

A 63 year old Male patient on regular medication for Hypertension, Diabetes and Hypothyroidism presented with sudden loss of consciousness and fall in the bathroom, followed by confusion and weakness of all 4 limbs (LL>UL) along with bladder involvement.

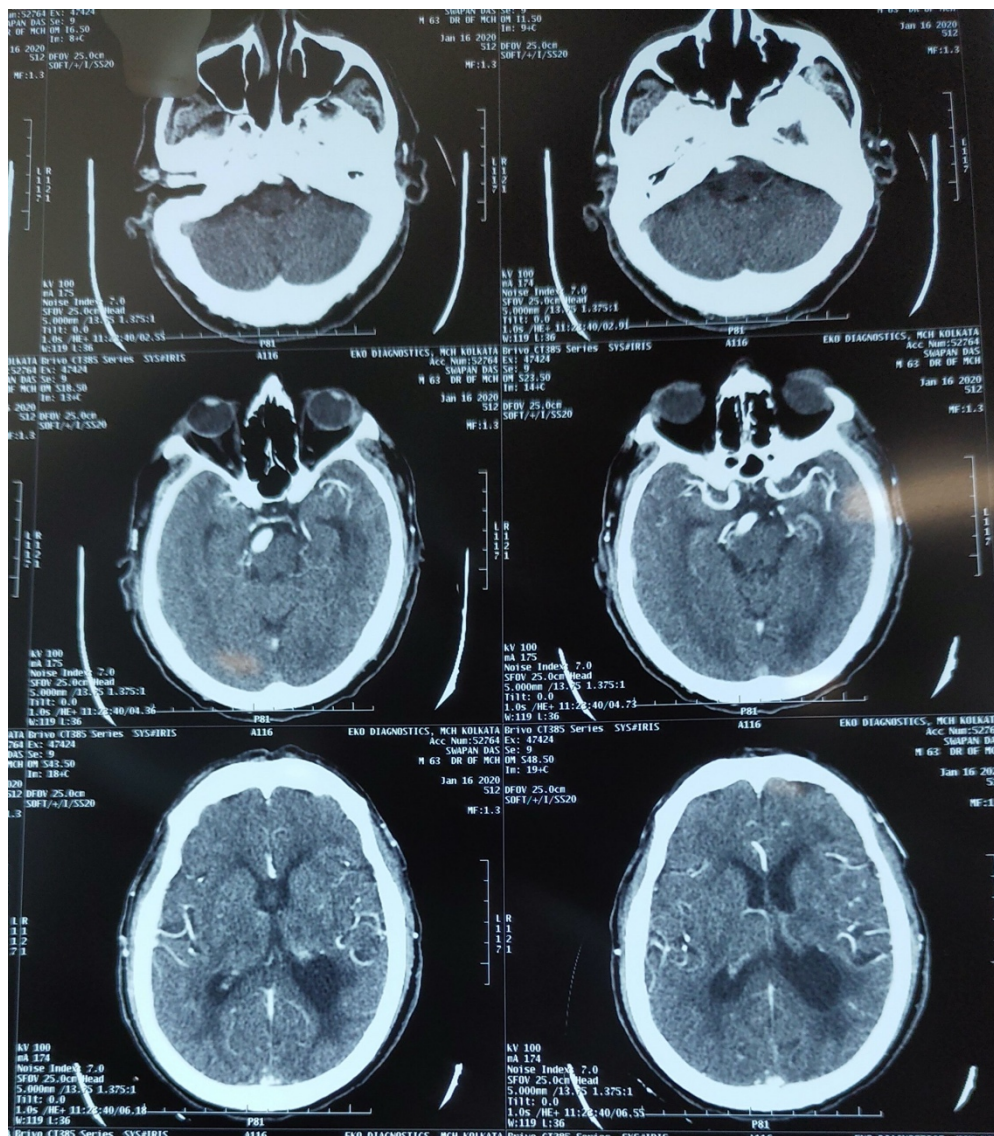
O/E Patient was found to be conscious but confused and unable to follow simple commands, Tone raised in all 4 limbs. Power in U/L >> L/L. B/L Plantar extensor, All DTR exaggerated.

