BILATERAL METASTATIC CARCINOMA OF THE CHOROID FROM CARCINOMA OF THE BREAST

By Arthur Lim Siew Ming, F.R.C.S. (England), D.O. (London)

Metastatic carcinoma of the choroid is comparatively rare and there are few ophthalmologists who have reported seeing more than one case.

The first report was made in 1872 by Perls and Maxwell in 1954 stated that 275 cases have been reported. Mann gave the opinion that these metastasis were probably more common than reported as they occur in the terminal stages of carcinomatosis. At this stage the visual symptoms are usually insignificant and if post-mortem is done, it generally does not include the eyes: it is therefore likely that the reports only represent a small percentage of actual ones.

Authors agree that the incidence of bilateral metastasis is about 25%, Cohen gave a figure of 25%, Lemoine and McLeod 20%, Ginsberg 25% and Cordes 25%. However, the bilateral involvement generally do not manifest simultaneously.

The following is a report of a case presenting with bilateral metastasis of the choroid resulting from an anaplastic carcinoma of the right breast.

CASE REPORT

This patient C.M.K., female age 35, was first treated at the Youngberg Memorial Hospital in August, 1952 at which time she was complaining of a goiter which she had for two years. She had slight palpitation of the heart, slight exophthalamus and it was felt that she was suffering from a toxic goiter. She was given Lugol's solution and phenobarbital and propylthiourcil.

She was followed until March 1953 and was found to be improving. She was not seen however, until October, 1964, when she presented herself with a history of having had a lump in her right breast for the previous few months. Another examination showed a large indurated mass in the upper outer quadrant of the right breast. A breast biopsy was done under local anaesthesia and the report is as follows:-

Gross: Specimen No. 1 consists of a section from axillary lymph nodes which are matted together and measure 2·5 cm. in greatest dimension. These appear grossly to be infiltrated by tumor. No. 2 specimen is a 1 cm. nodule from the right breast removed from the area near the nipple. No. 3 is a section measuring 2 cm. in greatest dimension removed from the mass in the right breast.

Microscopy: Section of axillary lymph node shows secondary adenocarcinoma. The primary most likely from the breast. Section from a nodule from the right breast shows highly anaplastic carcinoma infiltrating the fat. Section of nodule from the right breast shows a similar carcinoma also in this breast. The tumors are both scirrhus in that there is a large amount of fibrous stroma and the cell nests are small and highly infiltrate.

Diagnosis: Infiltrative ductal carcinoma of right breast. Secondary adenocarcinoma of right axillary lymph node.

On 2nd October, 1964, she underwent a right radical mastectomy under general anaesthesia. She did well following the operation and in November, 1964, the operation site was fully healed and she was advised to come for periodical check-up. She did not return however, until May, 1965, at which time she was checked and no evidence of recurrence was found.

In December, 1965, she came complaining of cough and on examination showed small nodules in the skin at the site of the previous mastectomy. A biopsy of one of these nodules was done and the report is as follows:-

Gross: Specimen is a 1 cm. piece of tissue removed from a mastectomy scar.

Microscopy: Section of tissue from mastectomy scar shows small infiltrating anaplastic carcinoma in a scirrhous stroma. The malignant cells also infiltrate into the fat.

Diagnosis: Secondary anaplastic carcinoma of chest wall.

X-RAY REPORT (CHEST)

Lung fields are clear (Comparative loss of translucency in the left lower zone is presumably due to breast shadow—the right one is not visible).

Heart: It's tranverse diameter appears to be slightly enlarged—which may be due to positional rotation and of no clinical significance unless proved otherwise on clinical examination.

In January, 1966, she returned for post operative check-up and at this time complained of blurred vision in the right eye. She was then referred to the author who diagnosed her as having metastatic carcinoma of the choroid of the right eye, producing secondary retinal detachment.

