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RESEARCH ARTICLE

DREAD SITE OF RELAPSE IN GERM CELL TUMOR OF TESTIS

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Abstract

Brain metastases from non-seminomatous germ cell tumors (NSGCTs) are rare and can occur as a synchronous or metachronous event in approximately 8-15% of cases. These metastases mainly concern young men in good clinical condition. Hence, aggressive treatment with surgery plus adjuvant radiotherapy and chemotherapymight be advocated especially in large tumors. Prognosis remains poor and there is not much evidence on optimal management of these patients. We report the case of a 24-year-old young male with a history of a treatedyok sac tumor. Who showed monthslater a leptomeningeal metastasis. Then we discuss this patient prognosis supported with a review of case records of the literature.

Introduction:-

Case report:

We report the case of a 24-year-old young male who was treated for a non-seminomatous germ cell tumor of the right testis, with high level of AFP, negative serum level of LDH and BHHCG,and without any visceralmetastasis as showed by total body CT scan (figure 1). Postoperative clinical course was uneventful. 3months later, a follow up CT scan showed hepatic metastasis and he was then put under chemotherapy (Figure 1). Few weeks later the patient presented to the ER with seizures and a brutal right hemiplegia. A cerebral CT showed an irregular heterogenous mass with hemorrhagic component, surrounded by edema resulting in midline deviation (figure 2). A cerebral MRI was then performed for better assessment of this lesion. Spin–echo T1 and T2 sequences in axial (A), coronal (B) and sagittal (C) plane, on SWI, DWI, after gadolinium-DTPA infusiondemonstrated a left parietal extra-axial heterogenous dural mass, hypo intense in T1 and T2 weighted images, containing different black spots compatible with intra-tumoral hemorrhage in T2* and an intense and heterogeneous enhancement after GADO administrationconsistent ofa solitary leptomeningeal metastasis (figure3).

The patient is in steady state under chemotherapy.

Discussion:-

Introduction:

Non-seminomatous germ-cell tumors (NSGCT) represent 40% of testicular tumors originated from totipotent stem cells. They interestmostly pubescentpopulation.

Systemic spread happens rapidly and mainly by lymphatic and hematogenous way. They primarily affect the lung and secondarily the liver. The cerebral localizationremains rare not exceeding 1.2%[i]. and is reported to be related

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to high level of BHCG as shown in some studies based on which a cerebral CT scan was recommended for all patients with this particular biological profile[ii].

Epidemiology:
Germ cell tumors affect mainly young males. Cure rate is about 80% in patients without secondary localizations, but drops in metastatic cases of non seminomatous germ cell tumors with negative prognosis and higher risk of relapse.

High level of serum tumor markers and the presence of visceral metastases constitute poor predilection factors and the International Germ Cell Cancer Collaborative Group has formalized criteria to classify this group of patients into good-, intermediate-,and poor-risk patients[iii].

Imaging findings:
Brain metastases have constantly a hemorrhagic component, but may differ in some features.

They can occur as a solitary mass of multiples intra parenchymal lesions as they can affect the dural sheets and show as a mass oreven leptomeningeal carcinomatosis

On MRI, the lesions are heterogeneous signal hypo or iso intense in T1WI and T2WI without or withheterogeneous or homogenous enhancement after gadolinium administration.Theycan show no diffusion restriction and generally hypointense in T2* compatible with intratumor hemorrhage[iv].

Treatment:
Testicular germ cell tumor carries a poor prognosis due to the low permeability of the blood-brain barrier to chemotherapeutic drugs.However, the efficiency of some intraarterial chemotherapeutic agents has been reported[v].

Treatment of leptomeningeal tumors is quite challenging. Studies suggested intrathecal administration of chemotherapeutic agents[vi].

Regarding the surgical approach, statistics showed positive results for the management of brain metastasis as the only site of relapse. Nevertheless, combining surgery to radio-chemotherapy secures a better outcome especially in multi sites metastasis[**Error! Reference source not found.**].

