Case Report

Brain Metastatic of Myxoid Liposarcoma: A Rare Case

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Introduction

Liposarcoma is a rare cancer of the soft tissue and represents less than 1% of all neoplasms. There are different variants of liposarcoma, including well-differentiated (low grade), dedifferentiated, myxoid, and pleomorphic. Myxoid liposarcoma are low grade tumour that follow a more indolent clinical course. However, a subset of myxoid liposarcoma with >5% hypercellularity are classified as high grade tumors that are extremely aggressive[1].Extremity myxoid liposarcomas uniquely have a greater incidence of extra-pulmonary metastasis. The metastasis of a liposarcoma to the central nervous system (CNS) is extremely rare [2]

Case Presentation

July 2022

A man came to emergency department with chief complain decrease of consciousness in the last 1 day before admission. The patient also had a convulsion a day before admission, vomiting (+). The patient had a history of repeated convulsion since last year, had a serious headache and getting worse day by day, and patient also complaining had a blurry vision. Patient had no previous illness. He usually came to a neurologist and routinely consumed PO Phenytoin 3x100 mg, Citicoline 2x500 mg, Dexamethasone 3x1 mg and Paracetamol 3x500 mg. The patient looked Moderately Ill with Glasgow Coma Scale E3V5M6, somnolen; Blood pressure was 150/87 mmHg; pulse and respiratory rate was normal. Patient performed Head CT scan with Contrast and showed Isohypodens lesion with calcification inside (size k. AP 4,9 x LL 3,3 x CC 5,2 cm); in the white matter of parietotemporal lobe sinistra. There is slight enhancement, after contrast injection; Narrowing of cortical sulci and sylvii fissure dextra and sinistra. Narrowing of lateral ventricle dextra-sinistra, 3rd ventricle and 4th ventricle.

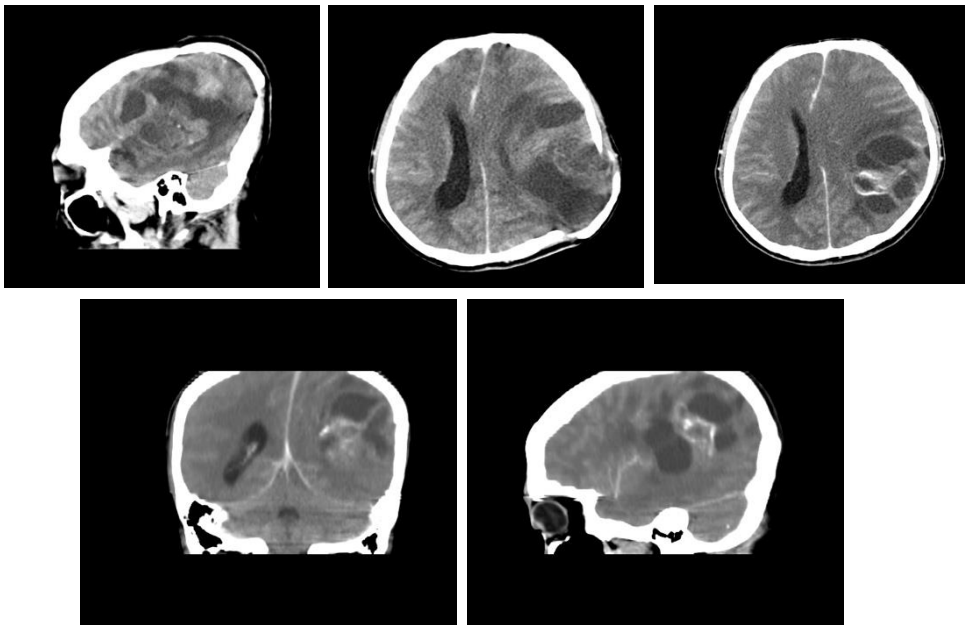

Figure 1. Head CT scan with Contrast

The patient also performed Chest X Ray and showed normal condition. The Laboratory Result was Mild leukocytosis.

During the admission, a biopsy was performed from the pathological sample of the brain, the result showed there was a Brain Metastatic Myxoid Liposarcoma lesion.

