SINGULAR CASE OF THIRD VENTRICLE METASTASIS OF COLORECTAL CARCINOMA - CASE REPORT

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SINGULAR CASE OF THIRD VENTRICLE METASTASIS OF COLORECTAL CARCINOMA CASE REPORT(Abstract): Third ventricle tumors are uncommon central nervous system lesions and unusual locations for metastatic colorectal cancer. We present a case of a 68 year old woman with a solitary 3rd ventricle lesion found on a computed tomography scan of the brain and the synchronous mass of the right colon. The aim in this case was local control of cerebral lesion with pathological diagnosis. Surgery was followed by a short term good evolution but with sudden death. Keywords: BRAIN METASTASES, THIRD VENTRICLE, COLORECTAL CANCER.

Metastatic brain tumors from colorectal cancer are relatively rare. The incidence ranges from 1.9 to 3.5 percent of all metastatic brain tumors (1) with a median value of 2.3 percent in the latest studies (9). Left-sided primary colon tumors were predominant and the cerebellum was the most common area of brain involvement. Tumors of the ventricular system account for less than 1% of intracranial lesions and 18.5% of them occur in the third ventricle (16). The most frequent lesions are colloid cysts (55%) and gliomas (19%), other tumors are uncommon (7). Those statistics data denote a very rare and extremely rare localization of brain metastases in the 3rd ventricle. Furthermore this location represents a challenge in terms of medical and surgical approach(12).

CASE REPORT

A 68 year old female presented with headache with a short term onset (apparently one week before admission - according to family anamnesis) associated with dizziness and mixed aphasia. She was admitted in neurology department and she had performed a contrast enhancement computed tomography (CT) scan of the brain which showed a lesion located on the 3rd ventricle topography, well defined with polycyclic aspect (fig. 1).

The laboratory studies denoted an iron deficiency anemia: Hb= 9.7g /dl; MCV=72;
MCHC= 30.6 g/dl. She was transferred in neurosurgical department and shortly after that she became comatose. A new CT scan has been performed and it revealed a hemorrhage around the 3rd ventricle lesion, in the 4th ventricle and internal active hydrocephalus predominant on the left lateral ventricle (fig. 2). We performed an external ventricular drainage (EVD) on the left side and after patient stabilization (the same day) we did a contrast enhancement brain MRI (fig. 3).

![Fig. 1. Contrast enhanced CT scan showing a lesion in the 3rd ventricle](image1)

![Fig. 2. Hemorrhage around the ventricular mass with active hydrocephalus](image2)

![Fig. 3. a, b T1WI C+ , c T2WI lobulated lesion on the topography of the 3rd ventricle with enhancement and active hydrocephalus prevalent on the left lateral ventricle.](image3)

In order to assess the origin of the anemia we performed an abdominal ultrasound examination followed by an abdominal CT scan which confirmed the presence of a tumor located on the ascending colon with a diameter of 92/53/90 mm (fig.4). Our next step was to proceed to the second stage intervention aiming to resect as much as possible from the tumor. Previously to the second intervention we removed the external ventricular drainage. We performed a precorronary transcallosal ap-
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The intraoperative histological examination revealed moderately differentiated adenocarcinoma.

Her postoperative course was relatively good in the first day with progressive general worsening after that. The CT scan showed the persistence of the hydrocephalus (fig 5). A new EVD was placed and the patient had a slight recovery. Unfortunately the evolution with cardiac arrhythmia and decease of the patient was registered 4 days after the tumor removal.

DISCUSSION

Brain metastases are the most common intracranial tumors in adults; the latest reports revealing that 10 - 40 % of the cancer patients will develop lesions in this specific location (14). The most common primary cancers metastasizing to the brain are lung cancer (50%), breast cancer (15%–20%), unknown primary cancer (10%–15%), melanoma (10%) and colon cancer (5%) (8, 11).

The incidence of 3rd ventricle lesions is very low (4). We haven’t found yet cases of 3rd ventricle colorectal metastasis mentioned in literature. As far as we know it was a singular case. Colorectal cancer usually metastasize in the liver or in the lung, very rarely as primary brain metastasis. In our case the histopathological result revealed moderately differentiated adenocarcinoma with epithelial tumoral cells showing cytological features of neoplasia. It presented areas of papillary fronds arranged around a fibro-vascular core (Fig. 6a) and expressing epithelial anaplastic cells arranged as irregular gland-like structures in a back-to-back fashion. (fig. 6b) In the light of the results of the abdominal examination the probability for a metastatic tumor of gastrointestinal origin is very high and according to some studies the median survival after surgery for gastrointestinal brain metastasis is 9.1 months (1) while after radiosurgery is 6.7 months (2), so the surgery may be more beneficial than other oncologic therapies in this specific case.

The patient was diagnosed with anemia previously to the intervention but the swift neurological deterioration allowed us to find the cause of anemia after EVD.
From the beginning the synchronized diagnosis of a brain metastasis and colorectal cancer indicates a late stage gastrointestinal tumor and consecutively a poor prognosis (3). The latest data found that gastrointestinal tract tumors (already metastasized in the brain) were associated with a shorter median survival than even melanoma (6).

The patient presented with acute obstructive hydrocephalus due to both - tumor extension per se and intraventricular bleeding, imposed EVD and surgical intervention with the aim of ventricle repermeabilisation by tumor debulking and histopathological confirmation.

_Technical considerations._ We have chosen a transcallosal approach on the left side (5, 13). We did an "S" shaped incision starting from the left side, from the incision for the EVD with a parasagittal craniotomy centered on the former burr hole for EVD. We distinguished the superior sagittal sinus which presented a voluminous venous dilatation without any important drainage. Parasagittal dissection of adherences between the 2 hemispheres was followed by a 2 cm long callosotomy with ultrasound aspirator and entrance in the ventricular system and evacuation of the CSF under pressure. The choroid plexus was visualized and the inferior one quarter of the septum seemed infiltrated, the fornix was pushed upward and the cleavage plane was difficult to find. We resected the tumor with the aid of ultrasonic aspirator until we saw the lateral wall of the third ventricle. The tumor was well vascularised, adherent to the choroid plexus and veins while in the center it had a grey, fatty aspect.

We considered it was too dangerous to continue debulking because of the absence of the cleavage plane, the presence of the adherences to the wall of the ventricle and difficulties in visualization of the bleeding sources. We have chosen the classic intervention and not the stereotactic biopsy because of the presence of obstructive hydrocephalus and we didn’t chose also the endoscopic approach (10,15) because of the likelihood of bleeding and poor control of hemostasis. Intra operative there were no major complication but the resection was stopped because of the lack of the differentiation in between the tumor mass and the diencephalic structures.

The initial evolution after surgery was good with no more deficits. The unfortunate evolution with cardiac arrhythmia and death
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was registered. The patient did not suffer of another new hemorrhage or recent ischemia, on the control CT scan and she presented no hydroelectrolytic disturbances. She also didn’t respond to the replacement of EVD. Sudden death is cited in lesions that are infiltrating the diencephalon.

CONCLUSIONS

The 3rd ventricle metastases are unusual lesions with difficult evolution and with poor prognosis especially when they are diagnosed synchronically with a primary intestinal lesion and they may be complicated with sudden death.

REFERENCES