

Fractures of the cervical spine with minimal or no symptoms

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GROSS FRACTURE dislocations of the upper cervical spine have produced death. Those with less severe fractures have produced a tetraplegia. On the other hand, patients have come in with a tetraplegia but showing only minimal evidence of a probable dislocation.

This paper deals with cases showing very little, and in one case no symptoms and radiological suggestion of a fracture being only a chance finding.

Subsequent efforts at clearly localising the lesion and treatment employed is discussed.

Case I

An old male Indian doctor was talking to some strangers on a lonely road when he was struck

unexpectedly from behind over the back of his head. He fell forward on his face. (It is not clear if he was struck subsequently). He sustained abrasions on the right side of his chin and upper lip. He also had contusions and tenderness on the anterior surface of his left shoulder and over his dorsal spine.

He had had a few drinks at a party and he was returning from it.

On examination, his general condition was good. He was conscious and rational and seemed to recall the incident reasonably well. No neurological deficit was noted. He complained of no pain, stiffness or tenderness in his neck. He was able to move it well. The radiographer subsequently mentioned

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that when he rotated his head to the extreme right to take a lateral of the skull, he had pain on the left side of his neck.

In the lateral view of the skull, which included the upper cervical vertebrae, the crack in the left pedicle of C₃ vertebra was noted. Re-examination of the patient revealed tenderness on deep pressure over the C₂ C₃ vertebrae lateral to the mid-line, greater on the left than on the right. AP, lateral, flexion, extension views of the cervical spine showed no lesions. The coned oblique view showed the opening of the left apophyseal joints and the fracture line on the pedicle extending into the body. The lesion appears to be an opening out of the apophyseal joints of C₂ and C₃ with fracture of the pedicle of C₃. He was given a collar, and analgesics.

Case II

Female. Age 23; housewife (English).

Slipped and overbalanced and, in the process,



Fig. 1A: Lateral extension view showing no evidence of a fracture.



Fig. 1B: Lateral, flexion view: no evidence of fracture seen.

twisted her neck. She did not fall. Felt severe pain on the right side of the neck associated with stiffness. The pain was aggravated by movements of the head to the right. No neurological lesions whatever. General condition was good.

Slight tenderness over the back of the neck at about C₂ C₃ level. X-ray of the cervical spine shows a subluxation of the atlanto axial joint with a probable fracture of the medial aspect of the left side of the atlas.

This patient was admitted and put in a cervical collar for three days, then discharged home with a collar. She however, took it off after 2-3 days. She had stiffness of the neck for a few days more but felt better after it.

Since then, she gets stiffness of the neck whenever she bends down to look under things, as under a few minutes.

Case III

Female student. Age 20; Indian.

She was in a car travelling at about 30 mph



Fig. 1C: Left oblique view, showing fracture of the pedicle of C₃ and subluxation of the C₂ C₃ apophyseal joint.



Fig. 2A: Lateral view of cervical spine.

when it skidded and rolled off the road, two days prior to being seen. No loss of consciousness and no external injuries. She complained of:

Pain in the neck of the upper part of neck and stiffness.

Pain on top of the right shoulder and the right side of the base of the neck.

There were no neurological signs, whatsoever, in the arms and legs. There was some numbness in the right occipital region and back of the upper part of the neck. An X-ray of the cervical spine, especially the left oblique view, showed a fracture of the pedicle extending into the body.

We gave her a cervical collar. She had this on for about three weeks and was told to discard it. She lives in Singapore and apparently is without symptoms.

Case IV

Male 47: Broker. Indian.

He was drinking at a party when he was punched on the jaw and fell backwards. He could not recall anything after that but was carried home. He was brought to hospital the next day because of pain and stiffness in the neck. Pain aggravated by movements of the neck. There was no disturbance in bowel or bladder function. All four limbs functioned well.

On Examination

Tenderness over the back of the upper part of the neck. There was spasm of the neck muscles. No sensory deficit. No loss of power in all four limbs.

