We are indebted to Dr. Sara Weiden and Miss Beryl Splatt for biochemical data, and to Miss Hania Ayzner for technical assistance.

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Medical Memoranda

Retention of Islets of Sensation in Cervical Cord Injury

The following two cases are reported because of their interest and because I have failed to find a note of similar cases.

CASE 1

At midday on December 6, 1947, a farmer aged 52 was out hunting. While walking his horse on the hard road from one draw to another it suddenly pecked and he was thrown to the ground. He immediately became helpless and was admitted to hospital. He arrived at 1.5 p.m. and I saw him soon afterwards. He was conscious, co-operative, and sensible, and his only complaint was that he had lost the use of his limbs. It was difficult to know exactly what had happened, but from the appearance of his hard hat it was assumed that he had landed on the back of his head.

On examination there was no sensation in his body or in the arms or legs, and there was a total quadriplegia. The reflexes in the legs were brisk and an ankle clonus was present. The plantar responses were extensor, and it was noticed that touch sensation was still present in the soles of both feet. An x-ray examination did not help in determining the anatomical lesion. At 3.30 p.m. the area of loss of sensation had diminished and was now from below the first ribs and below the insertion of the deltoid muscles. Sling traction was applied, but this caused so much discomfort that after some hours it was replaced by skeletal traction by calliper, and this made the patient much more comfortable. His condition, however, gradually deteriorated and he died at 7 p.m. on December 8.

A post-mortem examination was made by Dr. Ian Mackenzie. It was found that, although there was no fracture, the body of the fourth cervical vertebra could be moved on the body of the fifth because there was some tearing of the anterior longitudinal ligament. In the cervical region there was some extradural haemorrhage and the cord appeared to be congested. Section of the cord showed some blood in the central canal. There was nothing otherwise significant in the examination.

CASE 2

At 8 p.m. on April 3, 1955, a miner aged 55 stepped on the colliery belt, which gave way and he fell on the pans. He immediately became helpless and was admitted to hospital. He arrived at 10.30 p.m. and I saw him soon after.

On examination there was a quadriplegia and an area of anaesthesia below a line from the left axilla to the right anterior spine of the pelvis. There was also anaesthesia on the inner surfaces of both arms and the whole of the forearms. The reflexes were exaggerated and the plantar responses were extensor. When ascertaining the nature of the plantar responses it was noted that epicritic and protopathic sensation was still present in the soles of both feet. An x-ray examination did not help in deciding on the anatomical lesion. Sling traction was applied and for a day or two the patient, who was quite co-operative, appeared to be holding his own, but on April 7 signs developed at both bases and he deteriorated, dying on April 9.

A post-mortem examination was made by Dr. E. W. N. Trounson, the material findings being as follows: The anterior longitudinal ligament was ruptured between the sixth and seventh cervical vertebrae and there was a horizontal tear in the lower part of the intervertebral disk. The vertebral bodies above were hyperextended. External examination of the cord showed barely detectable contusions in the lower cervical region. The lungs were congested and grossly oedematous, with widespread ill-defined pneumonic consolidation at both bases. There was also fairly well marked dust pigmentation with focal emphysema. Dr. Trounson attributed death to hypostatic pneumonia and contusion of the spinal cord. The cord was subsequently examined microscopically, and this showed some tiny haemorrhages within its substance.

COMMENT

When I first saw Case 1 my impression was that the patient had probably sustained a contusion of the cord from which he was possibly going to recover, but I had never before found such a large anaesthetic area containing islands of sensation in the soles of the feet. As I knew that Mr. Leslie Morris, of Leicester, had a large experience of cord injuries in miners, I discussed the case with him over the telephone and he was so interested that he came to see the patient and confirmed my findings. When the second patient developed signs in the chest I asked Dr. Wakes Miller to see him, and he also was most interested in the fact that these islands of sensation had persisted.

Both patients were men of approximately the same age with similar lesions. Both had sustained hyperextension injuries in the cervical region with tears of the anterior longitudinal ligament and consequent damage to the cervical cord. In both patients the fibres conveying sensation from the soles of the feet had escaped damage. These, I understand, run on the surface of the cord posteriorly in this region. It is not difficult, therefore, to understand that they would be the last to sustain damage by hyperextension.

These two cases may have exhibited a rare phenomenon, but I cannot help feeling that retention of sensation in the soles of the feet may persist in cervical cord injuries much more often and is overlooked when the loss-of-sensation area is mapped out. It was not until I had noted it in the first case that I looked for it in others.

D. S. PRACY, F.R.C.S.Ed.,

Formerly Surgeon, Nuneaton and Coventry and Warwickshire Hospitals.