: computed tomography

MRI: magnetic resonance imaging

ICH: Intracerebral hemorrhage

Declarations

Ethical Approval and Consent to participate

Not applicable.

Consent for publication

Not applicable.

Availability of supporting data

Not applicable.

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

Pan Zhou and Ren-li Liu contributed equally to this work and their main job is to consult literature and write. Ke-bao Zhang is responsible for collecting data. De-hong Liu is responsible for communication. Zhe Deng is responsible for reviewing and administering the study.

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Figures

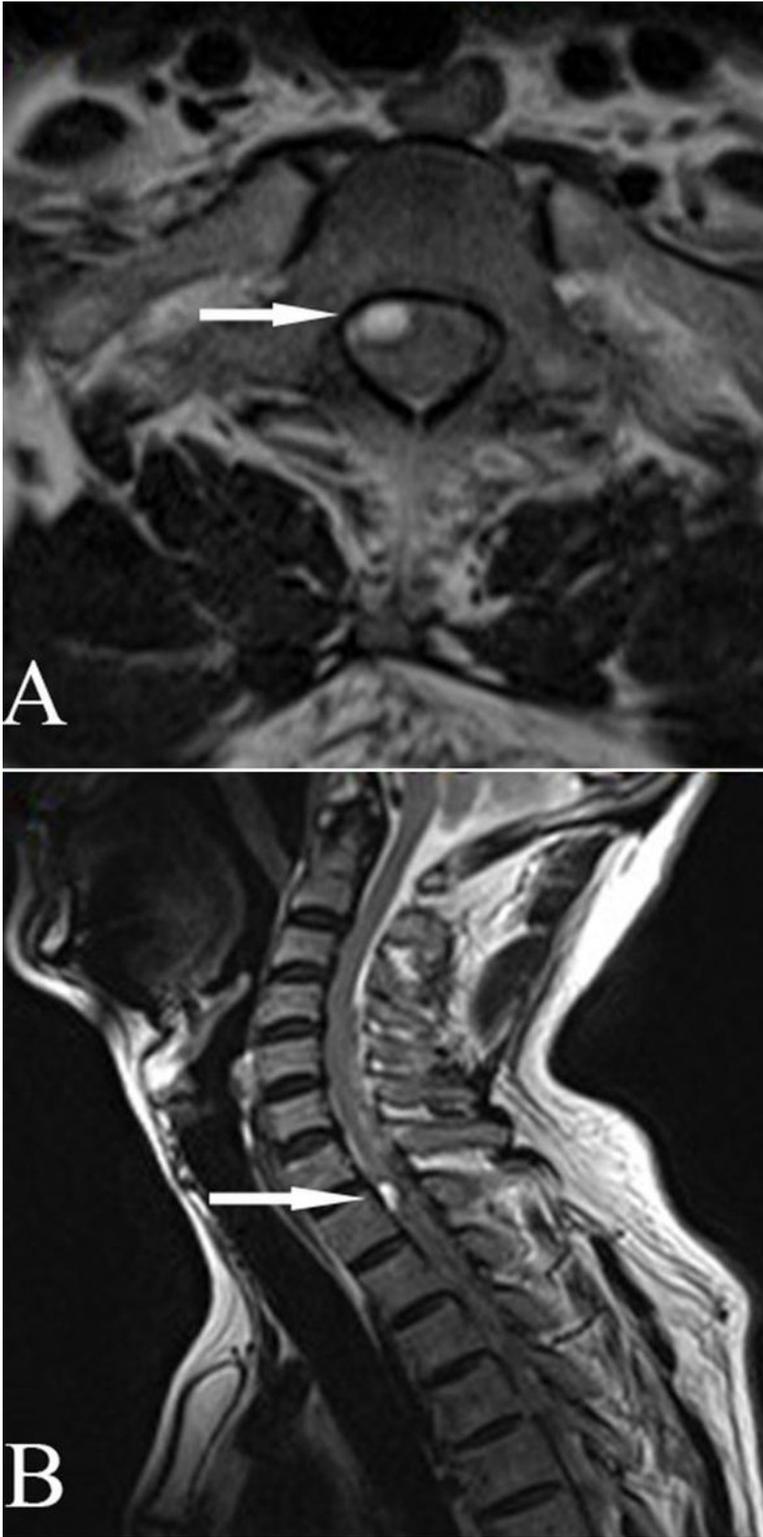


Figure 1

MRI of the cervical and thoracic spine on T2-weighted images. MRI scan that axial view at the T1 level (A), the cervical and thoracic spine with sagittal T2-weighted sequences (B) showing high-signal intensity at the spinal cord represent hemorrhage.