CHOROIDAL METASTASIS OF A TESTICULAR CHORIONIC EPITHELIOMA

Report of a Case

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METASTASIS of chorionic epithelioma to the choroid is rare. Six cases have been reported in the literature, 3 of occurrence in women and 3 in men. Our case is the seventh one to be reported, and the fourth of occurrence in a man.

The first report of a case of chorionic epithelioma with metastasis to the choroid was made by Mulock-Houwer [1] in 1926. A woman had metastases to the choroid, lung, kidneys and intestine three years after an abortion. The uterus was enlarged. The second report, by Slavik [2] in 1933, was the case of a woman aged 50 who had had a supravaginal hysterectomy for hydatidiform mole. She had had an attack of acute glaucoma, for which enucleation was performed. A metastasis was noted in the choroid. Two weeks later the patient died with cerebral metastases. Simidu [3] reported the third case in 1935. A woman aged 31 had chorionic epithelioma of the uterus. She also had malignant glaucoma with pain and blindness, requiring enucleation of the left eye. The typical tumor cells were observed in the choroid. There was associated retinal detachment.

In 1936, MacDonald [4] reported the first occurrence of choroidal metastasis from a testicular chorionic epithelioma. A man aged 28 had noted a slowly increasing mass in the left testicle for eight months. Hemoptysis and epistaxis occurred a few months before the loss of vision. Retinal detachment was seen in the right eye, with an underlying visible mass. Enucleation was performed because of the pain and increased tension. Typical cells of chorionic epithelioma were

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1. Mulock-Houwer, A. W.: Metastasis of Malignant Chorio-Epithelioma, Klin. Monatsbl. f. Augenh. **77**:226, 1926.

2. Slavik, B.: Metastasis of Malignant Chorionepithelioma into Choroid, Časop. lék. česk. **72**:756, 1933.

3. Simidu, S.: Metastase eines malignen Chorioepithelioms in der Aderhaut, Acta soc. ophth. jap. **39**:2023, 1935.

4. MacDonald, A. E.: Choroidal Chorionepithelioma Secondary to Teratoma of Testicle, Arch. Ophth. **16**:672 (Oct.) 1936.

observed in the choroid. Metastases were present in the lung, in subcutaneous tissues of the groin, in the skull, brain, nasopharynx, pleura, diaphragm, liver, gallbladder, intestine and kidneys and in the retroperitoneal tissues. The patient also had signs of associated endocrine changes—linea nigra, female distribution of pubic hair and hypertrophy of the breasts.

Reichling [5] presented a case in 1938 in which the eye was enucleated because of a suspected malignant melanoma of the choroid. However, it was demonstrated later that the growth was a metastasis from a tumor of the right testis. The patient died of generalized metastases within two months. Typical tumor cells were observed in the choroid. This report was not complete.

In 1944 Godtfredsen [6] reported the third case of choroidal metastasis in men and presented a review of the previous cases and the biologic and histopathologic characteristics of the tumor. A youth aged 18 had been aware of increasing swelling of the right side of the scrotum for a year. Two months prior to admission aspiration and injection were carried out for cure of the hydrocele. However, there was no improvement, and later semicastration was performed. The diagnosis of chorionic epithelioma was then made. He later noted impairment of vision, and a choroidal tumor was seen superiorly and temporally in the right eye. His general condition became poor, and he died two weeks after admission. Metastases were observed in the cerebrum (cortex), lungs, liver, pancreas, jejunum and skin. The hypophysis showed none of the changes seen in association with pregnancy.

REPORT OF CASE

E. B., a man aged 21, was admitted to the Wisconsin General Hospital on Feb. 17, 1947, with the complaint of pain in the right side of his chest. He had been well until November 1946, when there developed a dry cough which was not associated with a cold. This cough persisted into the latter part of December. He then experienced pleuritic pain in the right side of the chest. He began to raise about one-half cup of bloody sputum a day. He noted at this time that the left testis was considerably larger than the right, but it was not painful.

Ten days prior to his admission the left testis became painful, and his right eye felt swollen and began to water. Shortly afterward he noted blurring of vision, and two days prior to admission he was seen at the Davis and Neff Clinic. A small, well demarcated elevation of the retina was noted above and temporal to the disk. The following day the patient had severe pain on both sides of his chest and was admitted for complete study.

