Primary cerebral lymphoma

The primary cerebral lymphoma (PCL) is a rare non-Hodgkin's lymphoma that is confined to the brain, the leptomeninges and eyes without any other system location. The PCL accounts for 1 to 2% of all non-Hodgkin's lymphomas and less than 5% of all brain tumors [1, 2]. Its incidence is increasing among the immunocompetent individuals [3]. In most cases, it is a large cell B non-Hodgkin lymphoma (80% of cases). The optimal treatment for PCL has not been characterized.

The aim of this study is to describe the epidemiologic, therapeutic and evolution features in 12 cases of primary cerebral lymphoma.

Patients and methods

Between January 1994 and December 2007, 12 patients with PCL were treated at Salah Azaiz Institute. The patients presented initially with neurological symptoms suggesting an intracranial syndrome. All patients underwent CT and / or MRI with histological diagnosis and systemic staging.

Results

The average patient age was 40 years (17-57) with a sex ratio of 3 (9 men and 3 women). One patient suffered from an ulcerative colitis and one was followed for hepatitis C. No patient has HIV infection. The fact of discovery was a syndrome of increased intracranial pressure in 50% of cases, seizures in 41.7% and focal deficits in 58.4% of cases. All patients underwent brain imaging: CT to 6 patients, MRI to 2 patients, CT and MRI to 4 patients. (Table 1)

All patients underwent thoraco-abdomino-pelvic CT and a bone marrow biopsy (BOM), which were normal. A cytological examination of the cerebrospinal fluid demonstrated neoplastic cells in 4 patients out of 12 (33.33%). Six patients underwent stereotactic biopsy and 6 had a surgical excision (complete resection in 4 cases and incomplete resection in 2 cases). The histopathological exam found a large cell B non-Hodgkin's lymphoma in 10 cases (83.3%) including 50% CD20+, lymphoplasmacytic lymphoma in one case and lymphoblastic lymphoma in another case. Ten patients (83.3%) had chemotherapy: COPADEM (cyclophosphamide-vincristine-prednisone-adriamycin and methotrexate) in 5 cases,

Table 1 : Patients features

Case N°	Age (years)	Sites of injury	Surgery	Chemotherapy	Radiotherapy	Response to treatment
1	45	bilateral Frontal callosum	No	No	18 Gy 3 sessions	PD
2	46	Corpus callosum and periventricular	No	Yes	56 Gy	CR
3	41	Right temporal	Yes	Yes	46 Gy	CR
4	51	Frontal and right parietal	Yes	Yes	50 Gy	CR
5	25	Right rolandic	Yes	Yes	54 Gy	CR
6	53	Left rolandic	Yes	Yes	54 Gy	CR
7	57	Right occipital	Yes	Yes	44 Gy	CR
8	20	Thalamic and left cerebral peduncle	No	Yes	30 Gy 10 sessions	CR
9	54	Corpus callosum	No	Yes	50 Gy	CR
10	17	Occipital ,temporal and left sylvian	No	Yes	54 Gy	CR
11	39	Right rolandic	Yes	No	54 Gy	CR
12	30	Left frontal	No	Yes	54 Gy	CR

RCOPADEM (R = rituximab) in 3 cases, CHOP (cyclophosphamide, vincristine and prednisone) in one case and RACVBP (rituximab-cyclophosphamide-adriamycin-vindesine-bleomycin and prednisone) in another case. Four patients with positive cerebrospinal fluid cytology had intrathecal chemotherapy with methotrexate. The number of cycles of chemotherapy ranged from 3 to 8. Grade IV hematologic toxicity was observed in six cases (50%), grade II mucositis in 5 cases (41.6%) and grade IV nephrotoxicity in 1 case (8.33%).

After chemotherapy, 7 patients were evaluated by cerebral MRI in 5 cases and CT in 2 cases. Among these patients 5 had an initial biopsy. An objective response was observed in 70% of cases (total in 30% of cases and partial in 40% of cases). All patients underwent radiotherapy. The target volume included the whole brain at a dose of 30-46 Grays with conventional fractionation (1.8 to 2 Gy per fraction) followed by a boost at the tumor site of 10 to 20 Gy for 10 patients. Two patients with impaired general condition had hypofractionated radiotherapy. The first patient received 18 Gy in 3 fractions and the second 30 Gy in 10 fractions. Response to treatment was judged by MRI and was complete in 11 patients. A progressive disease was noted in one patient. (figures 1 and 2). After a mean follow up of 27 months, no recurrence was observed in patients in remission after treatment. One patient developed neurotoxicity type of cortico-subcortical atrophy revealed by seizures. The median survival was 16 months (5-72 months). Overall survival at 2 and 5 years was respectively 68.8% and 56%.

