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# Late Presentation of Neuroblastoma with Brain Metastases: Critical Care Case Report

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## ABSTRACT

**Aim of the work**: neuroblastoma of the adrenal gland is an extremely rare tumor in adulthood although it is one of the most common malignancies in childhood. **Patient and method:** a case of 14-year-old Saudi girl developed brain metastases after neuroblastoma mass resection. **Results:** the patient received Multi-agent chemotherapy and the condition of patient was improved. **Conclusion:** chemotherapy may provide good prognosis in treating neuroblastoma.

**Keywords:** neuroblastoma, brain metastases, ICU, critical care.

## INTRODUCTION

Neuroblastoma is tumor of the autonomic nervous system with an embryonal origin, meaning that the cell of origin. neuroblastomas generally occur in young children; the median age at diagnosis around 17 months[(1)].

Tissues of the sympathetic nervous system are the main site tumor arise from, mostly in the paraspinal ganglia or adrenal medulla; tumor could be found as mass lesions in the neck, chest, abdomen, or pelvis with variable clinical presentations, ranging from asymptomatic lesion to critical illness as a result of local invasion, metastatic, or both. The incidence of neuroblastoma is 10.2 cases per million children below 15 years of age and it is the commonest tumor diagnose at first years of life [(1)].

## CASE REPORT

14-years old Saudi girl with no significant medical history, was presented to ER with generalized bone pain, low-grade fever and fatigue, 2 years ago diagnosis was made of neuroblastoma in the adrenal gland. Two separate abdominal surgery were done for mass resection and chemotherapy was giving according to local protocols. She was resistant to chemotherapy and the protocols were changed due to disease refractoriness. Patient admitted to intensive care unit(ICU) and here condition getting worse with generalized tonic colonic convulsion and decreased level of consciousness. Physical examination revealed an unconscious patient with temperature of 38°C (orally), blood pressure of 95/70 mm Hg, upward gaze, generalized tonic colonic movement of upper and lower extremities. Initial magnetic resonance imaging showed cystic mass measured 27×13 mm in the left occipital lobe with rim enhancement and 12×8 mm enhancing mass in periventricular of the left lateral ventricle was detected. In addition, another heterogeneous signal intensities lesion measured 11×9 mm adjacent to the right superior cerebellar peduncle and multiple enhancing nodules in cerebrospinal fluid (CSF) space were noted. The above findings were in favor of cerebrospinal fluid and brain parenchymal metastasis. Neurosurgery was done for her and drainage of large lesions was done. Bone marrow aspiration showed sheets of monotonous small round blue cells and revealed metastatic spreading to this site. CSF cytology was positive for malignancy (Metastasis). The patient received Multi-agent chemotherapy by combinations of Irinotecan and cyclophosphamide and the condition of patient was improved.

**The study was done after approval of ethical board of Taif university.**

## DISCUSSION

Neuroblastoma is the most common extracranial solid malignant tumor of childhood. 65%of abdominal tumors found in the adrenal medulla the most frequent location for neuroblastoma is the abdomen. 15% are usually arising of thoracic origin from the sympathetic chain of the posterior mediastinum[(2)]. Neuroblastoma is extremely poor prognosis, not significantly affected by either radiation or chemotherapy if undetected during the



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first year of life. 75% had high cure rate in tumors discovered under 1 year. Important single factor which affects survival seriously is the stage of the disease at the time of discovery, with 2·years survival rates falling to 3% in Stage IV disease (distant metastases), because the greatest survival is in younger patients with surgical resection of early stage tumor, accurate diagnostic imaging and staging are important survival clue[2,3].

The silent course of neuroblastomas is the main difficult in early diagnosis until the disease has invaded adjacent structures or far metastasized. Nonspecific symptoms such constitutional symptoms, a palpable abdominal mass, or bone pain secondary to metastases usually bring the patient to seek medical care. Often this is already too late with tow third of tumors widely disseminated at the time of diagnosis. About 78% secrete catecholamine, only 10% develop catecholamine related symptoms (sweating, hypertension, flushing) [4].

Neuroblastoma is approved as congenital in origin. Account one quarter of tumors discovered in the neonatal period. Once again, the adrenal gland is most common site of origin and the majority present with metastatic disease. However, the site of metastases differs in the younger infant. Only, about 3% develop skeletal metastases as opposed to usual presentation for last 2 years. with different prognostic factor, age still most associated factor with bad prognostic expectation to neuroblastoma, the importance of early detection of this neoplasm cannot be overemphasized [5]. Although radiological study specially ultrasound has been very useful in detecitng the organ of origin and in detecting hepatic metastases or retroperitoneal lymphadenopathy when an abdominal mass is palpable, with stage 5 tumor ultrasound role is limited. High resolution ultrasonography made it possible to differentiate variable tissue consistency [6].

In summary, our case provided new clue of thinking about further care to post resected mass neuroblastoma patient. We also believe that the presence of new compilation chemotherapy may provide good prognosis. The tumor in its earliest stage merits attention and that it stresses the necessity for follow-up diagnostic studies.

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