Prognostic factors for survival:
The IGCCCG risk classification is used to identify three prognosis groups associated with different survival rates with a median survival 50% for patients with metastatic non seminomatous germ cell tumors which belong to the 'poor-prognosis' group**Error! Reference source not found.**].

Conclusion:-
Isolated Leptomeningeal relapse from testicular yolk sac tumors carries a relatively favorable prognosis.

Cerebral MRI is the best assessment imaging modality. The discovery at a metastatic stage in adults, calls for an aggressive multidisciplinary treatment. The evolution of this tumor depends on the prognosis group of the patient, at the time of diagnosis.

Conflict of interest statement:
The authors declare no conflicts of interest.

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Figures:

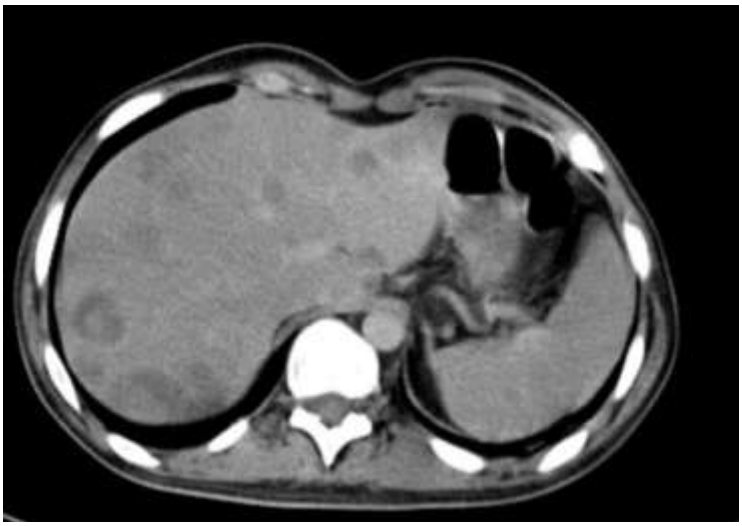

Figure 1:- Axial CT scan image of the liver showing multiple nodular lesions with peripheral enhancement compatible with multiple metastasis.

Figure 2:- Axial CT scan of the brain demonstrating an irregular heterogenous mass with hemorrhagic component, surrounded by edema resulting in midline deviation.