Conclusion

The PCL is a rare tumor whose prognosis is unfavorable. Radiotherapy was for long the standard treatment. In our series and a literature review, the combination of chemotherapy and radiotherapy appears to improve survival in PCL. Other randomized studies are needed to determine the benefit and modalities of radiotherapy in good responders to chemotherapy and for elderly patients. High dose chemotherapy in association with monoclonal antibodies has intriguing results but deserve additional evaluation after longer follow-up.

Figure 1a : Brain CT and MRI: Right parietal PCL before treatment

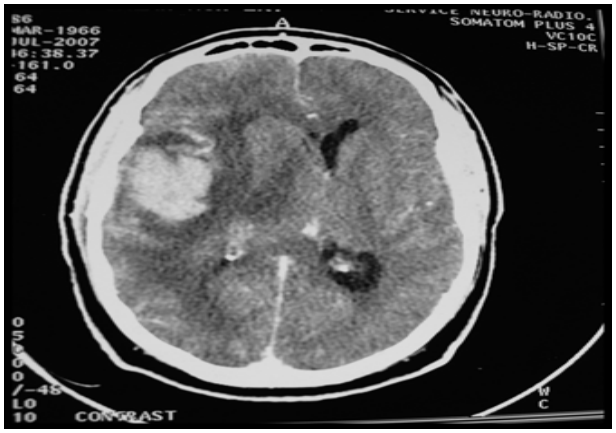


Figure 1b : Brain CT and MRI: Right parietal PCL before treatment

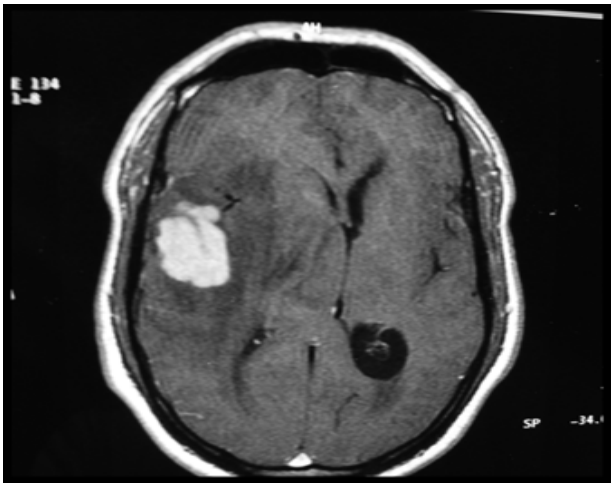
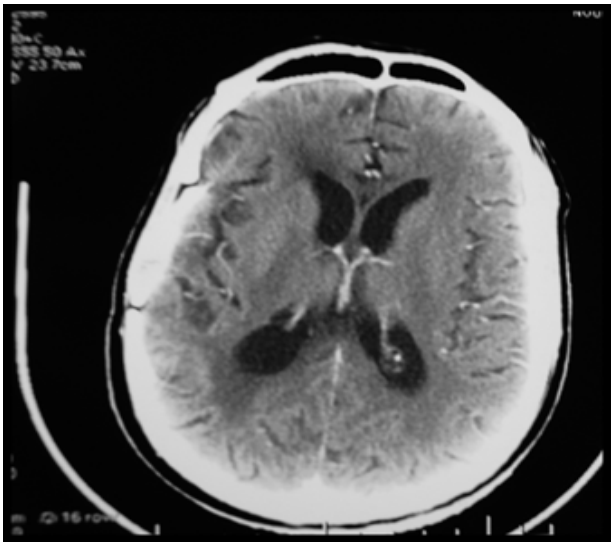


Figure 2: Brain CT after treatment: Chemotherapy (RCOPADEM) and Radiotherapy



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Chiraz Nasr Ben Ammar, Manel Bahri*, Imen Essaidi*, Lotfi Kochbati*, Hatem frikha*, Walid Gargouri*, Mounir Besbes*, Wided Ayoub**, Mansour Ben Abdallah**, Mongi Maalej**

** Department of Radiothérapy Oncology, Salah Azaiz Institute, Tunis.*
*** Department of statistics, Salah Azaiz Institute, Tunis.*
Tunis Medical School
Tunis El Manar University