In 22nd of July 2022, the patient underwent craniotomy resection of the tumour. After the surgery, the patient admitted nine days at the hospital. After evaluating the progression of the patient, in the 9th day of admission, he was discharged from the hospital. The patient discharged with fully conscious condition. Glasgow Coma Scale was E4V5M6 compos mentis. He also said that the headache is getting better and no convulsion repeated. The physician bring the patient Phenytoin 100 mg orally, three times a day. The patient was consulted to oncology hematology department for chemotherapy program, but he refused.

September 2023

Patient was re-admitted with chief complain headache, vomitus and decrease of consciousness. The Glasgow Coma Scale was E3V4M5. Then he decided to perform re-craniotomy surgery.

Patient was admitted 5 days in the hospital and discarded with fully conscious condition, headache problem was better, there is no convulsion, cranial nerve palsy is also declined. Patient was performed Follow Up Brain MRI with Contrast and showed multiple nodule with some necrotic area at frontotemporal lobe sinistra with maximum size 1,4 x 1,5 x 1,9; minimum vasogenic edema and meningeal enhancement.

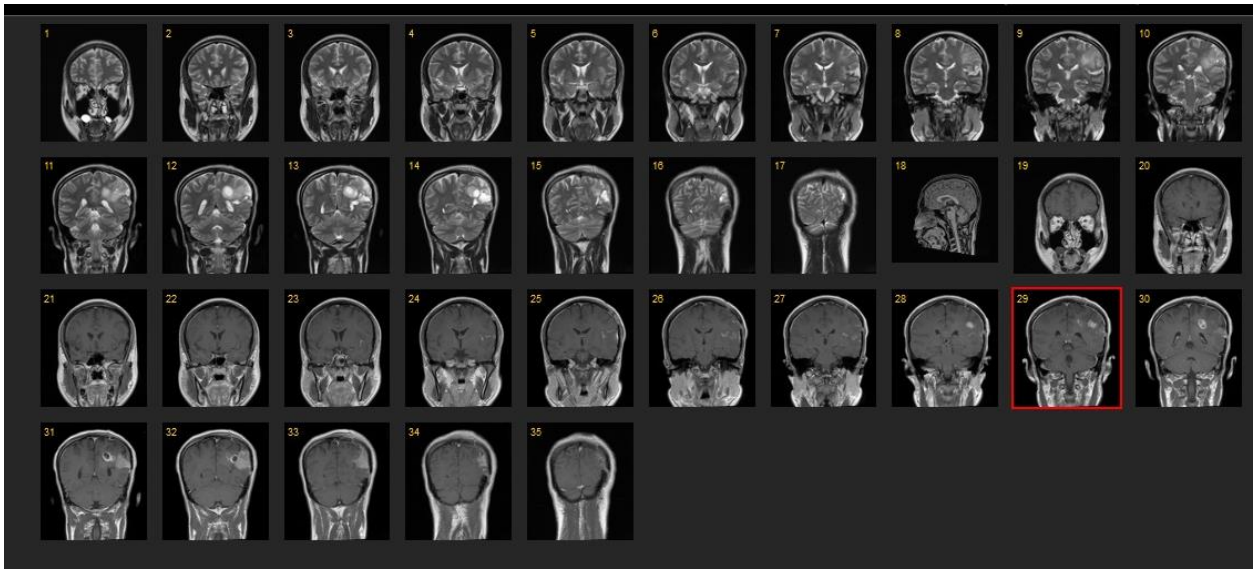

Figure 2. MRI of the Brain with Contrast (Coronal View)

