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# A case of Enhancing left Cerebellar Astrocytoma

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41 years old male patient presented in the emergency department (ED) of Khartoum Teaching Hospital. In the same day before coming to the ED by 2hours his brother said; suddenly the patient falls down without any previous symptoms, and lapsed into complete loss of consciousness. The physician checks the vital signs; the patient has normal blood pressure, and heart rate. The patient sent to radiology department for urgent CT brain.CT scan of the brain reveals that there is a mixed lesion in the left cerebellar hemisphere crossing the midlinewith contrast enhancement, this picture is highly suggestive astrocytoma. The result of the histopathology was a primary brain tumor the consistency of the cell is astrocytes (astrocytoma).

**Keywords: CT, ED, Astrocytoma**

## INTRODUCTION

Astrocytoma is one of the primary brain malignant tumors,it is a major type of glial cell tumors that originated from connective tissue cells called astrocytes, these types of cellare found in the brain and spinal cord (Bikowska-Opalach B.et al.2014). This type of brain tumoris most common in children, and in adults (Brüstle O. et al.1992). Astrocytomas are classified into high-grade or low-grade tumors (Bikowska-Opalach B.et al.2014). Of all brain tumors, high-grade astrocytomas are the most dangerous. Based on the location of the tumor, astrocytes are further divided into categories for signs, symptoms, treatment, and prognosis (Buckner.et al. 2007). Patients typically experience headaches, vomiting, and signs of elevated intracranial pressure. Along with double vision, there may also be issues with walking and coordination (Buckner.et al. 2007). Astrocytomas are more frequent in the cerebral hemispheres (cerebrum) of adults, where they frequently increase intracranial pressure (ICP), produce seizures, or alter behavior (Buckner.et al. 2007). The diagnosis of the astrocytoma achieved by computerized tomography (CT) or magnetic resonance imaging (MRI) scan, they defining the size of these tumors (size, location, consistency). The third and lateral ventricles will typically be deformed, along with the anterior and middle cerebral arteries. Appling of contrast media is a beneficial and must in any suspicion of tumor, that the tumor enhancement means define the vascularity of the tumor [Hervey-Jumper SL and Berger MS 2016]. Grading a diagnosis requires a histologic analysis, which is very important to confirm the radiological imaging diagnosis. A tissue biopsy was taken after surgery of the resection of the tumor to identify the type of the tumor and the original cells of the tumor (Hutter A et al. 2003).

**Case report:** 41 years old male patient presented in the emergency department (ED) of Khartoum Teaching Hospital. In the same day before coming to the ED by 2hours his brother said; suddenly the patient falls down without any previous symptoms, and lapsed into complete loss of consciousness. The physician checks the vital signs, the patient has normal blood pressure, normal heart rate. The patient sent to radiology department for urgent CT brain.The CT brain reveals that there isa mixed lesion in the left cerebellar hemisphere crossing the midline, shifting the falx-cereblli and the forth ventricle, when applying contrast media, the lesion enhanced.The final diagnosis of CT is cerebellar astrocytoma Fig 1.The patient was sent to the neurosurgery department, the neurosurgeon request MRI brain with contrast for further management of the tumor. MRI is contraindication for the patient because the patient has pacemakers in situ. A surgery of removal of the tumor was done, a tissue biopsy sent to histological department, the result was a primary brain tumor the consistency of the cell is astrocytes (astrocytoma).

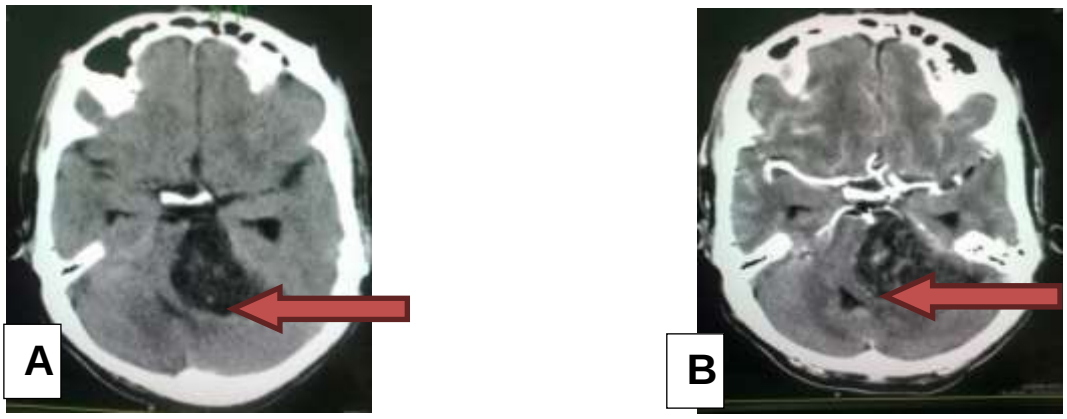


**Figure 1:CT Axial Brain image shows a mixed lesion in the left cerebellar hemisphere crossing the midline Arrow A. without contrast. B. with contrast enhancement. Astrocytoma.**

## DISCUSSION

astrocytomas originated frombrain cells known as astrocytes, they have spread across the healthy brain tissue, the majority of these brain tumours are incurable. Astrocytomas are often categorized according to the World Health Organization (WHO) classification of central nervous system tumours, astrocytomas can be categorized into grades 1-4 (Bikowska-Opalach B.et.al.2014). Grade 1 tumours have the slowest growth rates, whereas grade 4, the highest grade, has the fastest growth rates. Because they are well-defined and slow-growing, astrocytomas are grade I tumours because they develop from neuroepithelial tissue (Korutz AW. et al. 2017). The cerebellum and midline brain areas like the optic nerve, hypothalamus, and brainstem are where they are most frequently found (Korutz AW. et al. 2017). It can be located anywhere along the neuroaxis, though (Kumar A.J. et al.2010). Astrocytomas can affect people at any age (Kumar A.J. et al.2010).The incidence vary according to the grade of astrocytoma low-grade type is more common in children or young adults, while the high-grade type is more prevalent in adults (Kumar A.J. et al.2010).The radiological imaging investigations are computed tomography (CT) and magnetic resonance imaging (MRI), both radiological techniques determine the size, site and shape of the tumour [Louis DN.et al.2007]. Applying intravenous contrast media to identify the vascularity of the tumour [Louis DN.et al.2007]. Referring physicians and MR technologists, need to be able to assess MRI safety, the patients must be free from any medical devices to keep patients safe. The cardiac implantable electronic device (CIED) such as pacemakers, implantable cardioverter defibrillators (ICDs) and cardiac resynchronization therapy (CRT), these devices are absolute contraindications of MRI (Louis DN.et al.2016).

Biopsy from tumor is taken before surgical removal of the tumor or may be taken After surgery. Biopsy will help differentiate tumor from other types of masses (Pedersen CL,and Romner B.2013). The microscopic structure of the tumor will be important in grading the tumor (Pedersen CL,and Romner B.20130.

There are few publications on the most effective treatments and subsequent patient outcomes for this condition, which is thought to be rather uncommon in adults (Tian Z.et al. 2019)**.**

## CONCLUSION

The computerized tomography scan with contrast is one important radiological investigation in diagnosing brain astrocytoma.

## CONFLICT OF INTEREST

The authors declared that present study was performed in absence of any conflict of interest.

## ACKNOWLEDGEMENT

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## AUTHOR CONTRIBUTIONS

E. A find the case follows the investigation and write the case report. M.E write the discussion and conclusion.



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