CASE REPORT

Acute spinal cord compression: a rare complication of dual antiplatelet therapy

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SUMMARY

A 73-year-old woman presented with acute shortness of breath and exacerbation of chronic back pain. She was diagnosed with pulmonary oedema and a non-ST-elevation myocardial infarction following chest X-ray, ECG and high sensitivity troponin levels. She subsequently underwent coronary angioplasty with deployment of drug-eluting stents to her circumflex and left anterior descending arteries and was started on aspirin and clopidogrel for her dual antiplatelet therapy. Unfortunately, following the procedure, she gradually lost power and sensation in both lower limbs. MRI of her spine confirmed an extradural haematoma causing thoracic cord compression. She was managed conservatively following discussions with neurosurgeons and developed further complications secondary to her immobility.

BACKGROUND

We present a case of a rare complication of dual antiplatelet therapy (DAPT), which is a mainstay treatment alongside coronary angioplasty in acute coronary syndrome (ACS).

CASE PRESENTATION

A 73-year-old woman presented to our hospital with a 1-day history of shortness of breath. She also reported a 2-week history of worsening back pain. Her medical history included obesity, hypertension, type 2 diabetes mellitus with diabetic nephropathy, chronic back pain and hypercholesterolaemia. She ordinarily mobilised with two crutches. Her initial ECG did not show any major ischaemic changes, however, chest X-ray in the emergency department was consistent with pulmonary oedema. Her initial and 6 h troponin I levels (normal range 0.015–0.045 µg/L) were 0.343 and 5.77, respectively, confirming a non-ST-elevation myocardial infarction (NSTEMI).

The patient was transferred over to cardiology department and received standard ACS treatment, which consisted of a loading dose of 300 mg aspirin orally, 300 mg oral clopidogrel orally and 2.5 mg fondaparinux subcutaneously. Following the initial loading dose, she was maintained on 75 mg aspirin, 75 mg clopidogrel and 2.5 mg fondaparinux. We treated her pulmonary oedema with intravenous furosemide 50 mg two times a day and she responded well. Transthoracic echocardiogram showed mild left ventricular systolic dysfunction (LVSD).

After an initial 48 h period of stabilisation, the patient underwent a coronary angiogram, which revealed severe focal stenoses in the mid-left

anterior descending artery (LAD), atrioventricular circumflex artery and mid-right coronary artery (RCA). A decision was made to perform percutaneous coronary intervention (PCI) to the left-sided lesions as the patient was unlikely to tolerate coronary artery bypass graft (CABG) surgery due to her multiple comorbidities. She therefore had drug-eluting stents (Biomatrix) deployed in the LAD and circumflex arteries, and her dual antiplatelets were continued. Owing to her drug-eluting stents, the DAPT regime was 150 mg of aspirin and clopidogrel for the first week, followed by 75 mg of aspirin and clopidogrel for a minimum of 12 months thereafter.

Three days later, the patient started to develop worsening back pain and increasing weakness in both lower limbs. Unfortunately, the patient did not inform medical staff until more than 24 h had passed due to the fact that she felt this was part of her longstanding chronic back pain symptoms.

On neurological examination of her lower limbs, she had increased tone bilaterally, 0/5 power in both lower limbs, brisk reflexes and altered sensation bilaterally. She denied saddle anaesthesia or sphincter dysfunction. An urgent MRI of her spine was arranged and this demonstrated a 5.4 cm×1.2 cm extradural haematoma causing thoracic cord compression at the levels of D10/11 and D11/12 (figure 1). Following review by the neurosurgical team, it was felt that there was no surgical intervention that could be offered to improve her symptoms. She was deemed a high-risk surgical candidate due to her recent NSTEMI and her extensive comorbidities. Her dual antiplatelets were continued on the balance of risk of stent thrombosis against that of further expansion of haematoma. We did not repeat imaging of her spine, as a multidisciplinary team decision was made to treat her symptoms conservatively and it was felt that repeat imaging would not change her management.

The inevitable immobility resulting from her spinal cord compression led to the development of extensive sacral sores. Despite intensive physiotherapy and rehabilitation, the patient developed sepsis from her sacral sores and did not survive her hospital admission.

INVESTIGATIONS

Laboratory investigations including full blood count, coagulation screen and renal function were unremarkable, apart from a longstanding iron deficiency anaemia and raised high sensitivity troponin I levels. Echocardiogram showed mild LVSD.

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Figure 1 Extradural haematoma (arrow) causing thoracic cord compression at the levels of D10/11 and D11/12.

OUTCOME AND FOLLOW-UP

The patient had a long hospital stay and required intensive rehabilitation and physiotherapy. She developed extensive sacral sores due to her immobility, which required treatment with intravenous antibiotics on multiple occasions. Her neurological symptoms did not improve, and she continued to deteriorate despite medical treatment. Unfortunately, she succumbed to sepsis from her extensive sacral sores and did not survive her hospital admission.

DISCUSSION

A PubMed literature search revealed only three reported cases of spinal haematomas secondary to DAPT. This is indeed a rare complication with dual antiplatelets. Stopping or reversing antiplatelets post-PCI is associated with a high risk of acute stent thrombosis, which could be fatal, as reported by Leon *et al.*¹ This provides an additional decision-making dilemma between neurosurgeons and cardiologists, as it is likely that any neurosurgical intervention would have to be carried out with DAPT on board to reduce the risk of stent thrombosis. The benefits of clopidogrel in reducing cardiovascular mortality post-PCI are well established, as was seen in the CURE trial, and has now become the standard of care. However, there are currently no guidelines or large trials examining the impact of continuing DAPT in patients with recent coronary stents who develop spinal haematomas. There have been anecdotal case reports of safe spinal anaesthesia in patients on DAPT following a platelet transfusion.² Nevertheless, this was still considered as a high risk neurosurgical undertaking in our patient.

The cases reported so far appear to have been acute in nature and urgent MRI have led to life-saving haematoma evacuation.^{3–6} Evidence shows that spinal cord decompression is the only way to preserve spinal cord function and conservative

management is acceptable only if there is minimal neurological deficit.⁶ However, in our patient, neurosurgical intervention was not seen to be an option due to the time scale of symptoms and her extensive comorbidities. The likelihood of reversing the damage was felt to be slim and carried a significant risk. Furthermore, concurrent anticoagulation has been associated with a poor neurological outcome in this group of patients.⁶ Our case displays the dilemma faced by clinicians not only in making a prompt diagnosis and arranging urgent investigations, but also in managing the risks and benefits of intervening in a spinal cord compression post-PCI with drug-eluting stents.

Learning points

- ▶ Consider diagnosis of acute spinal haematoma in patients on dual antiplatelet therapy developing acute back pain with neurological symptoms in lower limbs and confirm diagnosis with urgent MRI of the spine.
- ▶ Involve neurosurgeons early if spinal cord compression is suspected or confirmed.
- ▶ This case report also enlightens the need of well-structured nursing care for paralysed patients to prevent them from developing pressure sores, which in turn reduces the morbidity and mortality.
- ▶ The risk and benefits of reversing or stopping antiplatelets post-percutaneous coronary intervention need to be carefully considered and discussed with patients in the event of acute haemorrhage or haematoma as there is currently limited evidence on the best course of action.
- ▶ A multidisciplinary approach is key as complications are potentially fatal and decision-making in these situations is not always straightforward.

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