Journal of Geriatric Cardiology (2019) 16: 437–438

Letter to the Editor · Open Access ·

Spinal cord hemorrhage: a rare complication of dual antiplatelet therapy for non-ST elevation myocardial infarction

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J Geriatr Cardiol 2019; 16: 437–438. doi:10.11909/j.issn.1671-5411.2019.05.008

Keywords: Antiplatelet agent; Aspirin; Clopidogrel; Spinal cord hemorrhage; Paraplegia

Dual antiplatelet therapy (DAPT) with aspirin and clopidogrel has been widely used after percutaneous coronary intervention (PCI). The bleeding complications caused by it cannot be ignored and the incidence is as high as 32.4%.[1] Among them, spinal cord hemorrhage is rare, acute and life-threatening. We herein report a case of spinal cord hemorrhage caused by DAPT with aspirin and clopidogrel used after PCI for non-ST elevation myocardial infarction (NSTEMI).

A 74-year-old woman with history of hypertension and diabetes presented with chest tightness for two days. Combined with clinical manifestations, myocardial enzymatic evolution, and electrocardiogram, we considered the diagnosis of acute NSTEMI. Immediately after admission, she received oral antiplatelet therapy with load dosage of aspirin and clopidogrel, followed by maintenance of aspirin 100 mg/day and clopidogrel 75 mg/day. On the third day after admission, she underwent primary PCI. Coronary angiography showed 90% stenosis of the middle segment of the left circumflex artery (Mid-LCX) and 60% of the right coronary artery. One drug eluting stent (3.0 × 16 mm) was performed in the Mid-LCX. On the fifth day, the patient developed chest and back pain, followed by weakness in the right lower limb. CT scan showed multiple lacunar cerebral infarctions, no acute bleeding and excluded aortic dissection and vascular malformation. However, considering her calculated Crusade score was 68, we discontinued aspirin and added drugs that nourish the brain. On the 11th day, the patient developed weakness of both lower limbs, with shallow feeling disappeared below the plane of the 4th thoracic vertebra and incontinence. Reviewing the CT images suspected that a high-density shadow was visible in the thoracic cord (Figure 1). Then lumbar puncture was performed. The microscopic examination of red blood cells 3+/HP can be seen in the cerebrospinal fluid. We highly suspected to be due to spinal cord hemorrhage. Given the patient just had a bare metal heart stent implanted, and her condition could not tolerate long-term MR examination, so CT was re-examined (Figure 2). The findings were consistent with spinal cord hemorrhage. Considering that the patient had a moderate risk of ischemia with a GRACE score of 119, we continued to maintain a single antiplatelet therapy with clopidogrel and supplemented with a related neurotrophic drug. But unfortunately, due to prolonged bed rest after paraplegia, the patient developed a severe lung infection and later died of respiratory failure on the 75th day of admission.

Antiplatelet drugs are widely used, and hemorrhagic complications usually occur in the skin or gastrointestinal

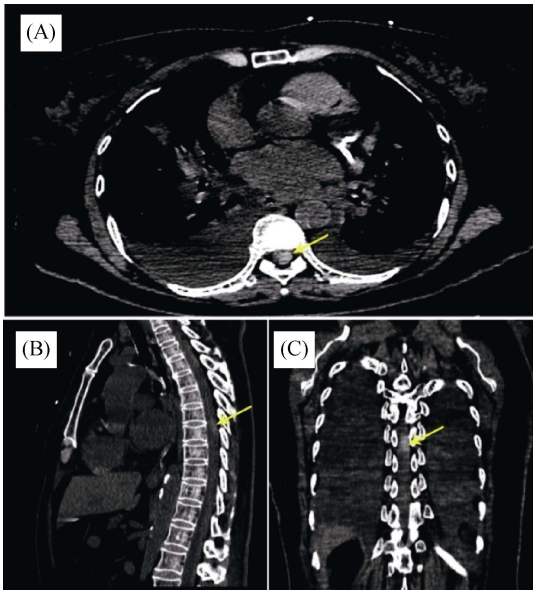

Figure 1. First CT appearance (A) hemorrhage in the thoracic cord; (B & C): after three-dimensional reconstruction, thoracic cord hemorrhage can be seen in both lateral and frontal side.

