PROLONGED COMPRESSION OF THE BRAIN RESULTING FROM AN EXTRADURAL HAEMORRHAGE

BY

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With the exception of the present case, our experience over the past 10 years in cases of compression of the brain by extradural haemorrhage has been that, once the compression has been initiated, it is speedily progressive, and ends fatally within 48 hours if not surgically relieved before irreversible changes have developed in the brain stem. The object of the present communication is to put on record the unusual sequence of events that occurred in one case of middle meningeal haemorrhage.

Case History

A coal miner, aged 47 (Case No. 14698), at 8 a.m. on November 11, 1950, was thrown from his pedal cycle on to his head following a collision with a motor car. Unaided, he picked himself up, and, though slightly dazed, was able to make his own way home. He remained fully conscious till mid-day when he became drowsy and began to vomit. He was admitted to the Neurosurgical Unit at 5 p.m. the same evening.

On admission, the man was found to be in a state of deep confusion bordering on semi-coma. On loud and repeated questioning, he would respond, and point to the back of his head and moan with pain. Undisturbed, he immediately went off to sleep. Apart from his mental state, no other abnormal neurological signs were elicited, though it is possible that he might have shown a defect in the fields of vision had it been possible to chart them. There was a large bruise at the back of the head on the left side. There were no injuries elsewhere on the body. Radiographs did not reveal a fracture of the skull. The pulse rate was 50, the blood pressure 150/80 mm. Hg, and respiration was normal in rate and rhythm. Though a surface haemorrhage was diagnosed, it was decided not to operate immediately, chiefly because there were no definite localizing or lateralizing signs, apart from the bruise on the head.

By the following morning there had been no change in the patient's depth of unconsciousness. By November 16, his mental state had improved to that of slight confusion: he sat up in bed and fed himself, but he complained of persistent generalized headache. Improvement was maintained for about another week when his headache intensified, and he became a little more confused.

On November 27, papilloedema was observed for the first time. Air encephalography showed the ventricular system to be pushed over to the right with flattening of the body of the left ventricle. Since the encephalogram did not adversely affect his mental state, we decided to let him get over the effects of this manoeuvre and did not in fact elect to operate on him until December 8, that is, about one month after the injury.

Operation (G.F.R.).—Under general anaesthesia a large osteoplastic flap was turned, centred just behind the external auditory meatus. On raising the flap a large blood clot was encountered in the extradural space. It was at least 4 in. long $\times$ 3 in. high $\times$ 1½ in. thick in its central part. Covering the surface of the clot was a thick membrane such as one sees in chronic subdural haematomata, while the contents consisted largely of dark, watery fluid, such as is found in chronic subdural haematomata, and quite different from the mixture of bright red blood and gelatinous blood clot seen in acute middle meningeal haemorrhage. Though the blood clot was easily removed, bleeding was difficult to control, because of persistent oozing from multiple vessels in the capsule of the clot. Indeed, so persistent was this bleeding that the wound had to be lightly packed with gauze to control it. The wound was then closed in the usual way with an end of the gauze issuing from one corner of the wound. The gauze pack was removed 48 hours later.

On the morning after the operation the patient's condition was obviously improved, and his headache had gone, never in fact so far to return. By the second day his mental state was normal, and he had no complaints.

He was discharged from hospital on December 20, 1950, without complaint or disability apart from a small operative defect on the left side of the skull. He returned to work in February, 1951, as an underground miner, and has worked regularly ever since. On repeat examination he has made no complaint of headache or of dizziness, and states that he feels as well and strong as ever he did.

Comment

No doubt the signs and symptoms in the first few days after the injury were due to bleeding from a posterior branch of the middle meningeal vessel. This bleeding stopped by natural processes, and as

the clot began to absorb, the patient's mental condition improved. Later on, an adventitious membrane began to form round the clot, and possibly, as the blood began to break down, dialysis occurred and an enlarged blood cyst formed with further compression of the brain causing deterioration of the mental symptoms and intensity of the headaches. Pieces of the membrane surrounding

the blood clot were sectioned microscopically, but no definite structure was determinable.

Summary

To summarize, both the pathological and clinical developments in this case of middle meningeal haemorrhage were similar to those of early chronic subdural haemorrhage.