

CEREBRAL METASTASIS FROM CHORIOCARCINOMA AND ONCOTIC ANEURYSMS

CASE REPORT

PASQUALE GALLO*, OTHELLO M. FABÍAO NETO, SÉRGIO F. RAUPP*,
CARLOS A. ORDOVAS*, PAULO P. OPPITZ*

SUMMARY — Cerebral metastasis occur in 10 to 20% of patients with choriocarcinoma. We describe the twelfth patient with oncotic aneurysms from choriocarcinoma verified by cerebral angiography. The importance to consider this disease in a woman of childbearing age who develop an intracerebral hemorrhage or a lesion with mass effect is emphasized, as well as laboratorial and radiological characteristics. Therapeutic approaches with chemotherapeutic agents, surgery and irradiation are discussed.

KEY WORDS: choriocarcinoma, cerebral metastasis, oncotic aneurysm.

Metástase cerebral de coriocarcinoma e aneurismas oncóticos: relato de caso.

RESUMO — Metástases cerebrais ocorrem em 10 a 20% das pacientes com coriocarcinoma. Apresentamos o décimo segundo relato na literatura mundial de paciente com aneurismas oncóticos, demonstrados na angiografia cerebral, secundários a metástases cerebrais de coriocarcinoma. A importância de se considerar esta patologia no diagnóstico das lesões expansivas e/ou hemorrágicas cerebrais numa paciente em idade reprodutiva é salientada, bem como as características laboratoriais e radiológicas. O papel da quimioterapia, cirurgia e radioterapia no manuseio dessas metástases é discutido.

PALAVRAS-CHAVE: coriocarcinoma, metástase cerebral, aneurisma oncótico.

It is impossible to know the exact incidence of choriocarcinoma in Brazil. It is known that in the United States the incidence is about 1 in 40,000 pregnancies; on the other hand, in Southeast Asia it is more frequent (1:3,708)⁴. The presence of cerebral metastasis increases the mortality. Although, it is well known that the prognosis of such disease improved with the use of new chemotherapeutic agents 2,7,11,12,13,18,20.

We report the case of a patient who developed a choriocarcinoma metastasis on which an intracranial hemorrhage occurred. The presence of oncotic aneurysm could be seen through the cerebral angiogram. It is the twelfth case reported in literature.

CASE REPORT

ZFG, a 31 year old woman, had a molar pregnancy in October 1987. No check-ups were made. She had a normal delivery four months before presentation to Cristo Redentor Hospital in January 1990, with headache, nausea, vomiting and right hemiparesis. Computed tomographic (CT) scan (Fig. 1) revealed an intracranial hematoma in the left temporoparietal area. Twelve hours after admission, her hemiparesis worsened, and she lapsed in coma.

* Department of Neurosurgery and Neuroradiology, Cristo Redentor Hospital, Porto Alegre. Aceite: 18-novembro-1992.

Emergency left parietal craniotomy and removal of a hemorrhagic mass were performed. Over the next night, the patient improved and 48 hours after craniotomy she became drowsy again. CT scan was repeated (Fig. 2), a new intracranial hematoma in the right occipital area being revealed. Roentgenograms of the chest (Fig. 3) revealed two coin lesions (in left lower lobe

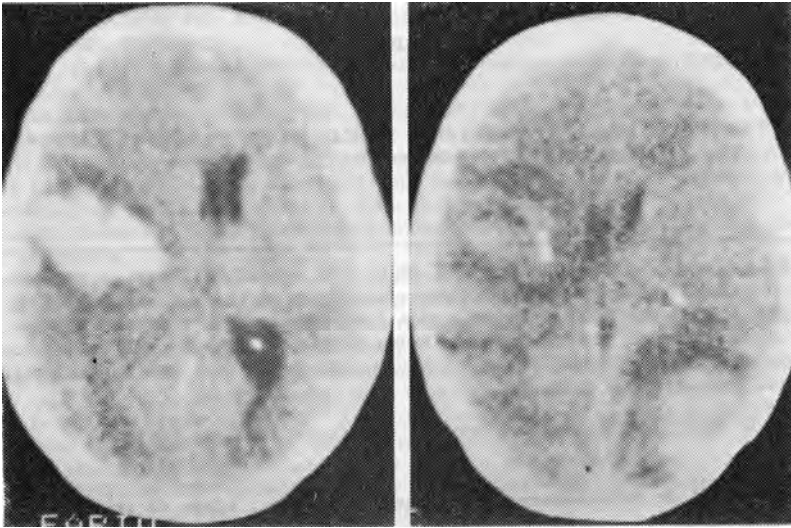


Fig. 1 (left). A noncontrast CT scan shows intracranial hemorrhage in the left temporoparietal area.

Fig. 2 (right). A noncontrast CT scan shows a new intracranial hemorrhage in the right occipital area.