5. Reichling, W.: Ocular Metastasis of a Chorionepithelioma, Arch. Ophth. **19**:156 (Jan.) 1938.

6. Godtfredsen, E.: Choroid Metastases in Chorionepithelioma of the Testicle, Acta ophth. **22**:300, 1944.

The appetite had been poor for two weeks. He also had nocturia, urinating two or three times during the night. He had noted severe generalized weakness. He had lost 8 pounds (3.6 Kg.) in weight.

The past history was noncontributory. His social and family histories were not remarkable.

On examination the patient appeared well developed and fairly well nourished but in apparent distress. There was pallor of the skin, lips and mucous membranes. The anterior cervical lymph nodes were palpable bilaterally. The trachea was deviated slightly to the left. A large, firm, nodular, movable mass, measuring 3 by 3 cm., was felt under the right breast, and a smaller mass was palpable under the left breast. The expansion of the chest was decreased bilaterally. There was dulness over the right side, with decrease to absence of breath

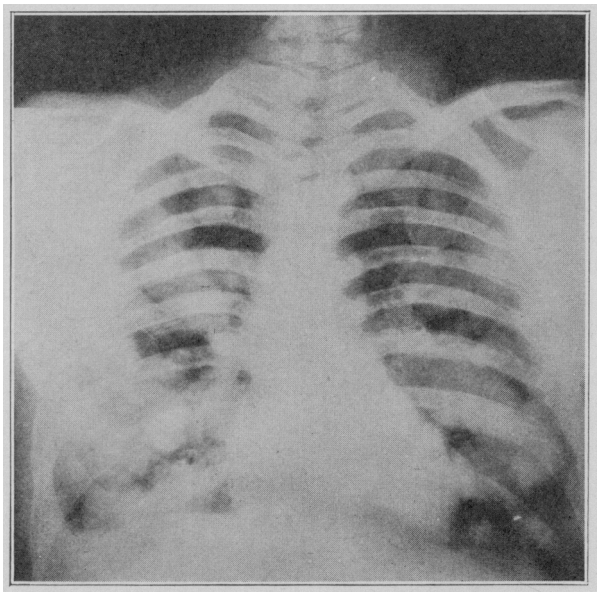

Fig. 1.—Roentgenogram of the chest, showing multiple nodular metastases to both lungs.

sounds. Rales were heard throughout the chest. The heart and mediastinum were shifted to the left. The pulse rate was 108 per minute, and the blood pressure 114 systolic and 68 diastolic. The abdomen was tense, and the edge of the liver was felt to extend 8 to 10 cm. below the costal margin. The surface of the liver was nodular.

The left testis was enlarged, nodular, tender and firm; it measured 5.5 cm. in diameter. The head of the epididymis appeared unaffected. Two firm, tender nodules were attached to the vas deferens, or spermatic cord, just above the epididymis, one being 0.5 cm. and the other 2 cm. in diameter. The right testis was normal. The prostate gland was slightly enlarged, but very tender.

There were no neurologic signs.

I made an ocular examination on Feb. 18, 1947: Vision was 6/200 in the right eye and 20/15 in the left eye. The extraocular movements were good.

There was no injection of the right globe or any proptosis or palpable masses about the eye. The right pupil was at 3 mm. and the left 2.5 mm. in diameter. Both pupils reacted to light and in accommodation. The anterior chambers had normal depth. Tension in the right eye was 10 mm. of mercury (Schiøtz) and that in the left eye 13 mm.

Funduscopic examination of the right eye on February 19 showed that the media were clear. The disk had good color and a central cup of medium size. In the superior part of the temporal field there was a dark gray, elevated mass, which extended to the level of the macula inferiorly, to the meridian of the disk nasally and toward the superior temporal periphery; it covered an area about eight times the size of the disk. This mass was elevated about 10 D. Along the inferior border the macular fibers of Henle were seen in bold relief. In

