



HIGH GRADE SARCOMA PRESENTING AS SUBDURAL EMPYEMA: CASE REPORT

Neurosurgery

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ABSTRACT

Sarcoma is very rare, and even more unusual is the association between sarcomas and subdural collection. In this report, we present a case of sarcoma presented as subdural empyema.

KEYWORDS

chronic subdural hematoma, subdural empyema, sarcoma

CASE REPORT

A 2 year female child presented with scalp swellings (Fig. 1), noticed by parent for 10 days, progressively increasing in size. No history of trauma, fever, weight loss or loss of appetite, vomiting. No history of altered behavior, irritability, seizure, weakness of limbs. No history of nasal or ear discharge. She was alert, no neck rigidity, afebrile, walk independently. Swellings on right fronto-temporal & left frontal area, non-erythematous, non-tender, fluctuant, impulse on crying present, underlying bone irregularity felt, no bruit heard. Systemic examination was normal. NCCT Head (Fig. 2) showed bilateral symmetrical extra-axial collection in fronto-parieto-temporal region causing compression of underlying brain parenchyma. Faint calcific/?haemorrhagic hyperattenuating areas were noted extending along the dura. MRI Brain showed Bilateral T1 isointense (Fig. 3) & T2 hyperintense (Fig. 4) extra-axial collection in fronto-parieto-temporal region causing compression of underlying brain parenchyma and associated slight extension of collection extracranially/swelling of scalp in the region of bilateral coronal sutures. MRI Brain contrast axial image (Fig. 5) revealed heterogeneously enhancing lesions along dura.

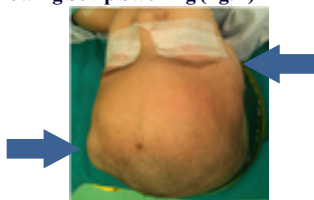
Echo Was Normal. Coagulation Profile Was Normal. Bifrontotemporal craniotomy done (Fig. 6, 7), there was subgaleal yellowish pus, osteomyelitic bones, coronal sutures were found loose, thickened dura, subdural yellowish pus about 200 ml, with necrotic tumor tissue adhered to dura, calcification seen on arachnoid layer and thick layer of necrotic tumor tissue over arachnoid layer. Evacuation of subdural empyema & decompression of necrotic tumor tissue with duraplasty using pericranium was performed. She was neurologically intact post-operatively.

Histopathology Report revealed pleomorphic cells and extensive necrosis. Admixture of spindle cells and polygonal cells seen. Fascicles of spindle cells with oval to spindle nuclei present. Polygonal cells with abundant eosinophilic cytoplasm, vesicular nuclei with conspicuous nucleoli seen. Brisk mitosis seen. At places cystic areas/alveolar arrangement of tumor cells seen. IHC showed vimentin & desmin positivity, CK & EMA positivity in few cells, GFAP, SMA, CD30, CD117, LCA, synaptophysin were negative, INI 1 positive (no INI1 loss), Ki67- 40 to 50%. Histomorphology and IHC findings were consistent with high grade sarcoma.

Pus for Gram's stain showed no organism, numerous leucocytes seen. Pus for ZN stain didn't reveal any acid fast bacilli. Pus c/s showed no growth.

IMAGES

Blue Arrows Showing Scalp Swelling (fig. 1)

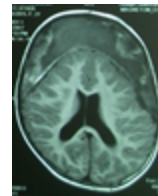


CT Brain

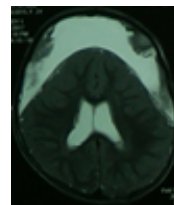


(fig. 2)

MRI Brain

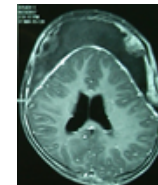


(fig. 3)



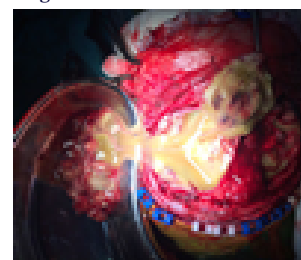
(fig. 4)

CONTRAST MRI BRAIN

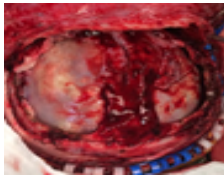


(fig. 5)

Intraoperative Image Pus With Necrotic Tumor Tissue



(fig. 6)



(fig. 7)