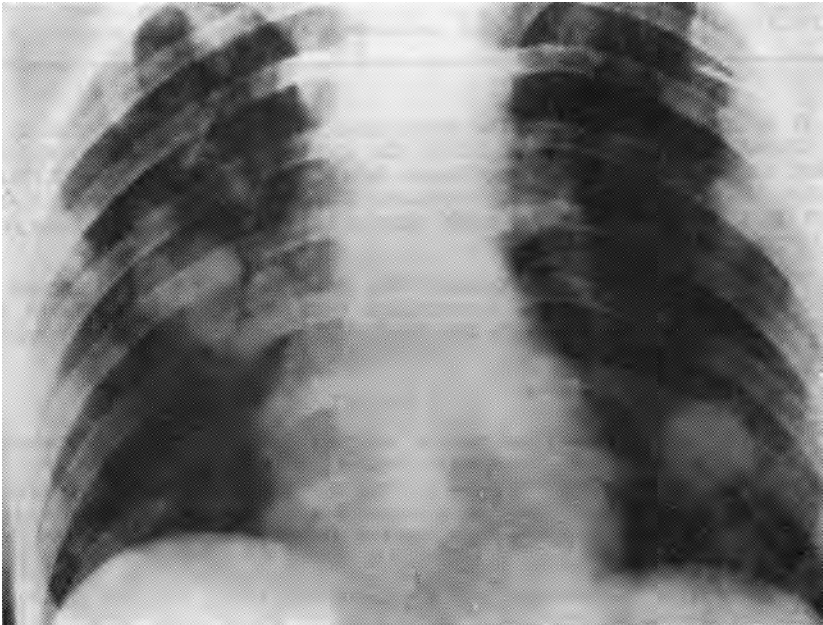


Fig. 3. Roentgenogram of the chest showing two coin lesions.

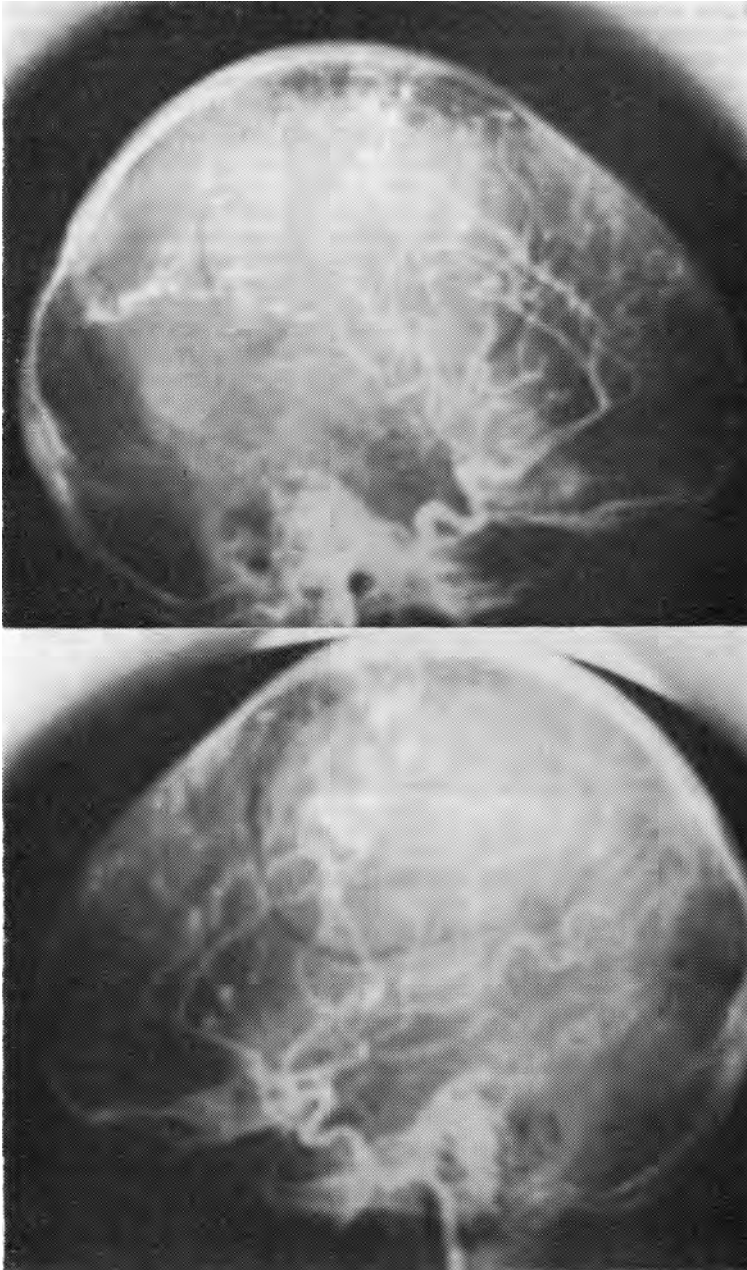


Fig. 4 (above). Two oncotic aneurysms on distal branches of right middle cerebral artery and one arising of the right posterior cerebral artery.