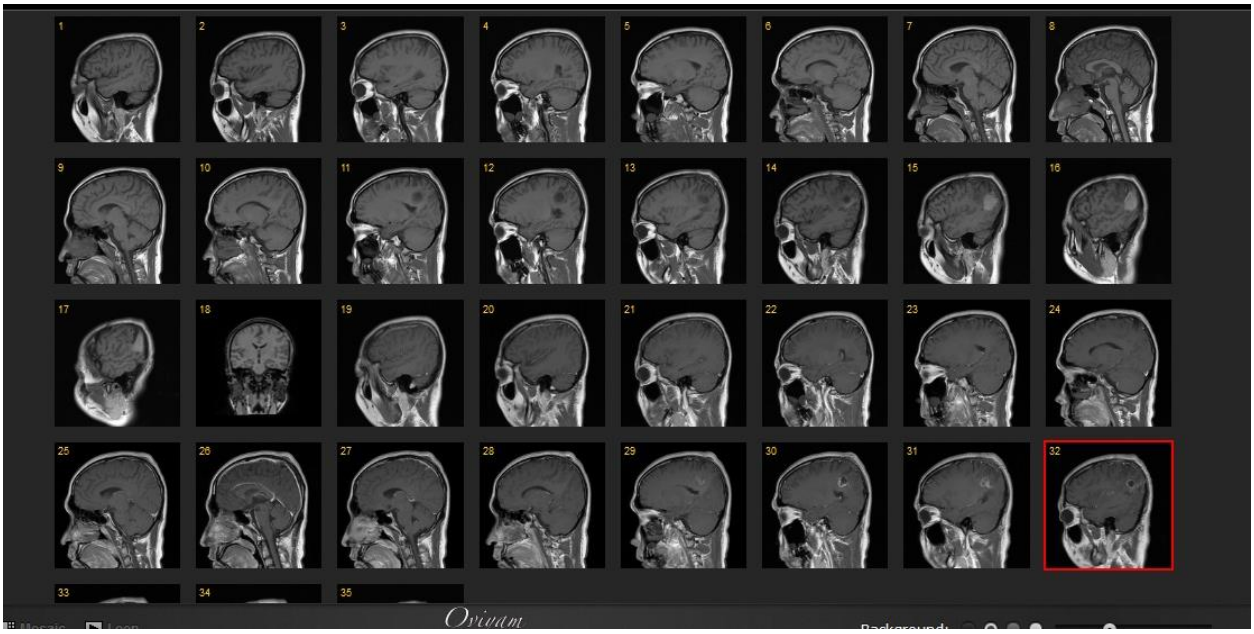

Figure 3. MRI of the Brain with Contrast (Sagital View)

January 2023

Patient was re-admitted to emergency department with decrease of level consciousness, headache, projecting vomit, and had episode of convulsion. Glasgow Coma Scale was GCS E2V2M5 ; Blood Pressure 129/68 mmHg, HR 71x/minutes; RR 22x/minutes; T 36,2. Then the patient underwent Head CT Contrast. The result showed lobulated isodens lesion with cystic

segment inside and moderate enhancement inhomogeneous with size uk.lk 5.8 x 7 x 7.8 cm in parietotemporal lobe sinistra with vasogenic oedema and mass effect, there were transcalvarial, subfalxcin and uncal herniation sinistra; narrowing of cortical sulci, bilateral fissure sylvii, lateral ventricle and 3rd ventricle; narrowing of perimesenfali cisternae; midline shifting 1.2 cm to dextra. The laboratory finding was mild leukocytosis. Then, patient was admitted in HCU and in the 3rd day of admission, patient was died

Discussion

Liposarcoma is a rare cancer of the soft tissue. It is second to malignant fibrous histocytiocytoma as the most diagnosed soft tissue sarcoma in adults, and accounts for 15%-25% of all soft tissue sarcomas. There are different variants of liposarcoma, including well-differentiated (low grade), dedifferentiated, myxoid, and pleomorphic. Imaging with either computed tomography or magnetic resonance imaging plays a crucial role in the diagnosis of liposarcomas and is often the first line in the diagnostic spectrum. However, histopathology remains the gold standard in making a final diagnosis[3]. Of the different variants, myxoid/round cell liposarcoma (MLS) is the second most common subtype (20–30% of cases), following well-differentiated liposarcoma/atypical lipomatous tumour [5]. Peak incidence of Myxoid Liposarcoma is between 40 and 50 years old [4]

Factors found to influence the prognosis at initial diagnosis of Myxoid Liposarcoma include patient age, tumour size, tumour depth, the surgical margins achieved, and morphological factors such as grading, necrosis and mitotic rate, proliferation index (MiB-1, Ki-67 immunostaining), and P53 overexpression[6].

Upon reviewing the literature, several studies reported the proclivity of Myxoid Liposarcoma to present most commonly as slow growing, deep-seated in the soft tissues of the lower extremities, with two-thirds of the cases arising within the thighs[4]. In this case, the origin site of the tumours was unknown because of the patient came with neurological deficit as a sign of brain metastasis and didn't perform any further examination of the origin site of the tumours.

Epidemiology of the metastases and found that extrapulmonary metastasis was detected in 93.8% of metastatic Myxoid Liposarcoma patients, which is as high as proportion reported to date. Previous reports have shown Myxoid Liposarcoma metastasizes to extrapulmonary sites, including the abdominal wall and cavity, retroperitoneum, subcutaneous soft tissue, and bone, at a rate as high as 86.5% in metastatic patients[7].