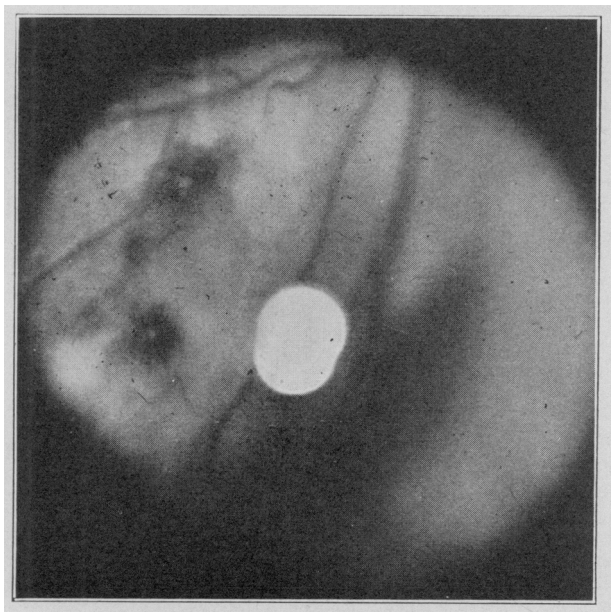

Fig. 2.—Photograph of the fundus of the right eye taken on Feb. 25, 1947, showing the elevated mass under the retina and the hemorrhages, with light centers.

the center of the elevated area, and somewhat superiorly and temporally, were yellow-white patches and irregular hemorrhages. In the superior temporal periphery, about 7 disk diameters from the disk, there was a pigmented area about half the size of the disk, in the center of which a hole was seen in the retina. Slightly inferior and nasal to this hole was the operculum. In the inferior half of the fundus, beginning about 3 disk diameters from the disk, there was a serous detachment of the retina, which was elevated about 4 D. This detachment did not extend to the inferior temporal periphery. The left fundus appeared entirely normal.

The impression was that of metastatic tumor of the choroid of the right eye with associated retinal detachment and hole.

The clinical diagnosis was primary neoplasm of the left testis, probably a teratoma or chorionic epithelioma, with metastases to the gastrointestinal tract, to both lung fields, to the right eye and to both breasts.

Laboratory Studies.—The urine was normal.

Routine studies of the blood showed 9.8 Gm. of hemoglobin, with 3,160,000 red blood corpuscles per cubic millimeter. The white cell count was 11,100, with 72 per cent polymorphonuclear leukocytes (of which 57 per cent were filamentous and 15 per cent nonfilamentous forms), 25 per cent lymphocytes and 3 per cent monocytes. The sugar and nonprotein nitrogen of the blood were within normal limits. The Wassermann reaction of the blood was negative. The sedimentation rate was increased to 35 mm. in one hour, corrected (Wintrobe).

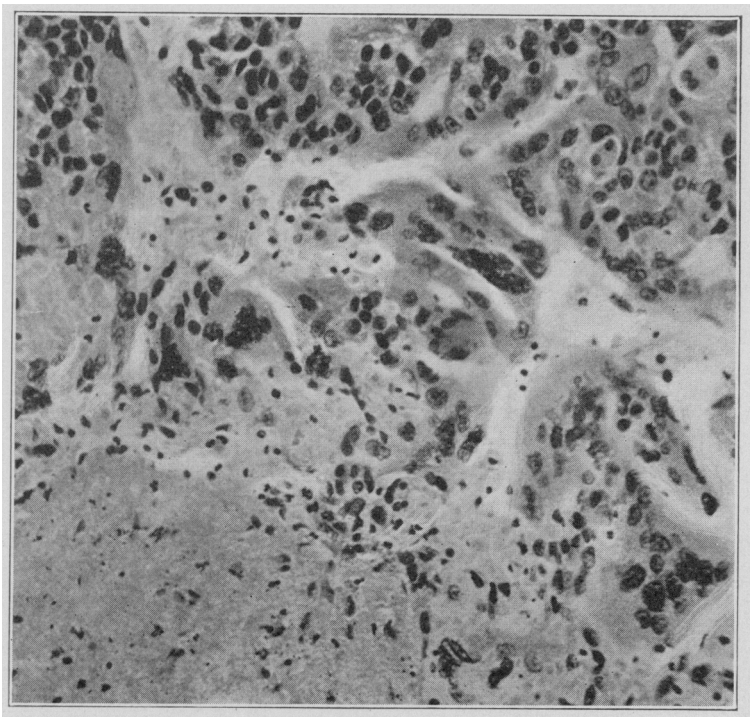

Fig. 3.—Langhans and syncytial cells in a metastatic nodule in the kidney; × 175.

