

Neck pain after minor neck trauma Is it always neck sprain?

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FROM ABSTRACT

We report a patient who had headache and neck pain after whiplash injury and subsequently developed cerebellar infarction due to vertebral artery dissection.

This patient's pain was out of proportion to his apparent injury and it was a clue to the final diagnosis.

Gross motor examination for cord injury may not be adequate for patients with minor neck trauma.

Detailed cranial nerve and cerebellar examination should be performed for detection of circulatory insufficiency.

Discharge advice for patients should also include that of stroke or transient ischaemic attack.

THESE AUTHORS ALSO NOTE: CASE REPORT

A 53-year-old man presented with neck and occipital pain after his car was hit from the front by another car.

During the accident, his head hit the head restraint.

Initial physical examination revealed:

Alert patient with symmetrical and reactive pupils.

Tenderness over both sternocleidomastoid muscles, back of neck and the occiput.

Full power and normal muscle tone in all four limbs.

Normal X-rays of skull and cervical spine.

The patient subsequently complained of non-vertiginous giddiness.

"Repeated neurological examination revealed no weakness or objective loss of sensation to light touch. There was no diplopia, nystagmus, dysdiadochokinesia, dysmetria or truncal ataxia."

The next day the patient still complained of neck pain and occipital headache.

Another physical examination still revealed no neurological deficits and the patient was able to walk and squat unaided.

Subsequently, the patient developed bilateral cerebellar signs of dysdiadochokinesia, past pointing and ataxia.

A magnetic resonance imaging and magnetic resonance angiogram was done the next day.

It revealed a subacute infarct involving the left inferior cerebellar hemisphere in the territory of the posterior inferior cerebellar artery.

Magnetic resonance angiography showed the left vertebral artery to be much smaller than the right, strongly suspicious for a dissection of the distal left vertebral artery with associated occlusion of the posterior inferior cerebellar artery.

DISCUSSION

"The exact incidence of vertebral artery dissection is unknown."

An estimated incidence is 2.6/100 000 persons.

"There is either an intimal tear with blood dissecting into the media or primary haemorrhage of vasa vasorum of the media."

A subintimal haemorrhage will produce stenosis of the lumen.

Dissections of vertebral artery usually involve the distal extracranial segment near the atlas and axis, "particularly in the setting of extreme neck rotation."

"Other postulated mechanisms of injury include compression of proximal portions of the artery by skeletal muscle and fascial bands during forced contraction or compression of the mid portion by adjacent osteophytes."

Thrombi that develop can be clinically occult, cause occlusion of the vessel lumen, or embolize.

"The timing of such events is highly variable and patients have experienced symptoms of cerebral ischaemia days to years after dissection."

"The typical presentation will include an abrupt onset of pain in the neck and headache with a variable constellation of neurological findings that may be present on initial evaluation, or more often develop over hours to days following onset of first symptoms."

"The headache of vertebral artery dissection is often unilateral and localized to the occiput or parieto-occipital area."

46% of patients report pain localized to the back of the neck.

85% of patients will develop focal neurologic signs.

"In up to 80% of patients, there is an association with neck manipulation, torsion or minor trauma."

"Dissections have been reported after chiropractic manipulation, judo and yoga sessions, shaving, nose blowing, coughing, ceiling painting, minor falls, minor road traffic accidents, rapid head turning, swimming, playing golf, fist fights with blows to the head and neck, hangings, local surgical procedures and blunt intraoral trauma."

Angiographic defects are often at the level of C1 and C2.

Predisposing factors include:

Hypertension, oral contraceptive usage or intrinsic vascular abnormality like fibromuscular dysplasia.

There are diagnostic pitfalls for vertebral artery dissection after minor neck trauma.

(1) "The first pitfall is that dissections may be very subtle in their presentation; occipital headache and neck pain being extremely common complaints at the emergency department after neck trauma. It is easy to dismiss the patient's neck pain as musculoskeletal in origin after what appears to be a whiplash injury while the headache may be dismissed as postconcussive symptoms."

(2) Delayed onset of neurological signs and symptoms.

(3) Focal neurological signs and symptoms may have normal computed tomography scan of the head and normal lumbar puncture.

Diagnostic clues include:

- (1) Patient's symptoms are out of proportion to injury magnitude.
- (2) A unilateral headache.
- (3) Ataxia in a patient's walking.

"A detailed cranial nerve examination should be done for patients with a suspected whiplash injury instead of just a gross motor examination."

"Doppler ultrasound scanning and magnetic resonance angiography may diagnose and define the dissection when computed tomography scan and lumbar puncture are normal."

With a high index of suspicion of dissection, and negative magnetic resonance imaging / magnetic resonance angiography, a conventional angiography may show pathology.

The natural tendency for vertebral artery dissection is complete resolution or significant recovery improvement in 85% of patients.

This article, and others we have reviewed, continues to show that vertebral artery trauma and dissection can be caused by motor vehicle trauma.

Dan Murphy