Unusual association of diseases/symptoms

Vertebral artery dissection in weightlifter with performance enhancing drug use

Andrew Low,¹ Julie Dovey,² Janice Ash-Miles³¹Department of General Medicine, Southmead Hospital, Bristol, UK;²Department of Stroke Medicine, Bristol Royal Infirmary, Bristol, UK;³Department of Radiology, Bristol Royal Infirmary, Bristol, UK

Correspondence to Dr Andrew Low, andytlow@hotmail.com

Summary

This case report describes a transient ischaemic attack secondary to vertebral artery dissection (VAD) in a young male body builder. This occurred following weight training with weights across the back and shoulders. The patient was also known to take multiple performance enhancing agents including anabolic steroids, slimming agents, stimulants and human growth hormone. Cases of VAD have been described with cervical manipulation in the past and an association between the use of anabolic steroids and embolic strokes has been described. To the authors knowledge, this is the first case describing a link between VAD, weight training and anabolic steroids.

BACKGROUND

To our knowledge, this is the first case describing a link between vertebral artery dissection (VAD), weight training and anabolic steroids.

This also highlights the continuing uncertainties regarding the treatment of such patients.

CASE PRESENTATION

A 46-year-old man was seen in our rapid access TIA clinic having been referred by his GP. He described two episodes of unsteadiness over the preceding 10 days. These were associated with vertigo, right leg incoordination and right

sided neck pain. The first episode began at rest and lasted 20 min before resolving spontaneously. The second episode began while lifting weights at the gym was more severe in character and lasted for an hour. The gentleman was a personal trainer and professional body builder. The day prior to the first episode, he described weight training that differed to his normal regimen involving squatting with weights of around 140 kg across the shoulders and back of the neck. He regularly took several 'performance enhancing' drugs including a cocktail of anabolic steroids, slimming agents, stimulants and human growth hormone. In clinic, he was asymptomatic, normotensive with normal neurology

INVESTIGATIONS

An MRI (with diffusion weighted imaging) (figure 1) and MR angiogram (figure 2) was obtained the same day which demonstrated an acute infarct in the right cerebellar hemisphere and dissection of the right upper vertebral artery.

Figure 1 MRI demonstrating an acute infarct in the right cerebellar hemisphere.

Figure 2 MRA demonstrating dissection of the right upper vertebral artery.

DIFFERENTIAL DIAGNOSIS

The diagnosis was confirmed on MRI and MR angiogram as above.

TREATMENT

He was anticoagulated with low molecular weight heparin overlapping with warfarin for 3 months.

OUTCOME AND FOLLOW-UP

He was reviewed in clinic 3 months after the initial presentation at which time he was well and asymptomatic. The anticoagulation was discontinued at that time and he was commenced on long term low dose aspirin. He had stopped professional body building and was no longer taking performance enhancing drugs.

DISCUSSION

VAD has an estimated incidence of 1 in 100000.¹ When combined with carotid artery dissection it accounts for around 2% of all ischaemic strokes.² Cervical artery dissection is an important cause of ischaemic stroke in the young and middle aged population, accounting for between 10 and 25% in this group.² Headache and neck pain are important warning symptoms of dissection present in up to two thirds of patients.

VAD has been described in association with abnormal neck movement, vigorous exercise and minor trauma^{3–5} (particularly with chiropractic manipulation). There has been no report of weight lifting exercises involving the back of the neck as a cause to our knowledge. Similarly, there have been reports of anabolic steroid use and its potential association with embolic strokes,^{6,7} though no such cases described of its potential association with VAD.

Ischaemic stroke following VAD can occur due to haemodynamic compromise from stenosis or embolism. Imaging studies suggest that embolism is the more important mechanism.⁸ Anticoagulation is thus often advocated as appropriate therapy. The evidence for this however is still lacking and carries the theoretical risk of increased risk of haemorrhagic events. Recent systematic reviews have been unable to determine any benefit over antiplatelet therapy, but also did not demonstrate evidence of increased harm.^{9,10}

The clinical course following an unruptured dissection tends to be relatively benign, with the majority making a complete recovery and returning to their normal lifestyle.¹¹

However, there is a high risk of recurrent stroke in the first month and especially within the first week.¹² A definitive study with the aim of establishing the optimum treatment is needed. The CADISS study is currently attempting to address this.

Learning points

- ▶ VAD is an important cause of stroke in young patients.
- ▶ Optimal treatment regarding anticoagulation versus antiplatelet treatment remains unclear.
- ▶ There is a known association between VAD and neck manipulation.
- ▶ There are reports of embolic stroke in association with anabolic steroids.
- ▶ This case describes a link between VAD, weight training and anabolic steroids.

Competing interests None.

Patient consent Obtained.

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