Fig. 5 (below). The left carotid angiogram shows varicosities in the parietal area.

and right median lobe). Serum chorionic gonadotropin was elevated (290,000 mIU/ml). The cerebral angiogram showed two aneurysms arising from branches of right middle cerebral artery and one arising from right posterior cerebral artery (Fig. 4). Varicosities in left parietal area were shown (Fig. 5). Chemotherapy with Cisplatin and Etoposide was begun and she improved and discharged in April 1990 with normal CT scan (Fig. 6). She died in June 1990 by gastrointestinal hemorrhage at home, and her family refused autopsy.

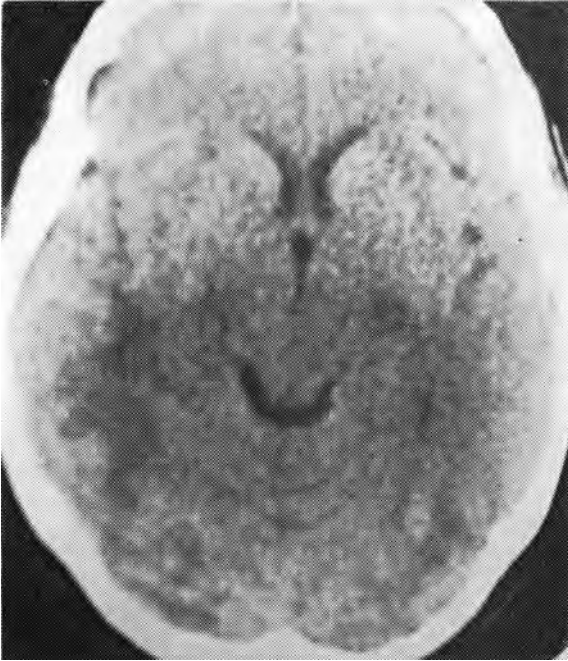


Fig. 6. CT scan demonstrates remission of the previous lesions.

COMMENTS

Choriocarcinoma is a trophoblast malignant transformation, having invasive and metastatic characteristics^{12,14}. Soon after its appearance this neoplasm invades the inferior vena cava spreading emboli. Some will reach the pulmonary circulation being asymptomatic or followed by an episode similar to acute pulmonary embolism¹⁴. The trophoblast in the lung may undergo further malignant transformation before metastasizing elsewhere⁵.

In autopsy findings, the patients having cerebral metastasis of choriocarcinoma have shown, at the same time, pulmonary lesions in 95 to 99%, being probable that the cerebral metastasis is a consequence of them. Besides lungs and brain, metastasis in the pelvis, kidney, gastrointestinal tract, spleen and heart occur frequently^{10,12,15,19}.

To evaluate the real incidence of cerebral metastasis is very difficult because of the disagreement from clinic and postmortem studies. From 33 to 60% they occur in more than on site, having generally irregular sizes. Its development is rapid and being localized more frequently in the cerebral hemispheres^{10,12,19,22}. The trophoblasts damage blood vessels developing thrombosis, varicosities and aneurysms²¹.

Oncotic aneurysms were described for the first time in 1971 and it is believable that this malformation happens because of metastatic embolism, which through its power of invasion damages the blood vessels^{17,22}. A few cases were

described, although such aneurysms should occur with greater frequency because they may be obliterated at the time of aneurysmal rupture^{16,19}. The previous reports of these aneurysms mostly occurred in the middle cerebral artery. Besides being found in that artery, they may occur in other sites, concomitant or not, as in the posterior cerebral artery and in the callosomarginal artery¹⁹. Seigle et al.¹⁹ believe that the presence of such aneurysms in many sites can be related to metastasis in the heart, although it was not verified in our patient.

Remission of cerebral metastasis occurred during chemotherapy, though two months after discharge the patient died because of gastrointestinal hemorrhage. At present, the choriocarcinoma treatment presented some progress, since before chemotherapy this disease was fatal within two years. Many combinations of chemotherapy agents are been recommended although there were controversies about the appropriate therapeutic approach when there are cerebral metastasis^{4,9,13}. Some insist upon chemotherapy associated or not to irradiation^{3,4,9,13,18}, while others support surgical resection followed by irradiation and chemotherapy^{8,20}. We believe that the craniotomy should be used only in extreme situations such as acute and progressive neurological deterioration or when the cerebral metastasis persists even though using chemotherapy, indication also proposed by others^{2,11,12}.