OCULAR EXAMINATION

She was first seen on the 4th January, 1966, with the complaint that for a month the right eye had defective vision. She had no other ocular complaints. She went to see her optician who asked her to be referred to see an eye specialist. On examination, it was found that she could only count fingers at 2 meters with her right eye but could see 6/6 with her left. Her eyes showed no abnormalities of the anterior segments. However, the right eye was about 10° divergent and fundal examination showed that the eye had a solid looking secondary detachment involving the macula region with multiple mottled yellowish white areas presumingly due to metastasis. Her left eye and fundus were normal. A

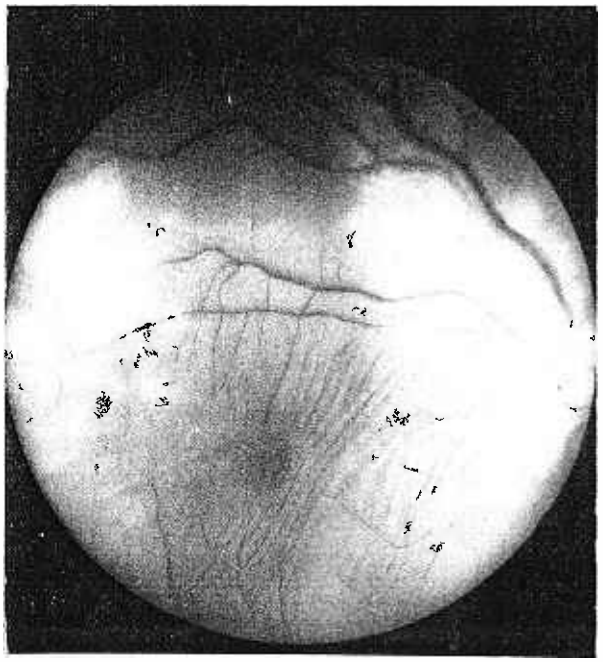

Fig. 1a. Right fundus (photographed on 13/1/66) showing shallow secondary retinal detachment involving the macula due to metastatic carcinoma of the breast. Multiple mottled yellowish-white areas of metastasis are seen in the supero-temporal quadrant. (Similar areas are seen adjacent to the infero-temporal retinal vessels in Fig. 1b.)

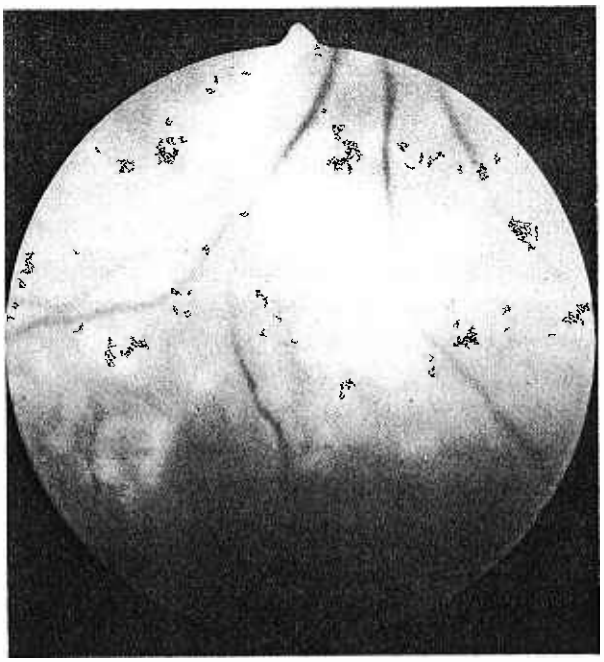

Fig. 1b. Right fundus shows multiple yellowish-white mottled areas of metastasis in the infero-temporal quadrant adjacent to the infero-temporal retinal vessels. (Photographed on 13/1/66).

provisional diagnosis of metastatic carcinoma of the choroid resulting in secondary retinal detachment was made. Retinal photographs were accordingly taken of her right eye (refer Figs. 1a and 1b).

She was reviewed on 13th January. On the 14th February, she complained of defective vision in her other (left) eye. On examination it was found that her right retinal detachment which was originally shallow has now ballooned and the detachment was subtotal. (refer Fig. 2). At the same time it was found that there was detachment of the retina at the region of the macula of her left eye. (Refer. Fig. 3a). Just temporal to the area of macula detachment in the supero temporal quadrant were multiple mottled yellowish-white areas of metastasis (refer Fig. 3b).

A firm diagnosis from carcinoma of the breast was made. She was referred for radiotherapy. The family was told that radiotherapy was only palliative and not curative, and that prognosis in her case was hopeless. After much discussion the family decided that she should be sent to Japan for further treatment. The patient was last seen on the 15th February, 1966.