Roentgenograms of the skull showed no evidence of metastasis involving the cranial bones. The arms and thighs revealed no metastases. Roentgenograms of the chest (fig. 1) showed both pulmonary fields to be riddled with nodular shadows, sharply circumscribed and ranging in size up to 4 cm. in diameter. There was a slight pleural reaction at the base of the right lung, with a small amount of fluid. The left pleural cavity was free of fluid. The size and shape of the heart were normal.

The Mantoux test gave a negative reaction to 0.01 mg. of old tuberculin U. S. P. in forty-eight hours. Cultures of aspirated gastric contents did not yield tubercle bacilli.

The quantitative Aschheim-Zondek test showed 4,000 rat units per liter of urine, a value which was very high.

On February 19 thoracentesis was performed through the ninth intercostal space on the right side, between the midscapular line and the axillary line, with removal of 850 cc. of bloody fluid. The fluid appeared like venous blood but did not clot on standing. Analysis of the fluid showed 7.6 Gm. of hemoglobin and 2,660,000 red blood cells and 8,250 white blood cells per cubic millimeter. The cultures yielded no organisms in forty-eight hours.

On February 20, biopsy of the mass in the right breast and of a lesion over the left costal margin was performed by the surgical resident, Dr. Thuerer,

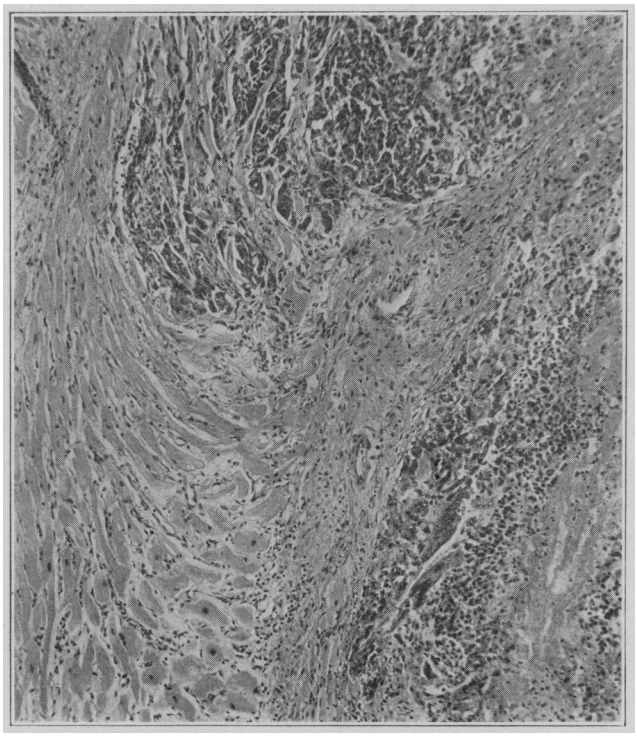

Fig. 4.—Metastases to the heart muscle; × 80.

with use of local anesthesia. The report of this biopsy, by Dr. W. Jaeschke, was as follows:

"The sections showed partly necrotic and hemorrhagic tumors, composed of broad bands and irregular masses of tumor cells. Most of the cells were closely packed and moderately vacuolated and had good-sized, oval to round reticular nuclei. Mitotic figures were fairly common. Some of the cells were not clearly defined and were arranged in irregular syncytial masses of various sizes. In some cells the cytoplasm stained blue and in others pink.

"The impression was that of metastatic chorionic epithelioma."

I examined the fundus every other day. The dark, elevated mass continued to enlarge during the period of observation. It extended nasally beyond the

meridian of the optic disk and inferiorly 1 disk diameter below the level of the fovea. It also became more elevated and was seen with a +12 lens in the ophthalmoscope. New flame-shaped hemorrhages were seen on each examination. Some of these had light centers. The serous detachment in the lower part of the fundus increased in extent steadily and, when seen just prior to the patient's death, was elevated 6 D.

During the patient's course in the hospital the intraocular tension was always lower in the involved eye. The only change seen in the left eye was the pallor of the optic disk, associated with the severe anemia.

