Beck’s Syndrome

V Chauhan*, R Sharma**, KN Sharma**, S Thakur#, A Raghuvanshi#

Case

A 40-year-old male presented with an acute onset upper chest pain accompanied by sudden weakness of both upper limbs, followed within minutes by weakness of both lower limbs and inability to pass urine. There was no trauma, headache, or neck pain and patient was fully conscious. The weakness was not progressive upwards and no cranial nerve was involved. The patient was unable to move out of bed, turn in bed, or move his limbs in bed. He was seen by us on the third day of event.

After examination, a diagnosis of spinal shock with quadriparesis possibly caused by acute transverse myelitis involving the cervical region was kept. The MRI confirmed transverse myelitis extending from C3 to T1 and post infectious aetiology was given by the radiologist. Possibility of multiple sclerosis, was ruled out by normal fundus and brain study on MRI. The patient was put on injectable methyl prednisolone but there was no improvement in power.

On reexamination, we were surprised to find that patient had sparing of posterior column sensations and complete loss of pain and temperature. This strange finding of dissociate anaesthesia was not matching with the diagnosis of acute post infectious transverse myelitis spanning 7 cervical segments. Clinically, a possibility of anterior spinal artery syndrome was then kept. The MRI was reviewed again, which showed that the spinal cord was involved from C3 to T1 but with sparing of the posterior 1/3rd of the spinal cord in all these segments (Figure 1). This was a rare finding on MRI. The cross sections of MRI confirmed the same findings with sparing of posterior columns and symmetrical involvement of anterior 2/3rd of the cord (Figure 2). Not only this, the T1 images on MRI showed a hyperintense signal in the region of anterior spinal artery at levels corresponding with the infarct of the cord which was a possible thrombus of anterior spinal artery (Figure 3). The MRI diagnosis was thus revised and a possibility of anterior spinal artery syndrome (ASAS) was then kept.

In the light of initial chest pain before the onset of quadriparesis, we ruled out aortic dissection as a cause of ASAS by CT aortography. There was no obvious cause of thrombosis in the anterior spinal artery in this young patient. We ruled out any cardiac thrombus, atherosclerosis of carotids on echocardiography and carotid Doppler. His ANA and C-reactive
protein were normal. Patient refused for repeat MR angiography as he thought MRI was not going to help his recovery. Finally, a rare diagnosis of idiopathic anterior spinal artery thrombosis leading to acute symmetrical quadriparesis with dissociate anaesthesia with recovering spinal shock was kept and patient was put on secondary prophylaxis for atherosclerotic vascular disease.

The anterior spinal artery syndrome is also called Beck’s syndrome. The spinal cord is supplied by one anterior spinal artery (ASA) and two posterior spinal arteries (PSA). The anterior 2/3rd is supplied by single ASA and it carries motor anterior horn cells, spinothalamic, corticospinal, and autonomic tracts. The posterior 1/3rd is supplied by two PSAs, one on each side, and this portion houses the posterior column. If there is obstruction of ASA, it will lead to motor weakness, loss of pain, temperature and crude touch sensations, and bowel/bladder involvement.

Though, with typical features of dissociate anaesthesia, ASAS it is easy to diagnose but it requires a knowledge of existence of such an entity and then a careful physical examination focusing on posterior column in a patient of spinal shock. Commonly, it is the tendency of physicians and residents to test only touch or pain sensation as a marker of sensory examination in spinal shock and once pain is lost they jump to the diagnosis of transverse myelitis, especially in the busy settings of emergency. In our case, the diagnosis was missed not only by the residents in medicine, but the radiologists also did not pick ASAS and gave a diagnosis of transverse myelitis with possible infectious aetiology. Once again, it was the careful reexamination of the patient which revealed preserved posterior column sensations clinically and clinched the diagnosis.

Thus, the carry home message is very clear for the residents and physicians, that in any case of spinal shock with loss of pain sensation and where the aetiology is not obvious like trauma or fracture, always check the posterior column sensations, which if preserved may give you a rare diagnosis of anterior spinal artery syndrome or Beck’s syndrome.