DISCUSSION

Sarcoma progenitor cells are derived from mesenchymal tissue. Intracranial sarcomas may arise in continuity with the meninges. Hemorrhage, cysts, and necrosis can be seen within sarcomas¹. There are several case reports that describe subdural mass lesions initially diagnosed as subdural hematoma. Glenn et al reported primary intracranial sarcoma presenting as chronic subdural fluid collections in a child with no history of trauma. Diagnosis of sarcoma can be difficult because these lesions often manifest as subdural hematoma.² Cinalli, et al, presented two infants with progressive enlarging head size as chronic subdural hematoma but the final histopathologic findings led to the diagnosis of liposarcoma and fibrohistiocytic sarcoma³. Brooks, et al, reported a patient with subdural sarcoma diagnosed by MRI, where the value of this imaging modality in anatomical evaluation of the lesion and neurosurgical planning was advised⁴. In a report by Matano et al, of primary leptomeningeal lymphoma, it was recommended to perform proton-density MRI when progressive neurological abnormalities were found in patients with subdural hematoma⁵. Other reports regarding the role of MRI are also available in patients with complicated arachnoid cyst, meningioma, dural liposarcoma, meningeal sarcoma, intracranial granulocytic sarcoma (chloroma) and malignant fibrous histiocytoma mimicking subdural hematoma in CT images⁶⁻¹¹. MRI is a suitable method for differentiating soft tissue sarcomas from chronic traumatic hematoma¹². Almefty and coworker's reported a case of primary histiocytic sarcoma of the brain mimicking as cerebral abscess¹³. Mahdavi et al reported a case of Intracranial Rhabdomyosarcoma presented as Chronic Subdural Hematoma¹⁴.

CONCLUSION

Uncertainties exist regarding strict diagnosis of subdural mass lesions with CT. MRI brain with intravenous contrast is probably the method of choice for the evaluation of subdural mass lesions. High grade sarcoma can present as subdural empyema.

REFERENCES

1. Winn HR. Youmans Neurological Surgery. Sixth ed; 1450-59
2. Glenn CA, Fung KM, Tullos HJ, McNall-Knapp RY, Gunda D, Mapstone TB. Primary Intracranial Sarcoma Presenting as Chronic Subdural Fluid Collections in a Child. *World Neurosurgery* 2016;86:514.e13-514.e18
3. Cinalli G, Zerah M, Carteret M, Doz F, Vinikoff L, Lellouch-Tubiana A, Husson B, Pierre Kahn A. Subdural sarcoma associated with chronic subdural hematoma. Report of two cases and review of the literature. *J Neurosurg* 1997;86(3):553-7.
4. Brooks ML, Wang AM, Black PM, Haikal N. Subdural mass lesion secondary to sarcoma granuloma MR and CT findings and differential diagnosis. *Comput Med Imaging Graph* 1989;13(2):199-205.
5. Matano S, Sakashita Y, Furusho H, Ohashi M, Terahata S, Kakuma K et al. Primary leptomeningeal lymphoma. *J Neurooncology* 2001;52(1):81
6. Sunada I, Nakabayashi H, Matsusaka Y, Yamamoto S. Meningioma associated with acute subdural hematoma-case report. *Radiat Med* 1998;16(6):483-6.
7. Ibarra R, Kesava PP. Role of MR imaging in the diagnosis of complicated arachnoid cyst. *Ped Radiology* 2000;30(5):329-31.
8. Kothandaram P. Dural liposarcoma associated with subdural hematoma. *J Neurosurgery* 1970;33:85-7.
9. Nussbaum ES, Wen DY, Latchaw RE, Nelson MJ. Meningeal sarcoma mimicking an acute subdural hematoma on CT. *J Comp Assist Tomography* 1995;19(4):643-5.
10. Smidt MH, de Burin HG, van't Veer MB, van den Bent MJ. Intracranial granulocytic sarcoma (chloroma) may mimic a subdural hematoma. *J Neurology* 2005;252(4):498-9.
11. Ozhan S, Tali ET, Isik S, Saygili MR, Baykaner K. Haematoma-like primary intracranial malignant fibrous histiocytoma in a 5-year-old girl. *Ped Neuroradiology* 1999;41:523-5.
12. Imaizumi S, Morita T, Ogose A, Hotta T, Kobayashi H, Ito T, et al. Soft tissue sarcoma mimicking chronic hematoma: value of magnetic resonance imaging in differential diagnosis. *J Orthopedic Science* 2002;7(1):33-7.
13. Almefty RO, Tyree TL, Fusco DJ, Coons SW. Primary histiocytic sarcoma of the brain mimicking cerebral abscess: Case report. *J Neurosurg* 2013;12(3):251-7
14. A. Mahdavi MD, Sh. Yazdani MD, Sh. Kazemi MD, F. Nejat MD, M. Mehdizadeh MD, M. Monajemzadeh MD. Intracranial Rhabdomyosarcoma Presented as Chronic Subdural Hematoma: A Case Report Iran. *J Radiol* 2007;4(3):181-4