CASE REPORT

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Acute, Nontraumatic Subdural Hematoma of Arterial Origin

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ABSTRACT: A sudden death occurred seven months postpartum caused by an acute subdural hematoma. An arachnoid artery ruptured as a result of a solitary tumor embolus of choriocarcinoma with no residual primary malignancy.

KEYWORDS: pathology and biology, hematoma

Unlike an extradural hematoma a subdural hematoma is not always caused by trauma. Faced at autopsy with an acute hematoma in a subdural location and lacking evidence of trauma, one proceeds to exclude a vascular malformation, a berry aneurysm, a bleeding diathesis, and other entities that may be identified at the time of gross examination. There remain a small number of cases described as "spontaneous" or a result of trivial trauma [*1*].

Case Report

Seven months prior to death a 29-year-old mother had an uneventful postpartum course following an uncomplicated pregnancy and the delivery of a healthy male infant. This patient breast-fed her child until one month before death. She felt well on retiring to bed at 12:30 a.m., and her husband describes his wife suddenly sitting up in bed at 3:00 a.m. saying several words and then lying down again. Noticing unusual breathing he attempted to rouse his wife and was unsuccessful. Ambulance attendants found that breathing was irregular and shortly after their arrival the subject stopped breathing and required resuscitative measures. On arrival at the Emergency Department her heart was beating irregularly and she required a respirator. Pupils were fixed and dilated. Later that day a computerized tomographic (CT) scan was reported as showing a thin but extensive subdural on the right side with a moderate shift not consistent with the size of the subdural and presumably caused by brain swelling. This subject was pronounced dead following a cardiac arrest 32 h after the onset of her illness.

At autopsy there was no evidence of bruising to the scalp and the cranial bones were normal. There was a collection of partially clotted blood in the right subdural space coating the

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cerebral hemisphere and extending from the frontal to the occipital region. There was no subarachnoid component. The brain was diffusely swollen with evidence of tentorial herniation more marked on the right side and there was bilateral hemorrhagic discoloration of the oculomotor nerves. Within the arachnoid on the lateral aspect of the right occipital lobe there was a minute vessel having an apparent defect in its wall and measuring, 0.2 cm in diameter. Adherent to the adjacent dura was a small fragment of fibrinous material. Sectioning the cerebral hemispheres in the region of the left insula there was a hemorrhagic discoloration 0.5 cm in diameter. Hemorrhage of the secondary type was found in the right cerebral peduncle.

The breasts showed evidence of persisting lactation and gross and microscopic examination of the thyroid gland revealed the changes of Hashimoto's thyroiditis.

Microscopic examination of the right occipital lobe revealed an arachnoid artery containing a group of malignant cells with disruption of the wall of the artery and an adjacent inflammatory cell infiltrate (Figs. 1 and 2). Immunoperoxidase staining was positive for the presence of chorionic gonadotropin (Fig. 3). In a section of the left insula there was a small focus of old hemorrhage with considerable hemosiderin pigment. Multiple sections of lungs, ovaries, and uterus showed no evidence of choriocarcinoma. The remainder of the body examination also failed to show a neoplasm.

Discussion

The availability of immunohistochemical techniques allows the specific identity of metastatic malignancy. There was no primary malignant tumor within the pineal gland or anterior mediastinum, occasionally the source of "germ cell" tumors. In up to a third of cases of metastatic choriocarcinoma there is an absence of a demonstrable lesion in the uterus and ovary. In this case the source of the tumor embolus was the placenta of an otherwise normal pregnancy, occurring six months previously. As a complication of pregnancy, choriocarcinoma usually manifests itself within two years [2].

The clinical details of this case illustrate the rapidity of loss of consciousness and herniation that can occur with arterial hemorrhage into the subdural space in a young adult with comparatively little residual intracranial space and apparent propensity for brain swelling.

