CONCLUSIONS

1. When local tissue deficiency precluded a successful autoplastic repair in a patient with a simple lumbar meningocoele, the imbrication of lumbar fascia over tantalum gauze effected a solid repair.

2. The closure of a nasal meningocoele is reported using tantalum gauze to cover the cranial dehiscence, and to support the overlying dura.

REFERENCES


EXTRADURAL CEREBELLAR HEMATOMAS

REPORT OF TWO CASES*

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Extradural hematoma is a lesion almost universally resulting in fatality when not attacked surgically, yet recovery should be the rule in properly managed cases. The symptom complex of such lesions occurring above the tentorium is generally well recognized and treated. On the other hand, only 7 cases were found in the literature in which extradural hematoma occurring below the tentorium had been recognized and cured to date. The successive occurrence of 2 such cases without localizing cerebellar signs prompted this report. Both cases terminated fatally. It is hoped this experience may be of value in raising the "suspicion index" in cases where seemingly minor trauma to the occiput has been sustained.

In 1901, Wharton reviewed 70 cases of intracranial venous sinus wounds, finding 8 instances of bleeding in the posterior fossa. Anderson, however, in reporting a successfully treated case, noted that no examples of this lesion had appeared at the Los Angeles County Hospital during the preceding 14 years, where an average of 2000 head injuries are seen each year. Gurdjian and Webster, Kessel, Turnbull, Coleman and Thomson, Grant and Austin, Anderson, and Bacon have each reported 1 case of extradural cerebellar hematoma successfully evacuated by operation.

Head trauma, particularly a blow to the occiput, usually initiates the lesion. The probable mechanism of injury is a laceration of some portion of the lateral sinus, with subsequent escape of blood downward into the potential epidural space of the cerebellar fossa. A fracture line will most generally be found crossing the lacerated sinus. It would appear that extradural cerebellar clots may be formed acutely or may accumulate more slowly.

Headache, stiff neck, vomiting, and irritability are generally found in those patients not unconscious from the blow. In acute cases the early onset of coma may preclude neurologic evidence which would otherwise correctly direct one’s attention to the posterior fossa. Such individuals may exhibit hypotonia, positive

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Babinski signs and little else before spontaneous respirations cease. Should bleeding progress more slowly, the drowsy, though conscious patient may exhibit papilledema, nystagmus or ataxia. It should be emphasized that the symptomatology of these clots is notoriously unreliable. Additional neurologic findings, such as hemiparesis, unequal deep reflexes and unequal pupils may erroneously lead the observer to other intracranial localization. Such was the situation in the first instance of such a clot seen by the author.

CASE REPORTS

Case 1. J.L., a 20-year-old white female, was injured when she was thrown from a horse on Mar. 29, 1950, and probably kicked in the back of the head. When carried to a nearby ranchhouse she was unconscious, but soon could respond to commands. She complained of severe headache, and pain in the neck. The family physician was called, and found the patient semiconscious, with a stiff neck, equal pupils, and vital signs that were within normal limits. Codeine was left to control the pain.

She failed to improve and was taken to the local hospital some 12 hours later. A lumbar puncture was done, the fluid being reported grossly clear, and the pressure “normal.” Portable lateral x-rays of the skull revealed no fracture. The patient continued to moan with pain and thrash about in bed. Forty hours after injury she was transferred to a hospital in this city, because her local physician felt she did not seem to be doing well.

Examination. The patient was comatose, lying restlessly in bed and moving all extremities equally. Painful stimuli elicited appropriate defense reactions. No abrasions nor lacerations of the scalp were noted, though a Battle’s sign was present on the left. Attempted flexion of the head demonstrated boardlike resistance of the neck. There was no bleeding from the cranial orifices. The pupils were equal and reacted to light. The eyegrounds were normal. The deep tendon reflexes were equal, but there was a positive Babinski on the left. BP 116/78, pulse 86, respirations 22, temperature 99.6°.

Course. Feeling that the patient was suffering from a left basal skull fracture with cerebral contusion, and subarachnoid bleeding, a conservative course was decided upon. Sedation was withheld in order that changes in the state of consciousness and vital signs could be followed more accurately. Restlessness continued for 2 hours. At this time, and for no apparent reason, the patient sat upright in bed, became cyanotic and fell backward with markedly irregular pulse and respirations. Within 5 minutes she was dead.