DISCUSSION

Although the primary site can be from the lung and the bronchus (12%), alimentry fact (7%) and other sites, by far the commonest site

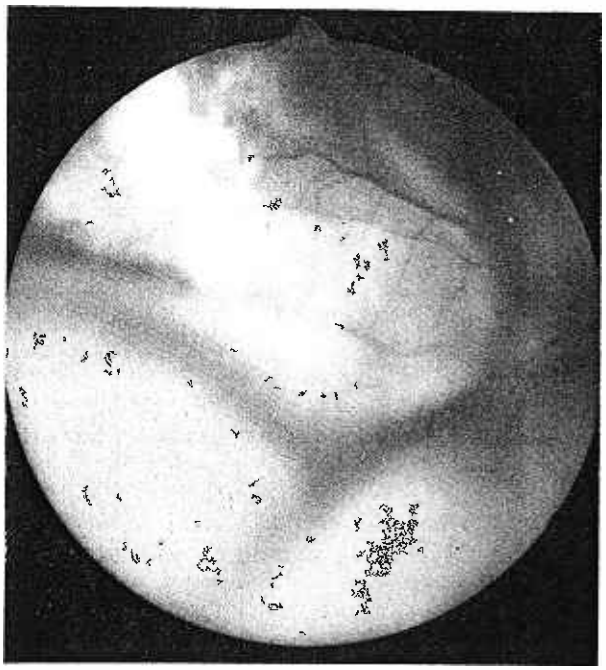

Fig. 2. Right fundus a month after (photograph taken on 14/2/66; compare with Fig. 1a.). Note subtotal retinal detachment with "ballooning" of retina. The multiple mottled yellowish-white areas of metastasis are seen in the non-detached area in the supero-temporal quadrant.

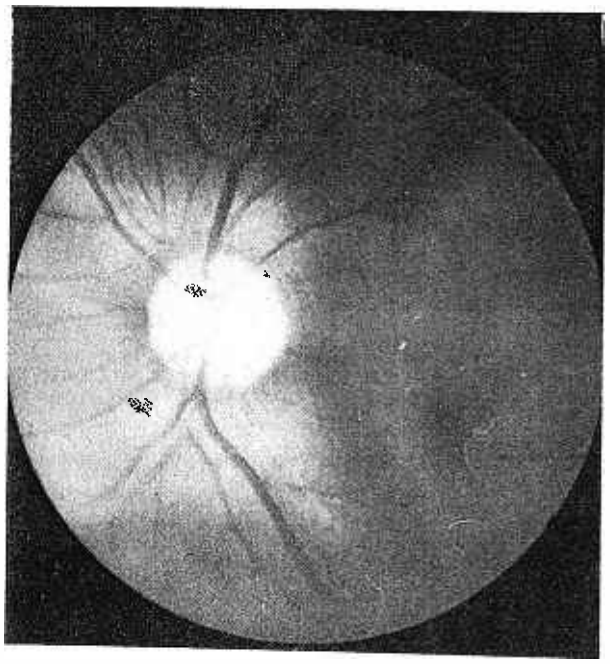

Fig. 3a. Left fundus of patient (photographed on 14/2/66) showing a shallow detachment of the left macula due to choroidal metastic carcinoma of the breast.

of the primary is the breast. Cohen gave an incidence of 70 percent.

The relative rarity is explained anatomically by the fact that the ophthalmic artery, usually a relatively small vessel branches off from the internal carotid artery at almost right angles.

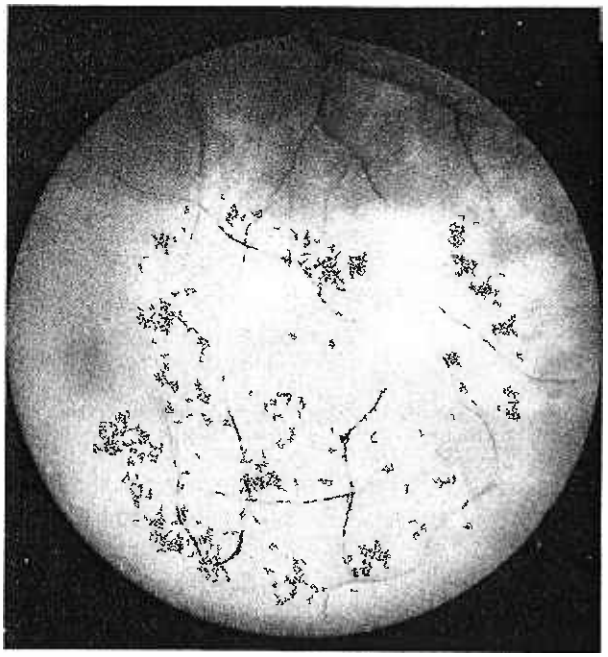

Fig. 3b. Left fundus (photographed on 14/2/66) showing yellowish-white mottled areas due to metastasis in the supero-temporal quadrant, just lateral to the shallow macula detachment.

