RESOLVING SUBDURAL COLLECTIONS

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(Received for publication May 16, 1962)

SUBDURAL hematoma is one of the most common neurosurgical conditions. At the same time it is one of the most baffling. It is unpredictable in that the patient may make a remarkable recovery after surgical evacuation; on the other hand the patient may expire in spite of surgical therapy. For this reason it was decided to attempt to learn more about the natural history of patients with subdural collections. Patients with angiographically demonstrated subdural collections who had minimal neurological deficits were selected.

CASE REPORTS

Case 1. N.S., a 51-year-old man, fell and struck his head, sustaining a transient loss of consciousness shortly before admission.
Physical examination revealed a confused patient with a superficial abrasion of the left occiput. The left pupil was larger than the right and reacted sluggishly to light and in accommodation. There was no other neurological deficit. Roentgenograms of the skull did not demonstrate a fracture.

The patient gradually became alert but anisocoria remained. A lumbar puncture on the 10th hospital day disclosed xanthochromic fluid. A left carotid angiogram (Fig. 1) on the 19th hospital day revealed an acute subdural collection. The patient refused surgery. During the next 37 days the patient remained alert but ptosis of the left upper eyelid developed in addition to his anisocoria. In this period cerebral angiograms revealed marked diminution in the size of the subdural collection.

The patient finally consented to operation and on the 55th hospital day left parietal and temporal burr holes were performed. There was a subdural membrane present enclosing a small subdural hydroma.

Case 2. L.R., a 29-year-old male, was well until 2 weeks prior to admission when he first noted the onset of frontal headaches and low-back pain.

Upon admission the patient was drowsy. He had a left central facial palsy and slight nuchal rigidity. The left upper extremity was slightly weak, the deep tendon reflexes were increased on the left, and the superficial abdominal reflexes were absent on this side. Lumbar puncture revealed xanthochromic fluid. On the 7th hospital day a left carotid angiogram (Fig. 2) demonstrated an acute subdural collection.

The following day a left parietal burr hole was inserted. A 180 gauge needle was inserted through the dura mater and 0.4 cc. of brownish-red material resembling old blood was aspirated. The benzidine test on this fluid was positive. There was no leakage through the dural puncture. A Gelfoam patty was placed over the dura mater and the wound was closed.

The patient then was followed with serial carotid angiograms. He became alert, coherent and oriented and his neurological deficit disappeared. Eight weeks later there was no evidence of subdural hematoma by angiography.

Case 3. D.C., a middle-aged man, was a known alcoholic of long duration. Upon admission to the hospital he was confused, disoriented and drowsy. No history could be obtained.

Physical and neurological findings were normal.

After a bout of delirium tremens he was alert and oriented by the 4th hospital day. A lumbar puncture at this time revealed grossly bloody spinal fluid with a xanthochromic supernatant. During the following days the patient remained alert and exhibited only a "glove-and-stocking" sensory impairment of the limbs.

Ten weeks after admission a right carotid angiogram (Fig. 3) revealed a chronic subdural collection. Six days later a right parietal burr hole was performed and a 180 gauge needle was inserted through the dura mater. Six cc. of liquid, darkish-brown material were aspirated. After checking for leakage a Gelfoam patty was placed over the dura mater and the wound was closed.

The patient's condition remained unchanged. He was followed with serial angiograms and the subdural hematoma was seen to disappear gradually. Twenty-one weeks after admission a pneumoencephalogram was normal. Twenty-two weeks after admission the burr hole was reopened.
The skull defect was filled completely with granulation tissue which was contiguous with the dura mater. On opening the dura mater there was a thin (1 mm.), soft, dark-red membrane. This probably represented the inner membrane of a subdural hematoma. No fluid was present within it. Upon opening this membrane the cerebral cortex appeared normal but the surface of the brain was 4–5 mm. from the inner table of the skull. Later cerebral angiograms revealed re-expansion of the brain.

Case 4. H.A., a 47-year-old man, had been an alcoholic for the past 10 years. He was well until the morning of admission when he awoke and experienced difficulty in speaking and weakness of the left-sided extremities causing him to limp.

Physical examination revealed a confused, disoriented, slightly aphasic patient. There was flattening of the right nasolabial fold, and grasp and function of the biceps were decreased on the left. Lumbar puncture revealed increased pressure and xanthochromic fluid.

Following admission the patient had several generalized seizures. His condition improved steadily and on the 11th hospital day the spinal fluid was clear and the manometric pressure was normal.

On the 18th hospital day bilateral carotid angiograms revealed an acute subdural collection on the right (Fig. 4). Because of difficulty in getting into contact with the patient’s next of kin, operation was delayed. During this period the patient was followed with serial angiograms and the subdural collection was seen to diminish gradually.

On the 40th hospital day biparietal burr holes were performed. At the right burr hole there was a moderately thick membrane intimately adherent to the dura mater and a thin inner membrane overlying the surface of the brain. There was no fluid collection between these two layers.

The patient was discharged only to return 3 months later with the same complaints. At this time bilateral carotid angiograms showed no evidence of a subdural collection on the right but did show an acute subdural collection on the left. The patient was treated conservatively and followed by angiograms. In 24 days the subdural collection had cleared.

DISCUSSION

Those patients in whom subdural collections develop and who expire within the first few days undoubtedly do so because of associated cerebral damage. However, what of those patients in whom subdural masses develop without associated cerebral damage? Many of these patients will recover from the initial episode and go through a period of relative normalcy except for headaches. Days or weeks later the patient may quickly manifest neurological signs and symptoms and pursue a rapid downhill course. Other patients present no symptoms and the subdural...