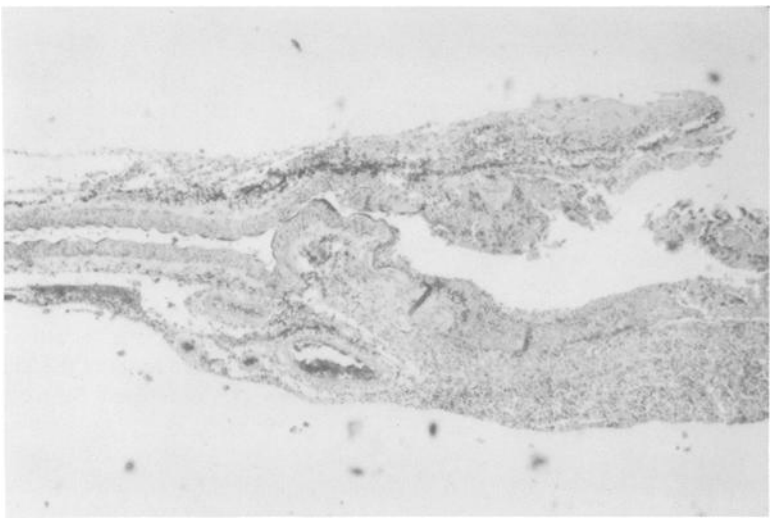

FIG. 1—*Arachnoid artery containing a group of malignant cells with disruption of the wall of the artery.*

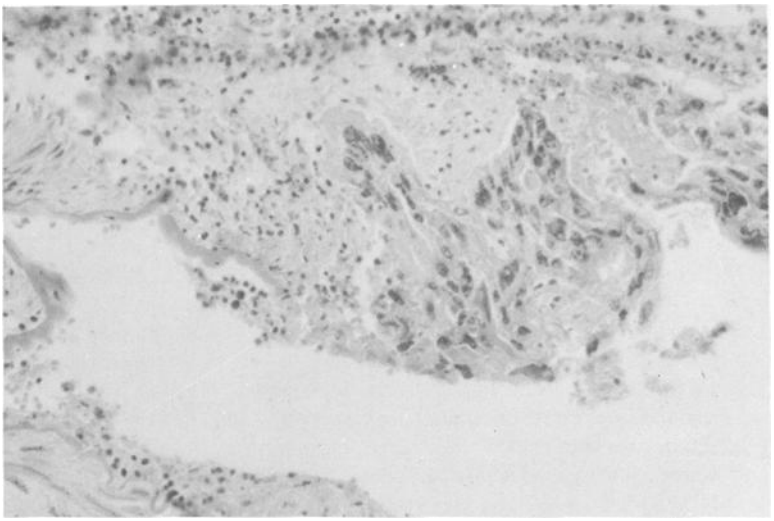

FIG. 2—*Arachnoid artery at higher power.*

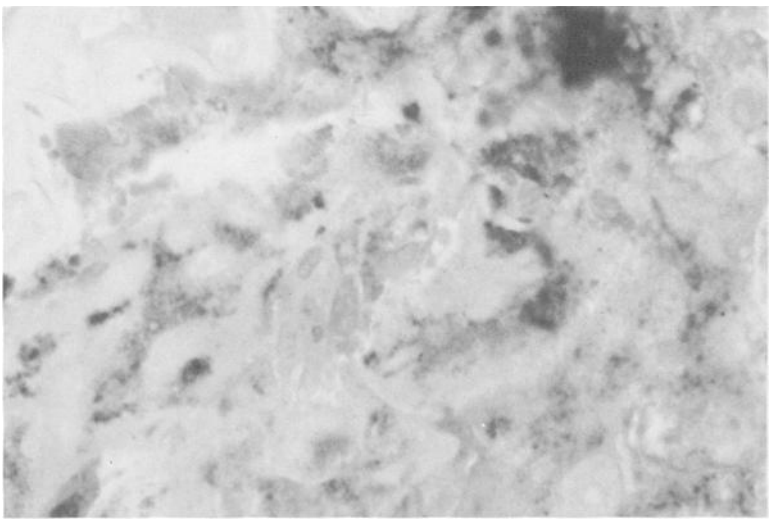

FIG. 3—*Immunoperoxidase staining was positive for the presence of chorionic gonadotropin.*

Summary

This 29-year-old subject died of an acute subdural hematoma as a result of the angiotropic nature of a tumor embolus of choriocarcinoma, the mimic of a wide variety of medical and surgical conditions.

Acknowledgments

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References

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