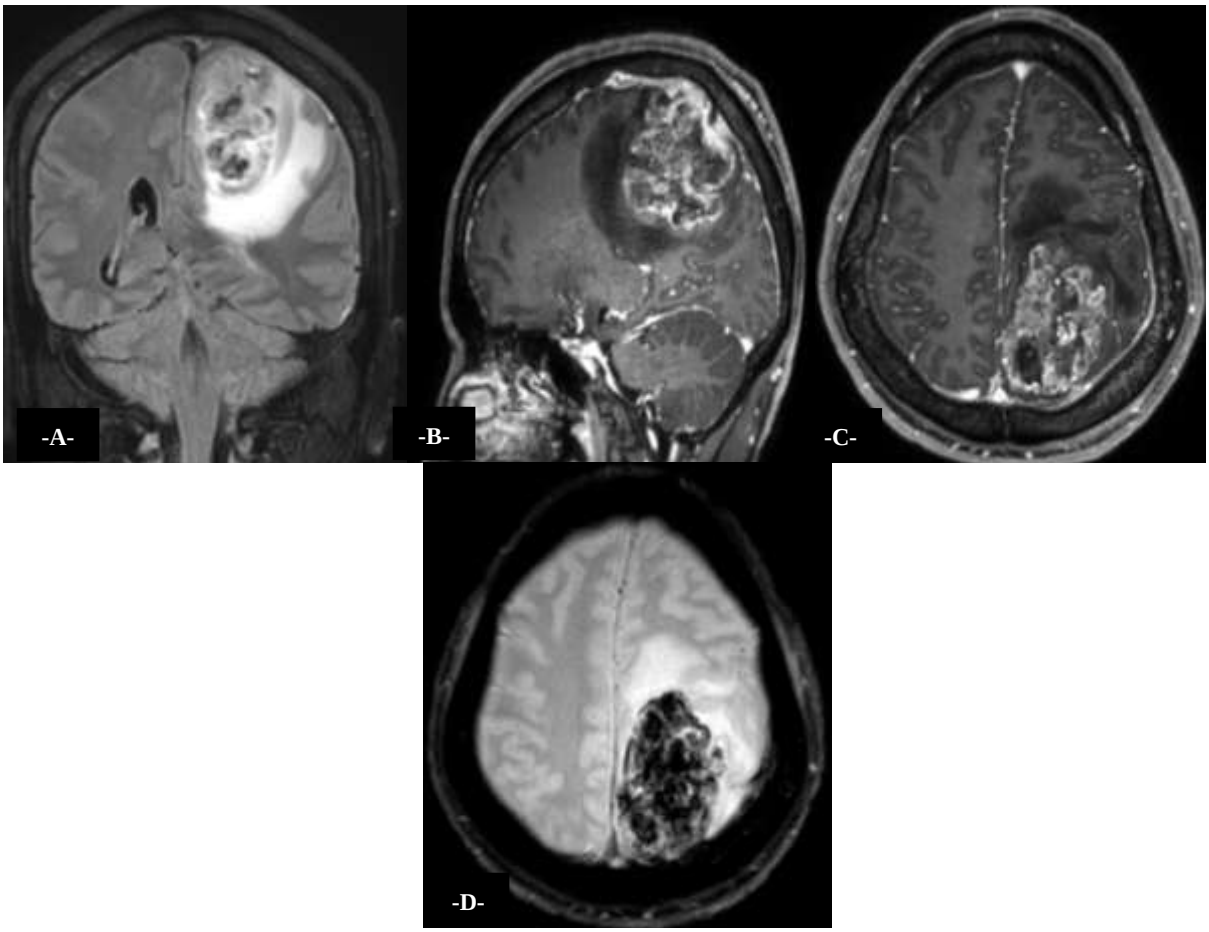

Figure 3:- MRI images showing a left leptomeningeal parietal heterogenous mass, surrounded by edema in T2 FLAIR (a), with heterogenous enhancement after gadolinium administration in sagittal (b) and axial (c) images, and containing an important hemorrhagic component in T2* (d).

References:-

1. [i]Borni, M., Kolsi, F., Kammoun, B., Kallel, R., Souissi, G., & Boudawara, M. Z. (2018). Testicular non-seminomatous germ cell tumors (NSGCT) and brain metastases: About a rare location of the posterior fossa. Urology case reports, 21, 61–63. https://doi.org/10.1016/j.eucr.2018.08.025
2. [ii]Girones R, Aparicio J, Roure P, et al. Synchronous versus metachronous brain metastasis from testicular germ cell tumors (TGCT): an analysis from the Spanish Germ Cell Cancer Group data base. Clin Transl Oncol. 2014;16(11):959-965. doi:10.1007/s12094-014-1179-5
3. [iii]Onesti E, Fabi A, Mingoia M, Savarese A, Anelli V, Koudriavtseva T. Leptomeningeal carcinomatosis in aggressive germ non-seminoma testicular tumor: a case report and review of literature. Clin Neurol Neurosurg. 2012;114(7):1081-1085. doi:10.1016/j.clineuro.2012.02.007
4. [iv]Pinto AF, Silva SM, Carneiro E, Ferreira D, Maurício J, Arantes M. Imaging features of brain metastases from testicular cancer: PS191. Porto Biomed J. 2017 Sep-Oct;2(5):223-224. doi: 10.1016/j.pbj.2017.07.113. Epub 2017 Sep 1. PMID: 32258724; PMCID: PMC6806781.
5. [v]Azar JM, Schneider BP, Einhorn LH. Is the blood-brain barrier relevant in metastatic germ cell tumor?. Int J Radiat Oncol Biol Phys. 2007;69(1):163-166. doi:10.1016/j.ijrobp.2007.02.042
6. [vi]Kinebuchi, Yoshiaki, et al. "Leptomeningeal Metastases in a Patient with an Extragonadal Germ Cell Tumor." Clinical medicine. Oncology 2 (2008): CMO-S687.