ACUTE DEGENERATIVE CHANGES IN ADENOMAS OF THE PITUITARY BODY—WITH SPECIAL REFERENCE TO PITUITARY APOPLEXY

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Degenerative changes in pituitary adenomas and their attendant clinical manifestations occur not infrequently yet they have been mentioned in only a few of the more complete descriptions of these tumors. These changes usually consist of small hemorrhages and areas of necrosis with “cyst” formation, reparative fibrosis and sometimes calcification. Some writers relate such lesions to the apparent arrest of acromegaly or to the rapid development of dyspituitarism. However, in most instances these degenerative changes are regarded as unimportant findings without precise relationship to symptoms and without significant effect on the growth of the adenoma.

In the routine examination of the brains of individuals who have died unexpectedly we have several times discovered tumors of the pituitary gland in which widespread necrosis and/or extensive hemorrhage had occurred. Clinically, these changes were associated with a sudden onset of neurological symptoms such as ophthalmoplegia, blindness, stupor or coma and they have resulted in death within a few hours to days. Extensive lesions of this type have seldom been described. In fact, a review of the literature disclosed only 5 cases showing similar symptomatology and pathological findings. The following cases are presented, therefore, in order to call attention to these severe retrogressive pituitary lesions.

REPORT OF CASES

Case 1. (B.C.H. 115140, A 44-421) This patient, a 65-year-old negro, was hospitalized because of epigastric pains of 7 weeks’ duration. Investigation revealed nothing of importance except a low blood pressure (100/70) and a slight reduction of blood chlorides. A diagnosis of adrenal insufficiency was made and treatment with sodium chloride and desoxycorticosterone was instituted.

On the night of the 16th hospital-day the patient complained of severe frontal headache, and the next morning he was found semicomatose. Temperature was 105°F. and the neck was very stiff. The right pupil measured 6 mm., the left 4 mm. and neither reacted to light or on convergence; there was a complete right ophthalmoplegia. No other abnormal signs were elicited. CSF was xanthochromic and under a pressure of 180 mm.; it contained 155 RBC, 55 neutrophilic leucocytes and 295 lymphocytes/c.mm.; total protein 182 mg., and sugar 55 mg./100 cc.

On the 21st hospital-day there was definite improvement in that the patient was able to respond to simple questions. However, he remained confused and the
right ophthalmoplegia persisted. A second lumbar puncture, 1 week after the first, revealed xanthochromic fluid under a pressure of 105 mm. of water with 20 RBC and no WBC/c.mm.

Examination. Two weeks after the onset of headache the patient was still confused and disoriented. There was ptosis of the right eyelid and only very slight movement of the right eye. Movements of the left eye were probably normal though poor cooperation interfered with accurate testing. The right pupil was dilated and fixed to light (both directly and consensually) and on convergence; the left pupil now reacted normally. Vision was greatly reduced in the right eye and slightly impaired in the left but no accurate records of visual functions were obtained. Other cranial nerves were normal and there was no weakness, reflex change or sensory deficit of the limbs.

Course. The patient's condition remained poor and he died during the night of the 29th hospital-day.

Pathological Findings. A rounded mass of dark red tissue protruded from the sella turcica (Fig. 1). On cut surface it was dark red, very soft and without recognizable structure. The pituitary gland could not be identified as such. The mass had enlarged the sella to about thrice normal size and had elevated all of the clinoid processes. Lateral expansions of the mass had compressed both cavernous sinuses. The diaphragm of the sella had been destroyed and the tumor extended above the sella for a distance of 2.0 cm. Upon removal the mass was found to be spherical with a diameter of 4.0 cm.

The optic chiasm and hypothalamus had been displaced superiorly. The chiasm and right optic nerve were flattened and the latter was grooved by the overlying anterior cerebral artery. The optic tracts were not reduced in size. There were no other gross abnormalities of the brain.

Microscopic sections showed that the intrasellar tumor had undergone almost complete necrosis. In phloxine-methylene blue preparations only the faint outlines of some tumor-cells, stained a pale pink, could be seen (Fig. 2). The majority of these cells had disintegrated and most of the tissue had a homogeneous structureless appearance. Just inside the fibrous capsule of the mass, small compressed islands of recognizable pituitary cells remained; some of these cells were necrotic. The capsule and peripheral parts of the necrotic mass were impregnated with fibrin and infiltrated by neutrophilic leucocytes. In the capsule there were large numbers of proliferating fibroblasts, neutrophilic leucocytes, lymphocytes, plasma cells and macro-