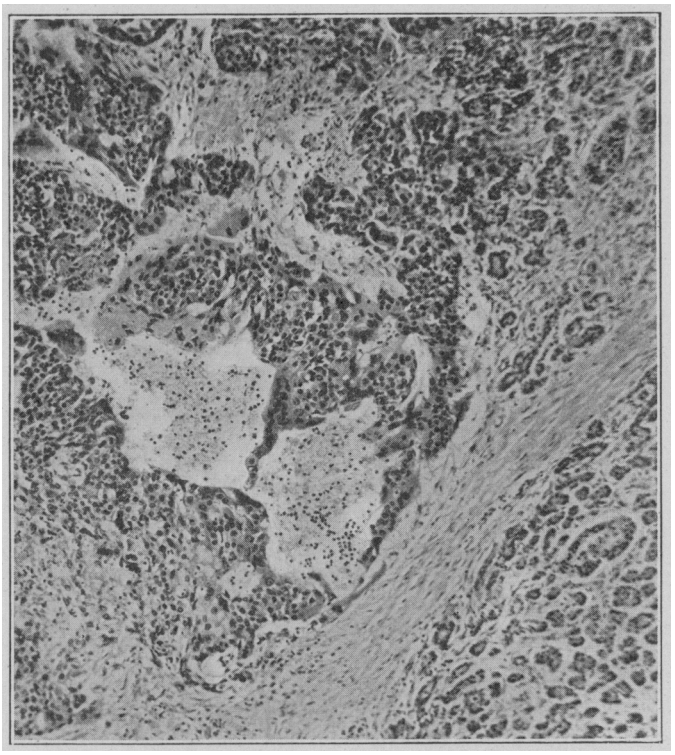

Fig. 5.—Metastatic nodule in pancreas, showing typical Langhans and syncytial cells to the left and compressed pancreas to the right; × 80.

An attempt was made to take photographs of the fundus; but, because of the high elevation and the poor condition of the patient, the results were not satisfactory. One photograph is reproduced (fig. 2).

The general course of the illness was rapidly downhill. The patient required injections of morphine for relief of the pain in the right eye and chest. He died on February 27, ten days after admission.

Necropsy.—Autopsy was performed thirteen and one-half hours after death. A summary of the findings taken from the complete report made by Dr. Ralph C. Frank, of the department of pathology, follows: The pleural surfaces were studded with innumerable tumor nodules, of all sizes. Cut sections of the lung showed that all portions were involved by round, hemorrhagic and gelatinous

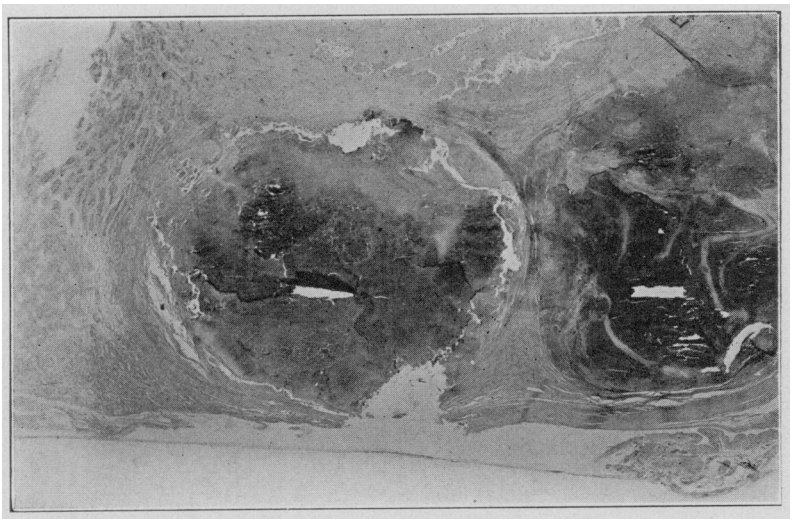

Fig. 6.—Left testis, showing primary tumor with large areas of hemorrhage; × 4. Compressed testicular tissue at the left side shows spermatogenesis.