The most common clinic presentation of such metastasis are headache, vomiting, seizure and hemiparesis^{12,19}. A sudden presentation of headache, vomiting and loss of consciousness, with or without focal signs are characteristic of an intratumoral hemorrhage. It is easier to specify the diagnosis when the presence of choriocarcinoma is already known. This disease should be considered in the differential diagnosis of intracranial hemorrhage in young woman with recent pregnancy without any other risk factors^{6,12,19}.

The chorionic gonadotropin levels in the cerebrospinal fluid, serum and urine is useful to the diagnosis as well as during the evaluation of remission of choriocarcinoma¹. Nongestacional choriocarcinoma as well some other forms of germ cells tumors, may cause alpha-fetoprotein to rise and choriocarcinoma do not⁶.

Roentgenograms of the chest can demonstrate one or more metastasis and it is also useful to evaluate the remission of the disease. The CT scan may show a similar image to an intracranial hemorrhage. It can also be presented as a high-density mass surrounded by edema^{6,12}.

REFERENCES

1. Bagshave KD, Harland S. Immunodiagnosis and monitoring of gonadotrophin-producing metastasis in the central nervous system. *Cancer* 1976, 38:112-118.
2. Begent RHJ, Bagshave KD. The management of high-risk choriocarcinoma. *Semin Oncol* 1982, 9:198-203.
3. Brace KC. The role of irradiation in the treatment of metastatic trophoblastic disease. *Radiology* 1968, 9:540-544.
4. Brewer JI, Halpern B, Torok EE. Gestational trophoblastic tumors. *Cur Prob Cancer* 1979, 3:4-9.
5. Case records of the Massachusetts General Hospital, case 16. *N Engl J Med* 1977, 296: 926-933.
6. Dagi TF, Maccabe JJ. Metastatic trophoblastic disease presenting as a subarachnoid hemorrhage: report of two cases and review of the literature. *Surg Neurol* 1980, 14:175-184.
7. Delahunt B, Heng Teoh H, Balakrishnan V, Nacey JN, Clark SP. Testicular germ cell tumor with pineal metastasis. *Neurosurgery* 1990, 26:688-691.
8. Fisher RG, Bennion S, Frimmer D, Malatesta RL. Metastatic cerebral choriocarcinoma without pelvic or pulmonary metastasis. *Surg Neurol* 1979, 11:57-59.
9. Hongzhao S, Boazhen W. Brain metastasis in choriocarcinoma and malignant mole. *Chin Med J* 1979, 92:164.
10. Ishizuka T, Tomoda Y, Kaseki S, Goto S, Hara T, Kobayashi T. Intracranial metastasis of choriocarcinoma: a clinicopathological study. *Cancer* 1983, 52:1986-1993.
11. Jones WB. Gestational trophoblastic neoplasms. *Surg Clin N Am* 1978, 58:167-179.
12. Kobayashi T, Kida Y, Yoshida J, Shibuya N, Kageyama N. Brain metastasis of choriocarcinoma. *Surg Neurol* 1982, 17:395-403.

13. Kobayashi T, Yoshid J, Ishiyama J, Noda S, Kito A, Kida Y. Combination chemotherapy with cisplatin and etoposid for malignant germ-cell tumors. *J Neurosurg* 1989, 70:676-681.
14. Lukas DS. Embolismo pulmonar. In Wyngaardow JB, Smith LM Jr (eds): *Cecil tratado de medicina interna*. Rio de Janeiro: Interamericana, 1984, p 221.
15. Ma HK, Wong LC. Gestational trophoblastic disease in Hong Kong. *Semin Oncol* 1982, 9:224-233.
16. Monna F, Beck H, Miyamoto T, Nagao S. Intracranial aneurysm due to metastatic choriocarcinoma. *Surg Neurol* 1986, 25:74-76.
17. Montaut J, Hepner H, Tridon P, Picard L, Floquet J, Lepoire J. Aspects pseudo-vasculaires des métastases intracrâniennes des chorio-épithéliomes. *Neurochirurgie* 1971, 17:119-128.
18. O'Neill E, Pelegrina I, Hammond CB, Vicens R, Almodóvar AR. Normal pregnancy and delivery after cerebral metastasis of choriocarcinoma. *Cancer* 1976, 38:984-986.
19. Seigle JM, Caputy AJ, Manz HJ, Wheeler C, Fox JL. Multiple oncotic intracranial aneurysms and cardiac metastasis from choriocarcinoma: case report and review of the literature. *Neurosurgery* 1987, 20:39-42.
20. Stilp TJ, Bucy PC, Brewer JJ. Cure of metastatic choriocarcinoma of the brain. *JAMA* 1972, 221:276-279.
21. Weir B, MacDonald N, Mielke B. Intracranial vascular complications of choriocarcinoma. *Neurosurgery* 1978, 2:138-142.
22. Xu Z: Cerebral metastatic choriocarcinoma: analysis of 35 autopsies. *Clin Med J* 1982, 95:273-277.