THE USE OF ACTH IN CONJUNCTION WITH SURGERY FOR NEOPLASMS IN THE PARASELLAR AREA*

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Alerting the medical profession to early diagnosis is probably the most important factor in lowering operative mortality attending surgery for parasellar neoplasms. Various authors attest the hazards of surgery after the tumor has become large. Horrax8 stated that as pituitary tumors extend out of the sella to become intracranial tumors, the risk of operation increases from 3–5 per cent to 30 or 40 per cent. Jefferson7 as well as Bakav1 reported somewhat comparable figures. Similarly, danger accompanying removal of other types of tumors in this area increases with the size of the neoplasm.

The use of drugs10 to lower blood pressure during the removal of large vascular tumors such as sphenoidal ridge meningiomas has been of great help in decreasing operative mortality. Antibiotics and chemotherapy as well as close attention to fluid and electrolyte balance have also materially aided in smoothing the postoperative convalescence. Tracheotomy has been a life-saving factor in some cases of desperately ill patients.3

From our experience with 18 patients with parasellar tumors we believe that ACTH is another valuable adjunct to surgery in this area. It is well known that operation in the parasellar region is dangerous because of the proximity of the pituitary body and the hypothalamus. The normal pituitary-adrenocortical response to stress may be depressed if the area is damaged by the tumor growth prior to surgery or through trauma at the time of operation.

Roche, Thorn and Hills9 mentioned the use of ACTH in Matson’s patient who was operated upon for pituitary tumor. Caughey, James and MacLeod2 stated that marked improvement occurred after they administered cortisone and ACTH to a stuporous patient who had been operated upon for chromophobe adenoma. Another patient in their series with acromegaly failed to arouse following surgery. Beginning on the third postoperative day cortisone was given with marked improvement in 28 hours. The course during and after surgery in patients operated upon for craniopharyngioma was stabilized with cortisone and ACTH according to Ingraham, Matson and McLaurin.9

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REPORT OF CASES

That ACTH might be an important component in smoothing the post-operative course of patients with tumors in the parasellar region, particularly those who displayed signs of hypopituitarism, was first brought to our attention through the following case.

Case 1. P.H., a male aged 20, presented himself on Nov. 16, 1950, with the complaint of difficulty with vision for 10 days. Since 1948 he had suffered from headaches which occurred intermittently, sometimes as often as two or three times a week. He had noted no difficulty with his vision until he awakened in the morning of Nov. 6, 1950, and noticed that he could see only half of some objects. Inquiry revealed that he had never shaved, but he thought there was no loss of sexual libido or potentia.

Examination. He was pudgy and pallid, and showed unmistakable signs of hypopituitarism. He had a high-pitched voice, and scanty axillary and pubic hair. The genitalia were small and the testicles were soft. He had bitemporal hemianopsia and an enlarged sella turcica.

Operation. On Nov. 21, 1950, through a left frontal approach to the pituitary fossa, an intracapsular removal of the tumor was carried out and a large portion of the capsule was removed. Retraction of the left frontal lobe to expose the tumor resulted in no demonstrable trauma to the brain, and the patient left the operating table in excellent condition.

Microscopic Diagnosis. The tissue removed was chromophobe adenoma of the pituitary.

Postoperative Course. For the first 24 hours his condition was very satisfactory. At the end of 24 hours edema of the face and head was exceptionally marked. Within 36 hours after operation his temperature had risen to 104° and his blood pressure had started to climb. Rapidly thereafter he became drowsy and his condition deteriorated. Late on the 2nd night after operation he suddenly stopped breathing. An endotracheal tube was at hand and was quickly inserted; he was taken to the operating room under artificial respiration.

Elevation of the bone flap revealed very little extradural or subdural hematoma and no evidence of an intracerebral hemorrhage. The brain was so tightly swollen it was difficult to elevate the frontal lobe to expose the chiasmal area. Amputation of the tip of the left frontal lobe allowed examination of the chiasm but there was no hematoma in that region, and swelling of the brain was thought to be the cause of his difficulty. A decompression and a tracheotomy were done. The patient was returned to his room in poor condition.

ACTH, 25 mg. intramuscularly every 6 hours, was started immediately and the patient rapidly improved. No doubt there were other factors such as the decompression and the tracheotomy that facilitated his rapid recovery but there seemed little doubt that ACTH played a role.

The rapid recovery of this patient who was so desperately ill led us to believe that other patients, particularly those showing evidence of hypopituitarism, would tolerate surgery much better if prepared with ACTH. It was decided that all patients with tumors in the parasellar area would be given ACTH before and following operation. Between November, 1950 and April, 1954, 17 additional patients with tumors in the parasellar area were