It is partly for the same reason that the ophthalmic artery is often not visualised in carotid angiograms.

It is uncommon for metastasis to occur in the anterior uvea probably because the anterior uvea is supplied by only 2 anterior ciliary arteries while the posterior uvea is supplied by about 20 short posterior ciliary arteries. The most common site of metastasis is said to be on the temporal side near the macular because it is in this region that the short posterior ciliary arteries are largest and most numerous.

This patient presented with the classical clinical features of defective visual acuity of her right eye after surgery for carcinoma of the breast, a solid looking detachment and the multiple foci of mottled yellowish white metastasis. It is interesting that a month later the retina was totally detached and the left eye developed defective visual acuity and was seen to have a macular detachment with multiple foci of mottled yellowish white metastasis just temporal to it. It is unfortunate that the diagnosis of this patient could not be confirmed by histology, but the author has no doubt that the changes seen (and recorded with retinal photography) represents bilateral choroidal metastasis from carcinoma of the breast.

The average life expectancy after the ocular involvement is about eight months, although a case was reported by Evans to have lived for 2 years and 4 months after diagnosis of ocular

involvement was observed. Treatment is entirely palliative as the carcinoma is by then already widespread. The brain is usually involved.

Vision can usually be improved by irradiation and may improve the patient's morale. The real value of irradiation is in bilateral cases when it is important to preserve the vision of the patient in the remaining months. In unfortunate cases complicated by secondary glaucoma and pain, enucleation should be considered.

This is probably the trying period which the science of medicine can do relatively little, but a physician (or ophthalmologist) gifted with the art of dealing with a hopeless case can do much to calm the anxiety and boost the morale of the patient and his close ones. It is interesting to note that despite a most careful explanation of the hopelessness of this condition, the family of this patient decided to fly to Japan hoping for a "miracle" cure. But who can blame them!

SUMMARY

1. A case of bilateral choroidal metastasis from carcinoma of the breast is described (supplemented with retinal photography).
2. The frequency, clinical feature, prognosis and management of the condition is discussed.

ACKNOWLEDGEMENT

The author records his thanks to Dr. G. H. Coffin, M.D. for referring this patient and for his co-operation in providing a very detailed report, and to Mr. Fred Isaac for having first spotted the retinal secondary detachment.

REFERENCES

1. Cogan, D.G., and Kuwabara, T. (1954): "Metastatic" carcinoma to eye from breast (effect of endocrine therapy)", Arch. Ophth. 51, 240-249.
2. Cohen, M. (1937): "Bilateral metastatic carcinoma of the choroid", Arch. Ophth. 18, 604-613.
3. Cordes, F.C. (1944): "Bilateral metastatic carcinoma of the choroid with X-ray therapy to one eye", Amer. J. Ophth. 27, 1,355-1,370.
4. Duke, J.R., and Walsh, F.B. (1959): "Metastatic carcinoma to the retina", Am. J. Ophth. 47, 44-48.
5. Dukc-Elder, S. (1952): Textbook of Ophthalmology, St. Louis, C.V. Mosby, v. 5, 5,614.
6. Evans, P.J. (1937): "The use of radon in the treatment of metastatic carcinoma of the choroid", Brit. J. Ophth. 21, 496-502.
7. Evans, P.J. (1938): "Radon treatment of secondary carcinoma of the choroid", Brit. J. Ophth. 22, 739-745.
8. Greear, J.N., Jr. (1950): "Metastatic carcinoma of the eye", Am. J. Ophth. 33, 1,015-1,025.
9. Kennedy, R.J., Rummel, W.D., McCarthy, J.L., and Hazard, J.B. (1958): "Metastatic carcinoma of the retina", Arch. Ophth. 60, 12-17.
10. Lemoine, A.N., and McLeod, J. (1936): "Bilateral metastatic carcinoma of the choroid", Arch. Ophth. 16, 804-821.
11. Mann, W.A. (1940): "Discussions of Kulvin's paper", Amer. Jour. Ophth., v. 23, 1,400.
12. Maxwell, E. (1954): "Metastatic tumors of the uveal tract", Am. J. Ophth. 37, 867-873.
13. Perls. M. (1872): Contributions to pathology of tumors", Virchow's Arch. f. Path. Anat., v. 56.
14. Reese, A.B. (1963): "Tumors of the Eye", Second Edition, Harper and Row, p. 514.