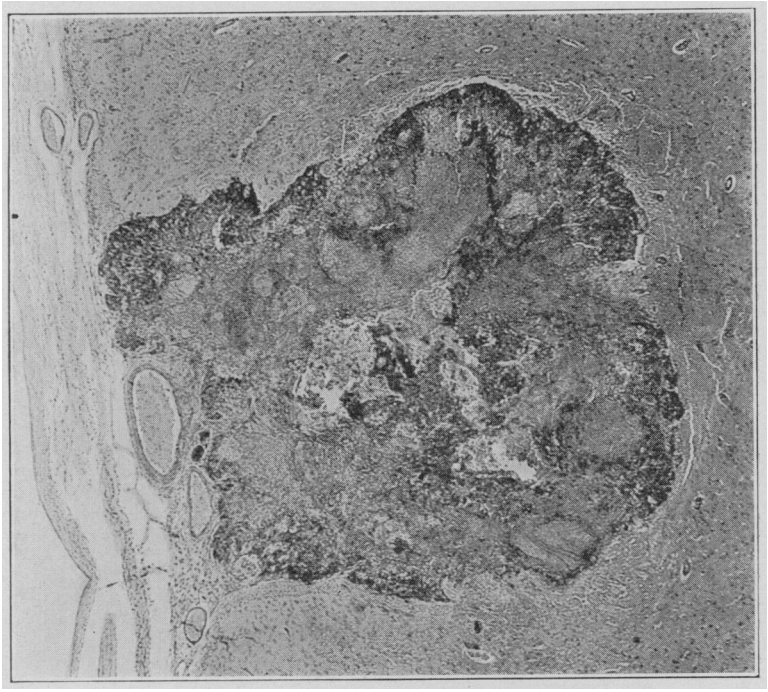

Fig. 7.—Metastatic nodule to brain just under the meninges; × 23.

nodules. The hilar nodes were enlarged and involved by tumor. A small hemorrhagic nodule was observed in the posterior wall of the left ventricle and another below the aortic orifice in the endothelium. Multiple metastatic nodules were seen under the capsule of the spleen and in cross sections of the organs. Similar areas were seen in the liver. The gallbladder was not involved. The stomach had small metastases along the greater curvature. A large nodule