Our patient's Myxoid Liposarcoma first metastasized to the brain. There are only few cases published in the literature with brain as the first site of metastasis, such as :

Study	Age Year	Primary Site	Histology	Diagnosis of Brain Metastasis	Duration of Brain metastasis	Site of Brain Metastasis	Treatment	Is this The first?	Ref
Bitoh et al (1985)	49/F	Mesentery	Myxoid	Autopsy	-	Supracellar	-	-	8
Haft et al (1998)	52/M	Thigh	Myxoid	CT	18	Temporoparietal lobe	Surgical Resection,	Yes	9
Paraf et al (1990)	27/M	Heart	Myxoid	CT	-	Parietal lobe	-	Yes	10
Can et al (1993)	22/M	Pericardium	Round Cell	Autopsy	-	Multiple	Surgical Resection,	-	11
Fitzpatrick et al (1999)	74/F	Thigh	Myxoid	CT	2 y	Parietal Lobe	Surgical Resection,	Yes	12
Utsunomiya	44/M	Thigh	Myxoid	CT/MRI	6 y	Left frontal lobe	Surgical Resection,	No	13
Kumar et al	73/F	Thigh	Myxoid	CT, MRI	Over 1 year	Temporoparietal Lobe	Surgical Resection,	Yes	14
Zagzoog et al	43/F	Scapula	Myxoid	CT, MRI	2 years	Sellar dan parasellar regions	Surgical Resection,	Yes	15
Muhsen, B.A. *et al.*	24/M	Thigh	Myxoid	CT, MRI	-	Surgical resection, radiotherapy, chemoterapy	Surgical Resection,	Yes	4
Current Case	24/M	Unknown Origin	-	CT Scan, Histopatology	Undetected	Frontoemporal lobe	Surgical Resection,	Yes	

Extremity myxoid liposarcomas uniquely have a greater incidence of extra-pulmonary metastasis. But, metastasis of a liposarcoma to the central nervous system (CNS) is extremely rare [2]. From the study of Takemori et al., 2021 among the 509 Soft Tissue Sarcoma patients, brain metastasis occurred only in five patients (0.98%). The median survival after brain metastasis was 1.5 months. Histological subtypes of the primary lesions in the five brain metastasis patients were: two synovial sarcomas, one myxoid liposarcoma, one alveolar soft part sarcoma, and one rhabdomyosarcoma. Among the five brain metastasis patients, the post-brain metastasis survival of two patients, who underwent surgery and postoperative radiotherapy, was longer than that of the other patients ($p<0.01$)[1].

There are also some reported cases in which the brain was the primary origin of the patients liposarcoma. The last of them was reported by Watanabe et al. in 2018 with a summary of the previous literature [4]. To confirm, the diagnosis of Myxoid Liposarcoma mostly depends on imaging (CT or MRI) and biopsy. Although there is a debate about the type of biopsy– core biopsy is more cost effective and is safer to perform than an open biopsy [4]

Previous studies have shown that Myxoid Liposarcoma patients display higher survival rates than other soft tissues sarcoma patient. The management of liposarcoma can differ according to the subtype, site presentation and whether it is a primary disease or if it is a recurrence with local or distant metastasis[4]. Complete resection of metastases might lead to the best prognosis. Myxoid Liposarcoma is known to be particularly sensitive to radiotherapy compared with other histological subtypes of soft tissue sarcoma we included patients who were administered radical and semi-radical radiotherapy for the metastasis, which significantly improved the prognosis. However, our patient didn't undergoes chemoradiotherapy because of the patient refused the plan. So then it lowers the survival rate of the patient[6].

Myxoid Liposarcoma should be considered for Liposarcoma patients who present with early neurological manifestations. Early treatment can prevent further development and improve the patient's prognosis. Multidisciplinary patient care is still recommended to achieve maximum results[4].

Conclusion:

The metastasis of a liposarcoma to the central nervous system (CNS) is extremely rare. Early detection of the origin site of the tumour will improve the prognosis of the patient. Surgical resection with radiotherapy and adjuvant chemotherapy is the management option of choice; however, a multidisciplinary approach is recommended for the management of patients to achieve the most favourable outcomes.

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