

## Case Report

# BRAIN TUMOUR AS A CAUSE OF ASYSTOLE AND COLLAPSE

**\*Vikram G. Aarella**

*Department of Diabetes and Endocrinology, Kings Mill Hospital, Sutton in Ashfield, UK*

*\*Author for Correspondence*

## ABSTRACT

There is hardly any literature available about asystole being the first presenting symptom of a brain tumour. Here we report a patient who has recurrent episodes of bradycardia and asystole, with episodes of collapse and loss of consciousness as a presenting symptom. This patient was considered for a permanent pacemaker initially before the diagnosis of frontal lobe Meningioma was made. She had a prolonged episode of asystole lasting about 20 seconds needing temporary pacing. This was potentially a life threatening situation and that frontal lobe plays a part in the regulation of cardiovascular response.

**Keywords:** Brain Tumor, Collapse, Asystole

## INTRODUCTION

A patient with brain tumour can present with variety of symptoms and signs like seizure, headache, neurological deficits, altered mental function, raised intracranial pressure and collapse. The cause of syncope/collapse in majority of cases is not identified, of the identified causes the commonest are vasovagal, cardiac, orthostatic, medication and seizures. Among the cardiac causes bradycardia and asystole can lead to potentially life threatening situations needing implantation of a permanent pacemaker in the long run. Here we report a patient who presented with episodes of sudden collapse and loss of consciousness. The working diagnosis was asystole due to cardiac cause. The patient was temporarily paced and shifted to coronary care unit, but eventually it turned out that patient had a frontal lobe Meningioma.

## CASES

The patient was a 44 year old woman, fit and well not on any medications and had a past medical history of anaemia which was treated with Iron tablets. She was admitted to accident and emergency department of our hospital with an episode of collapse and loss of consciousness. On the day of presentation she was walking downhill to go to work, she felt a bit dizzy and sat down on a wall and the next thing she remembers was lying on the floor, was not noticed by anyone and she thinks she might have been on the floor for approximately five minutes, then she regained consciousness and called her husband from her mobile, husband arrived fairly quickly and noticed that she was orientated, no obvious weakness but had some bruises on her head. In the accident and emergency department patient was conscious and her observations were stable, ECG showed she was in sinus rhythm with a rate of 78 beats per minute, cardiovascular, respiratory and neurological examination was normal. While in accident and emergency she had two more episodes of unresponsiveness witnessed by the emergency doctor lasting about forty seconds and described as patient going pale with eyes open, not responsive to voice, limbs still, no rigidity or movement, patient could feel it coming on and she was going to faint and had told the doctor about the same. She was then transferred to a monitored bed and was seen by the Medical Registrar who witnessed another episode of unresponsiveness when patient said that "it's coming on" and just went pale, the cardiac monitor showed that she was in asystole and even before use of atropine or transcutaneous pacing she recovered spontaneously. She was connected to an automatic transcutaneous cardiac pacer and was arranged to be transferred to coronary care unit, she had one further episode which was transthoracically paced and recovered quickly. The records of the cardiac monitor showed the longest pause to be around 20 seconds. The probable diagnosis at this point was cardiac cause, though vasovagal and absence seizures were in the differential. She was in coronary care unit for a day and no further episodes were recorded, her Echocardiogram was essentially normal and so she had a CT scan of her head

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next day which showed that she had a 5 centimeter soft tissue mass in the frontal lobe, probably a Meningioma, she was referred to the neurosurgeons in a tertiary hospital and was started on Dexamethasone 4mg QDS, she did not have any further episodes of collapse after this and subsequently went on to have surgery and removal of the tumour.

### DISCUSSION

Previously there have been studies which have shown temporal lobe involvement in autonomic regulation of cardiovascular system and several studies have suggested frontal lobe influence. Here we are reporting a patient with asystole and collapse as the first sign of a frontal lobe tumor. We believe that the origin of her asystole was the frontal lobe tumour substantiated by the fact that she ceased to have any further episode after starting her on high dose of dexamethasone. Possibly the electrical stimulation of the cingulate gyrus and orbitofrontal cortex has produced changes in the heart rate. The mesial, temporal and frontal areas are interconnected to the central autonomic network so that ictal discharges arising from or spreading to these regions are more likely to induce autonomic changes. In conclusion, many neurological conditions, including cerebral tumor, can give rise to cardiac arrhythmias resulting in collapse. And as our case confirms frontal lobe tumour can cause potentially life threatening asystole. We can hypothesize that there are certain regions in the frontal lobe which are implicated in the autonomic regulation of cardiovascular responses,

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