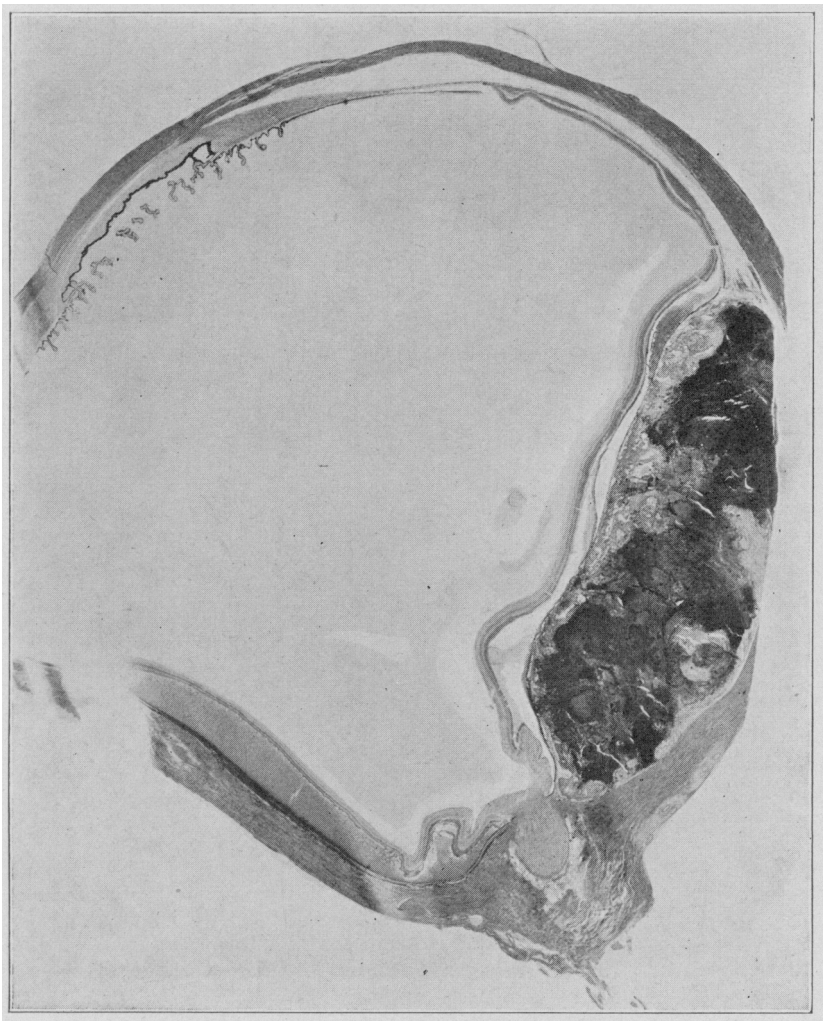

Fig. 8.—Metastases to the choroid of the right eye, extending to the disk; × 5½. A serous detachment of the retina has occurred on the other side of the disk and over the tumor.

almost occluded the esophageal opening at the cardia. Three nodular areas were noted in the jejunum, but the large bowel and rectum were free from tumor. Multiple lesions were seen in the pancreas. The right adrenal gland had nodules in the medullary spaces and cortex. Both kidneys had multiple

nodules under the capsule, being more numerous in the right kidney. The ureters contained no metastases. The prostate gland and seminal vesicles appeared normal. The right testis was normal, but the left was completely replaced with hemorrhagic tumor tissue. There was an area of tumor tissue just above the left testis in the spermatic cord. The thyroid was normal.

Microscopic Examination.—The tumor tissue had an extremely malignant appearance, with great variations in the size, shape and chromaticity of the nuclei. Mitotic figures were frequently seem. The typical cells had round or

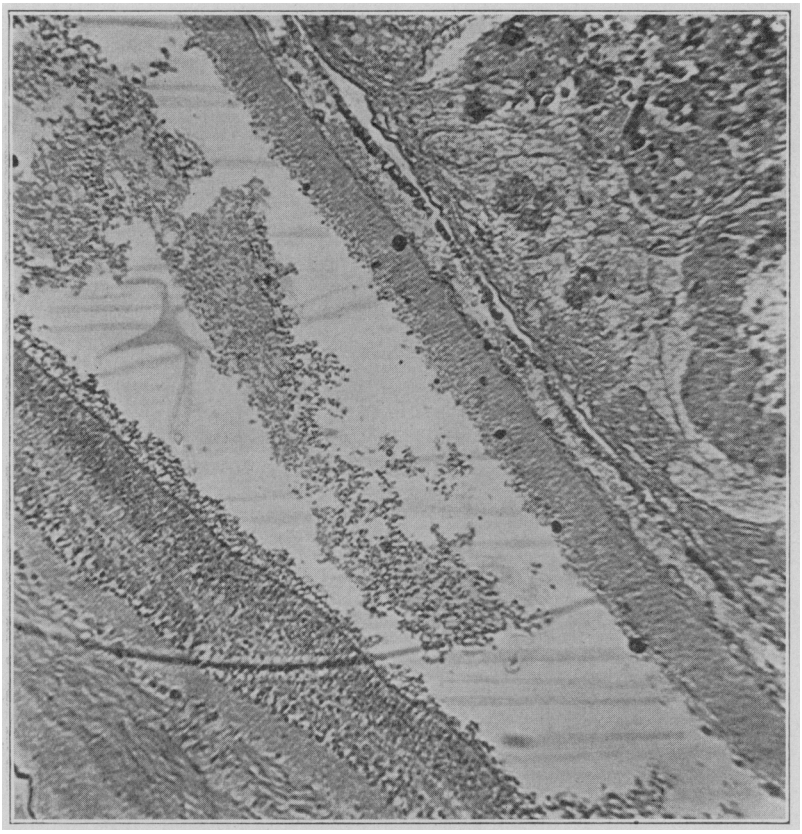

Fig. 9.—Metastasis to the choroid of the right eye (right side); × 90. Serous detachment of the retina has occurred over this nodule; the separation is within the layer of rods and cones.

ovoid nucleoli (fig. 3). Other types had darker nuclei. The cytoplasm was basophilic, but for the most part was poorly demarcated, and frequently syncytia of cells were seen in which only the nuclei were distinct and the cell borders were completely lost. Necrosis and hemorrhages were of frequent occurrence in the various sections. The nodules containing the typical cells were seen in the heart (fig. 4), lungs, spleen, liver, pancreas (fig. 5), submucosa of the stomach and jejunum, cortex and medulla of the right adrenal gland and both kidneys. The left testis showed spermatogenesis in the remaining testicular tissue, but the

major part of the section was replaced with necrotic tumor cells and large hemorrhagic areas (fig. 6).