Crutchfield tongs and traction for six weeks was done and Camps brace for three months afterwards. Since then union was good, and no symptoms appeared. Has discarded the brace now.

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In the above four cases, the amount of force used had been small indeed. One does not commonly expect a fracture of the cervical spine following a blow on the head, much less with slipping and over-balancing. It is perhaps only in Case III that one cannot assess the amount of force with any degree of accuracy for anything can happen in an overturning car.

These two features of minimal trauma and symptoms may lead the doctor first seeing those cases into thinking that they are but a 'stiff neck'. It is surprisingly common to come across patients not being able to recall easily or who do not appreciate the importance of minor knocks to the head. A fall or having been in a car that was knocked from behind is usually elicited only on prolonged and detailed enquiry. In the first three cases, it was only with repeated X-rays and coned views that one detected the fractures. The routine AP, lateral and obliques did not show them up



Fig. 3A: Lateral view of cervical spine.



Fig. 2B: AP view of C1 C3 area showing dislocation between C1 and C2.

well. One had to take more X-rays to be convinced.

All these cases, except Case IV, were given cervical collars to minimise movement and to give comfort.

Case II took it off in six days and Case III in three weeks on their own although they were instructed to wear it for six weeks.

Case I is still wearing it most of the time; it is now three weeks. I suggested wearing it for six weeks.

Discussion

One must consider if these cases will not develop chronic neck pain. One comes across, from time to time, patients who have suffered minor trauma to their neck, and sustained a 'stiff neck' for a few days, and then onwards have had pain in the neck, back of the head or shoulder for a long time. They seem to go from hospital to hospital with seemingly no relief of symptoms.

The presence of fractures close to the intervertebral foramina and disruption of the apophyseal joints would suggest that these lesions may be



Fig. 3B: Antero-posterior view of cervical spine.

attended by some morbidity in the future. Possibly with the development of osteophytes in the intervertebral foramina exerting pressure on the nerves, and as osteoarthritis in the apophyseal joints.

One very often gets a history from patients with a long-standing neck pain, that they sustained trauma of some sort to their neck and following which they had 'massage' or manipulation of some kind or other to their necks, to help the 'stiff neck' that ensued after their trauma. This brings to our mind the question whether this 'massage and manipulation' did aggravate the existing lesion.

A practical consideration that emerges from these cases is that anyone who has had a blow on the head, and who complains of a spasm or who has tenderness on deep pressure of the neck, should have their cervical spine X-rayed. These should include AP lateral and obliques. If doubt exists, coned views should be of benefit.

Boylston 1957, in discussing the radiological diagnosis of cervical subluxations, stresses the importance of oblique views in flexion and extension to reveal all abnormalities.

The morbid potentialities of recurrent subluxation in the cervical spine is well recognised, a particularly severe fracture of it being vertebral artery compression and its effects.

None of these cases has shown any such effects. They were, however, recognised as having lesions in their cervical spine and treated for it. The short period for which they had submitted to treatment is cause for some concern.

In the cases described, not only subluxations but also fractures of the pedicles have been detected. In Case I and VI, the fact that they had alcohol prior to trauma may have slowed their reflex protective muscular contraction.

Summary

Four cases, with relatively minor trauma to the head, are presented. They came with minimal symptoms of neck stiffness and tenderness on deep pressure only. X-ray studies showed fractures of the pedicles laminae and diastasis of the apophyseal joints. They were treated with immobilisa-



Fig. 3C: Right oblique view of cervical spine showing a fracture of the C3 pedicle.

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Fig. 4A: Lateral view of upper cervical spine showing fracture of the laminae of C2.



Fig. 4B: Antero-posterior view of upper cervical spine.

tion, muscle relaxants and analgesics for an average of six weeks. Up to date, which is an average of five months, they have not complained of undue symptoms enough to seek medical treatment.

The question of what dangers massage and manipulation would produce in these patients, and whether these patients would become prey to neck

pain is raised.

The value of X-ray studies in minor trauma to the head is noted.

References

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