Autopsy. There was a 7 cm. linear fracture curving from the left lateral sinus to the left jugular foramen (Fig. 1). Associated with the fracture site was an extradural collection of liquid blood and clot estimated at between 30 cc. and 40 cc. in amount. The adjacent left lobe of the cerebellum was moderately compressed and there was herniation of the cerebellar tonsils, more marked on the right side. A contrecoup small linear fracture of the right frontal region with minimal subdural hemorrhage was present. There were contusions and superficial areas of laceration of the tip of the right frontal and parietotemporal lobes with small areas of subarachnoid hemorrhage. Multiple sections through the entire brain showed only moderate edema of the brain stem and slight softening of the cerebellum. There was no intraventricular bleeding.

This patient probably could have survived, had the proper diagnosis been sus-
pected and surgery instituted. It was not more than 2 months later when my only
other encounter with an extradural cerebellar hematoma occurred.

Case 2. J.H., a 25-year-old white male, fell from the rear end of a slowly moving truck,
striking the back of his head on the pavement. He did not lose consciousness, but was taken
to the hospital because he complained of increasingly severe headache. When examined by
his family doctor one-half hour later, the headache had become more severe and was accom-
panied by dizziness and nausea. Although examination at that time was negative except for
an occipital abrasion of the scalp, skull x-rays disclosed a linear right-sided occipital fracture.
The patient was put to bed in the hospital, and because of extreme restlessness sedation was
given. Three hours after injury the nurse on rounds found the patient had stopped breathing
and was markedly cyanotic. Artificial respiration was instituted and the physician called.
Examination revealed all extremities to be flaccid and no reflexes could be elicited. The
right pupil was widely dilated, and neither pupil reacted to light. Nevertheless the pulse was full and strong; tem-
perature and blood pressure were essentially normal. The patient was placed in
a respirator and observed for one-half hour; when his condition then showed no
apparent deterioration, the local physician called the author, who saw the pa-
tient some 3 hours and 150 miles later. On examination, findings remained es-
entially unchanged, though no sponta-
aneous respirations had occurred. Al-
though surgery seemed futile, it was the
impression that possibly evacuation of
an extradural clot might reverse what
seemed surely would be a fatal outcome.

Operation. The entire head was pre-
pared and a burr hole placed in the right temporal region, where it was thought such a clot
most likely would be found. A thin layer of subdural blood was encountered, but not enough
to be of clinical significance. The left temporal region was trephined and the findings here
were negative. As on the right, the brain continued to exhibit markedly increased pressure.
Accordingly, bilateral suboccipital perforator openings were made, and on the right side a
large extradural cerebellar clot was encountered beneath the site of the fracture, extending both
above and below the lateral sinus. The bleeding seemingly originated from a laceration of
the sinus near the torcular. After evacuation of the clot the compressed cerebellum re-
expanded.

Course. Although the patient improved slightly from the standpoint of his pulse and
blood pressure, no spontaneous respiration occurred. Temporary improvement, however,
was followed by his death some 24 hours later. Autopsy was not permitted.

It is obvious that the rapid accumulation of blood between the dura and skull
presents the surgeon with a genuine emergency. Despite the infrequency of such
lesions below the tentorium, their immediate recognition—or at least suspicion
thereof—is paramount.

Given an individual who has sustained trauma to the occiput, and complains
of headache, suboccipital pain and vomiting, who has an occipital fracture, and who
exhibits stiff neck, drowsiness and irritability, exploratory perforator openings
should be placed over the cerebellum, whereby an extradural clot may be detected.
Fig. 2 suggests the location of such an opening. Should a clot be uncovered, the
incision can be enlarged and craniectomy carried out until the source of bleeding is
identified and controlled. Though a normal extradural space may be disclosed in the majority of cases, the rare patient with such a clot will be saved from irreversible respiratory failure.

REFERENCES

ARTERIOGRAPHY
A USEFUL ADDITION TO THE TECHNIQUE

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Carotid artery injection with the needle attached directly to a syringe is not entirely satisfactory. In this Clinic the use of polyethylene tubing between the syringe and needle (Fig. 1) has solved some of the problems and proven very helpful over a period of a year, during which time some 200 percutaneous carotid arteriograms have been done.

![Fig. 1. (1) Primary insertion of No. 18 needle into artery with needle attached to syringe. (3) After insertion, the polyethylene tubing is connected to the needle with a Luer-Lok adapter (Lemon 608/Lt). (4) The polyethylene tubing is connected to the syringe with a standard adapter (Lemon 80/Lt). (4) Polyethylene tubing, 12-14" long, with inside diameter of .003" and outside diameter of .008".]

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