Case Reports and Technical Note

Granulation Tissue—a Result of Trauma—Simulating a Brain Tumor

Case Report

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Occult masses of granulation tissue large enough to simulate a space-occupying lesion are rarely associated with craniocerebral injury. Döring1 reported a case of "epidermoid atheromatous cyst" related to trauma which was found in the epidural space causing pressure atrophy of the overlying bone. The histological examination of this lesion failed to reveal a granulation-tissue reaction; the sections consisted of a sac lined with flat cuboidal epithelial cells surrounded by connective tissue without hairs or glands. Its wall was irregular and showed considerable desquamation with no cellular infiltration. Kroll2 reported 6 cases of traumatic intracerebral cysts which followed blunt craniocerebral trauma and resembled space-occupying lesions. The etiology initially was considered a traumatic hemorrhage. There was no histological evidence of a heightened granulation-tissue response. The salient feature in these cases was the interval of time between the initial trauma and clinical recognition of the space-occupying lesion, the shortest interval being 6 months, the longest 8 years, with intermediate intervals for the remaining cases.

The following case to our knowledge presents findings that have not been encountered previously.

Case Report

A 34-year-old right-handed Negro man was admitted to the Veterans Administration Hospital, Houston, Texas, on Jan. 22, 1963, with a chief complaint of weakness in the right arm and leg of 3 days' duration. This was associated with a dull, nonthrob- bing generalized headache, which was maximum upon arising but gradually subsided through the day. A history of sustaining a blow to the left vertex with a woman's high-heeled shoe 2 weeks prior to admission was obtained. The blow resulted in a small laceration of the scalp which was not attended to medically; otherwise, no significant symptoms were elicited. There was no disturbance of speech, and no history of chills and fever.

Examination. The patient was well developed and well nourished. Blood pressure was 140/90 mm. Hg, pulse rate 90 and regular, and temperature 98.6°F. There was a small well healed puncture wound with no evidence of infection on the left side of the scalp, near the coronal suture, 5 cm. from the midline (Fig. 1). In the skin of the chest and abdomen there were multiple freely movable, firm nodules of various sizes. Neurologic abnormalities were a supranuclear palsy of the 7th nerve on the right and an associated mildly spastic right hemiparesis with hyperreflexia and an extensor plantar response on the right. Count of the white blood cells was 9,600 per c. mm. with a normal differential. The hemoglobin was 14.1 gm., and the hematocrit 45 mm. Urinalysis gave normal findings. The V.D.R.L. test was nonreactive. Lumbar puncture revealed a normal opening pressure with grossly bloody cerebrospinal fluid and xanthochromic supernatant fluid. There was a first-zone colloidal-curve rise. The culture was negative. Roentgenogram of the chest was negative. Routine films of the skull revealed erosion of the bone underlying the puncture of the scalp on the left side with prominent vascular channels leading to the area (Fig. 2).

Course. On the day of admission, lesions of the skin of the chest were biopsied; the histologic sections disclosed "epidermal cysts." This was followed by a bilateral carotid arteriogram that revealed blood vessels passing circumferentially around a space-occupying lesion in the left frontoparietal area near the midline (Fig. 3).

Operation. A left frontoparietal craniotomy was performed. Once the scalp flap was turned down, a small circular punched-out area was noted in the bone that corresponded to the radiolucent area on the roentgenogram. This defect measured 1 cm. in diameter and was

Fig. 1. Scar overlying defect in calvarium.
filled with a gray, greasy material containing numerous hairs. The dura mater underlying the defect was thickened and vascular. It appeared intact, but by palpation one could feel an area of induration in the underlying cerebral cortex, measuring 6 cm. in diameter, the overlying bony defect being at the center of this area. When the dural flap was lifted, a vascular space-occupying lesion was encountered, which appeared to be fairly well circumscribed; it extended approximately 3 to 4 cm. in depth. The mass was parasagittal and the major part of it lay anterior to the central fissure. Grossly, the lesion looked like a metastatic tumor, being vascular, fairly firm, homogeneous, and purple. Its removal was complete, though it was shelled out with some difficulty with a great deal of bleeding. There were large venous channels in the dura mater which were draining the area of the mass, and the cortical vessels were tortuous and dilated.

Postoperative course was characterized by a right hemiparesis that gradually subsided. There was no pyrexia. At the time of discharge the patient was asymptomatic, with only minimal weakness in the distal musculature of the right hand.

Pathological Report. The specimen received for microscopic examination consisted of several portions of cerebral tissue interspersed with soft hemorrhagic and gray-yellow necrotic tissue, the largest 2.5 cm. in greatest dimension. Included was a portion of calvarium, 5.5X5X4.5 cm., with an oval hole 1 cm. in diameter in the center. A few hairs adhered to the margins of the hole.

Microscopic sections showed that most of the cerebral tissue was replaced by spindle-shaped fibroblasts that enclosed numerous capillaries. In some areas there were giant cells with a foamy cytoplasm, with a few of these cells around foreign matter that was stained brown or blue. There was marked endothelial proliferation of blood vessels some of which were surrounded with a cuff