The right testis showed normal spermatogenesis and had no tumor. The left breast showed no metastases but was hyperplastic, with increased activity of the glandular epithelium. The pituitary glands showed no apparent pathologic process. The thyroid was normal.

The brain was studied separately by Dr. Richard Retter, of the department of pathology. Three distinct hemorrhagic nodules overlay the left occipital pole and the left parietal region. On cut section a nodule was seen in the left frontal lobe. On microscopic sections metastatic nodules were seen underlying the meninges (fig. 7). There was localized thickening of the meninges over the nodules. Surrounding the nodules were shrinking and pyknosis of the neurons and moderate increase in glial elements.

I removed the right eyeball at the time of autopsy, or about fourteen hours after death, and fixed it in Zenker's solution. The report from the laboratory of ophthalmic pathology was made by Dr. Peter Duehr. Grossly, the tumor measured 5 by 10 mm. The retina was detached over the tumor mass (fig. 8).

Microscopic examination (fig. 9) revealed that the eye was of average size. The interior of the eye contained a tumor occupying about one sixth of the globe. The tumor was located in the choroid, extending from the optic nerve forward to pass the equator. The main mass of the tumor was filled with blood, making study of the cells impossible. Around the periphery of the tumor the cells were well defined. The tumor cells contained large, various-sized, round to oval nuclei, which stained pink and were reticulated. The nuclei were closely packed, and the cytoplasm was sparse. Among the closely packed cells were vascular spaces, which contained only a few blood cells and much foamlike and granular, pink-staining material. Mitotic figures were common. The retina was edematous and detached. The cornea was devoid of epithelium. The anterior chamber was open. The iris and ciliary body were not remarkable. The sclera and optic nerve appeared normal.

The final diagnosis was primary chorionic epithelioma of the left testis, with metastases to the spermatic cord, kidneys, right adrenal body, liver, pancreas, spleen, jejunum, stomach, heart, lungs, brain, subcutis, right choroid and right breast. There was also gynecomastia and fibrocaseous tuberculosis of the liver and spleen.

COMMENT

The case presented is, as far as we can determine, the fourth case of chorionic epithelioma with metastasis to the choroid observed in a man. The initial complaint, which brought the patient to the ophthalmologist, was failure of vision in the right eye. He had had a persistent cough, suggesting metastases to the lungs, two months previously. After the visual disturbance, the course was rapidly downhill, the patient dying within three weeks.

The origin of the tumor was in the left testis. Metastases were observed in the cerebral cortex, the choroid of the right eye, both lungs, the heart, stomach, small intestine, kidneys, liver, spleen, pancreas, the right adrenal gland, the right breast and the subcutaneous tissue. No metastases were noted in the roentgenograms of the bones. None was found in the pituitary body. The urine showed a high concentration

of estrogens. Photographs of the fundus were taken, but the results were not satisfactory because of the high elevation of the retina and tumor. One photograph is reproduced (fig. 2). The intraocular tension was lower in the eye involved. In previous reports the tension was elevated, and the eyes had to be enucleated because of glaucoma. The typical Langhans and syncytial cells were seen both in the primary tumor and in the metastases.

Of the 4 cases of testicular chorionic epithelioma with metastasis to the choroid, the right eye was involved in 3. Reichling,[5] in his incomplete report, did not specify which eye. The primary source was from the right testis in 2 cases and from the left testis in 2 cases. The patient lived two months after onset of visual disturbance in Reichling's case, one month in MacDonald's, three weeks in mine and two weeks in Godtfredsen's.

SUMMARY

A case of a testicular chorionic epithelioma with metastases to the choroid of the right eye is presented. Only 3 other cases of occurrence in men have been reported. Three cases with metastases to the choroid in women from chorionic epithelioma of the uterus have been reported.

In the present case, metastases were observed in the brain, breast, stomach, intestine, liver, adrenal gland, subcutis, heart, lungs and pancreas.

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