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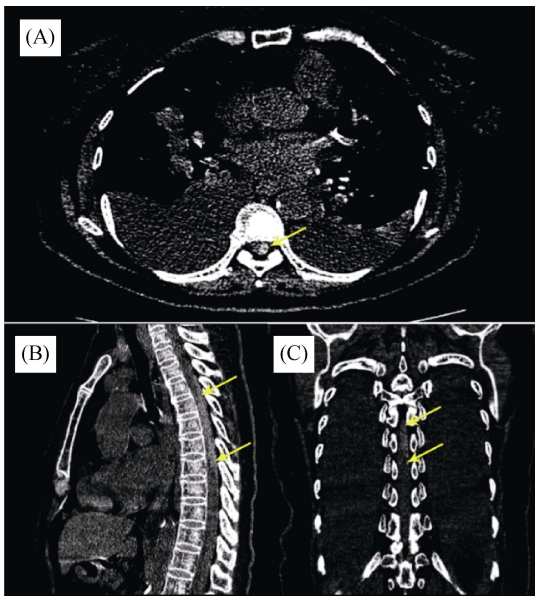

Figure 2. The second CT appearance (A) hemorrhage in the thoracic cord; (B & C): After three-dimensional reconstruction, images show a high density shadow in the thoracic cord extending from T4 to T7.

tract. It has been reported anticoagulant therapy with warfarin or heparin is associated with the spontaneous development of the spinal cord. But compared with them, there is no report on the spontaneous spinal cord hemorrhage taking antiplatelet drugs or new oral anticoagulant drugs in the PubMed literature search.[2] The manifestations of spinal cord hemorrhage depends on the degree of acuteness and the longitudinal and cross-sectional position of the hematoma. Gradual deterioration of symptoms of the nervous system includes weakness and loss of sensation during bleeding.[3,4] For patients with high bleeding risk, the CRUSADE score should be improved in time. For suspected spinal cord hemorrhage, the medical history should involve the use of anticoagulant, antiplatelets or any possible bleeding inducer. In our case, when the patient developed weakness in the lower limbs, the chest CT examination was completed but the report did not indicate the abnormality of the spinal cord. The clinician combined with the patient's symptoms and looked at the imaging department again to notice the high-density shadow of the spinal cord, suggesting the importance of clinical observation and we can't rely entirely on imaging.

DAPT can reduce the incidence of long-term cardiac events in patients with acute coronary syndrome undergoing PCI. Clopidogrel on top of aspirin is recommended for 12months according to the current treatment guidelines.[5] However, it has been shown that the use of multiple antiplatelet drugs increases the risk of major bleeding. Early recognition and treatment is a way to improve the prognosis of patients. Compared with previous myelography or CT examination, MR imaging can diagnose spinal cord hemorrhage quickly and accurately. Thus, if there is suspicion of spinal cord hemorrhage, an emergency MR imaging and lumbar puncture should be performed. In the current literature, there are no clinical trials to guide the treatment of acute spinal cord hemorrhage, and subsequent treatment is usually performed for the underlying cause of it. In our case, spinal cord hemorrhage is considered to be caused by antiplatelet drugs, but considering the high risk of ischemia after myocardial infarction, only aspirin was stopped and clopidogrel monoclonal antibody was retained. After the patient had no progressive increase in paraplegia symptoms，confirming that spinal cord hemorrhage was corrected after discontinuation of aspirin. Therefore, with the increasing use of antiplatelet drugs, physicians should be alert to the rare but serious complications of spinal cord hemorrhage. If suspected bleeding, one or two of these drugs should be discontinued in time.

Acknowledgements

The authors had no conflicts of interest to disclose.

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