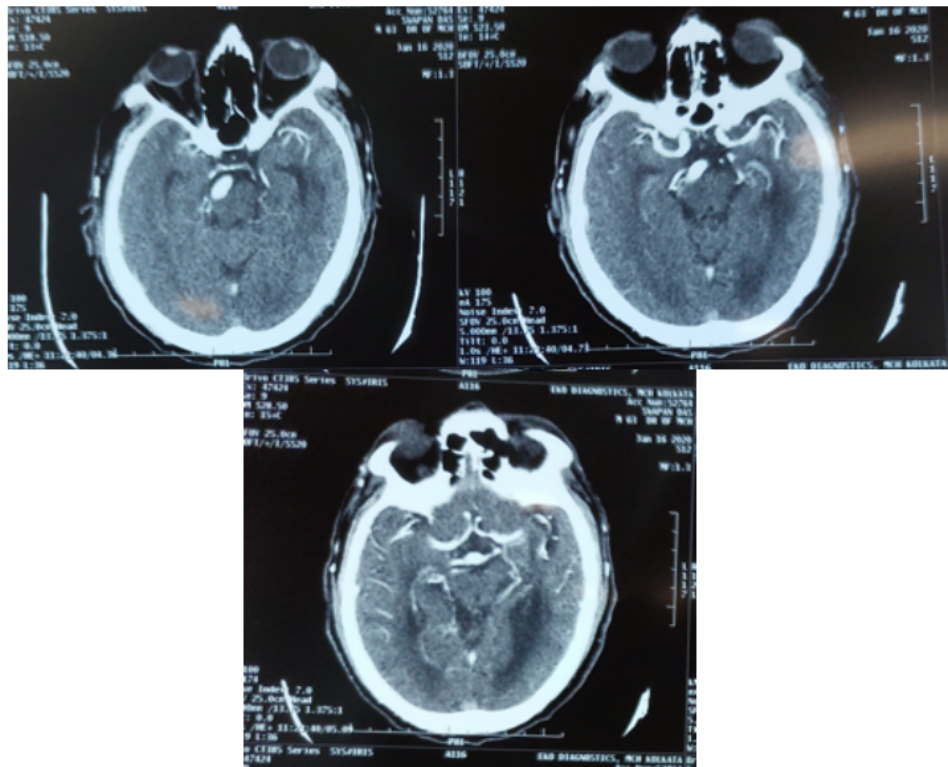
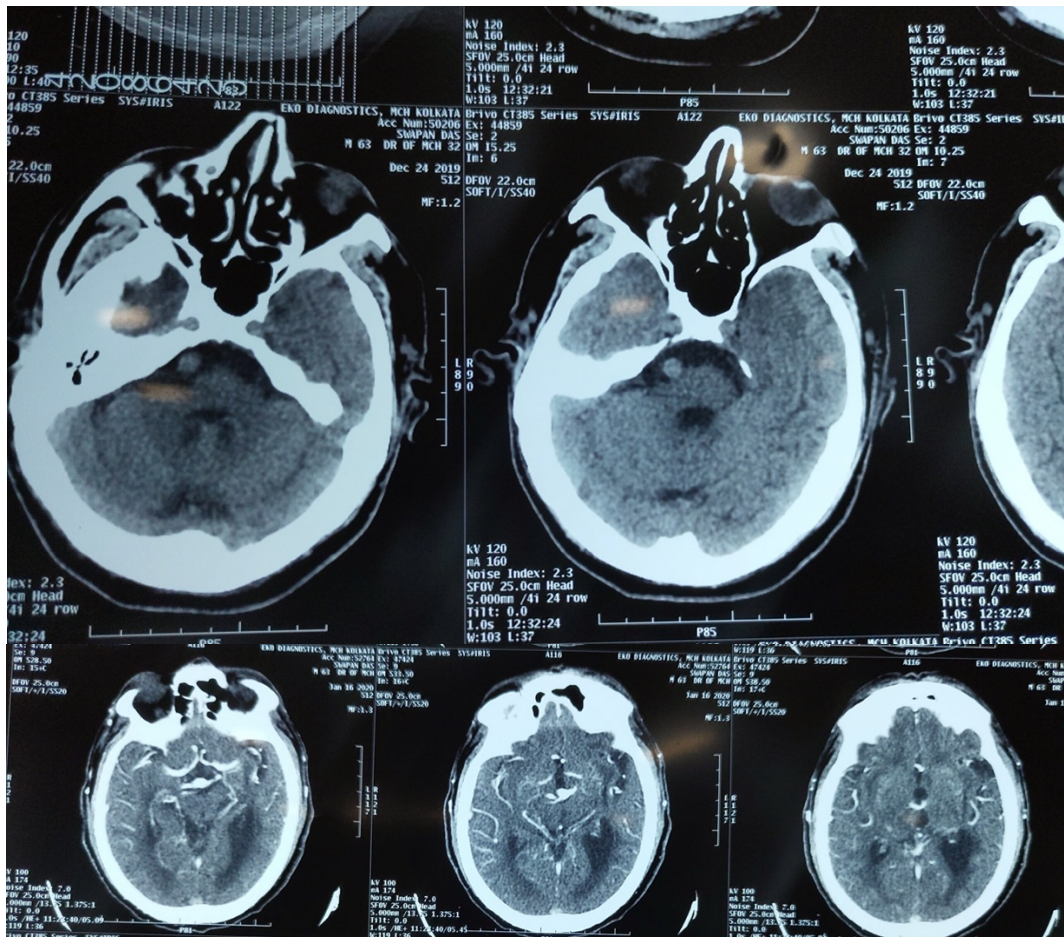
1. What are your differentials based on this clinical situation ?
2. What is the first imaging modality that you will order when you attend to this patient in the ER and why ?
3. Identify the offending vessel and what is your final diagnosis ?

His NCCT Brain is shown below :

Heterogenous lesion on the right side of Midbrain extending into the Thalamus with mass effect was seen.

Based on this, a CTA Brain was ordered which showed the following :





# ANSWERS

So what we are dealing with is essentially Acute onset generalised weakness / quadriparesis with confusion. The term Quadriparesis is used when we are thinking of UMN type weakness ( spasticity, increased DTR ) while we prefer to use the term Generalised weakness to describe a LMN type of flaccid paralysis.

Some of the differentials to keep in mind when dealing with such patients in ER would include :

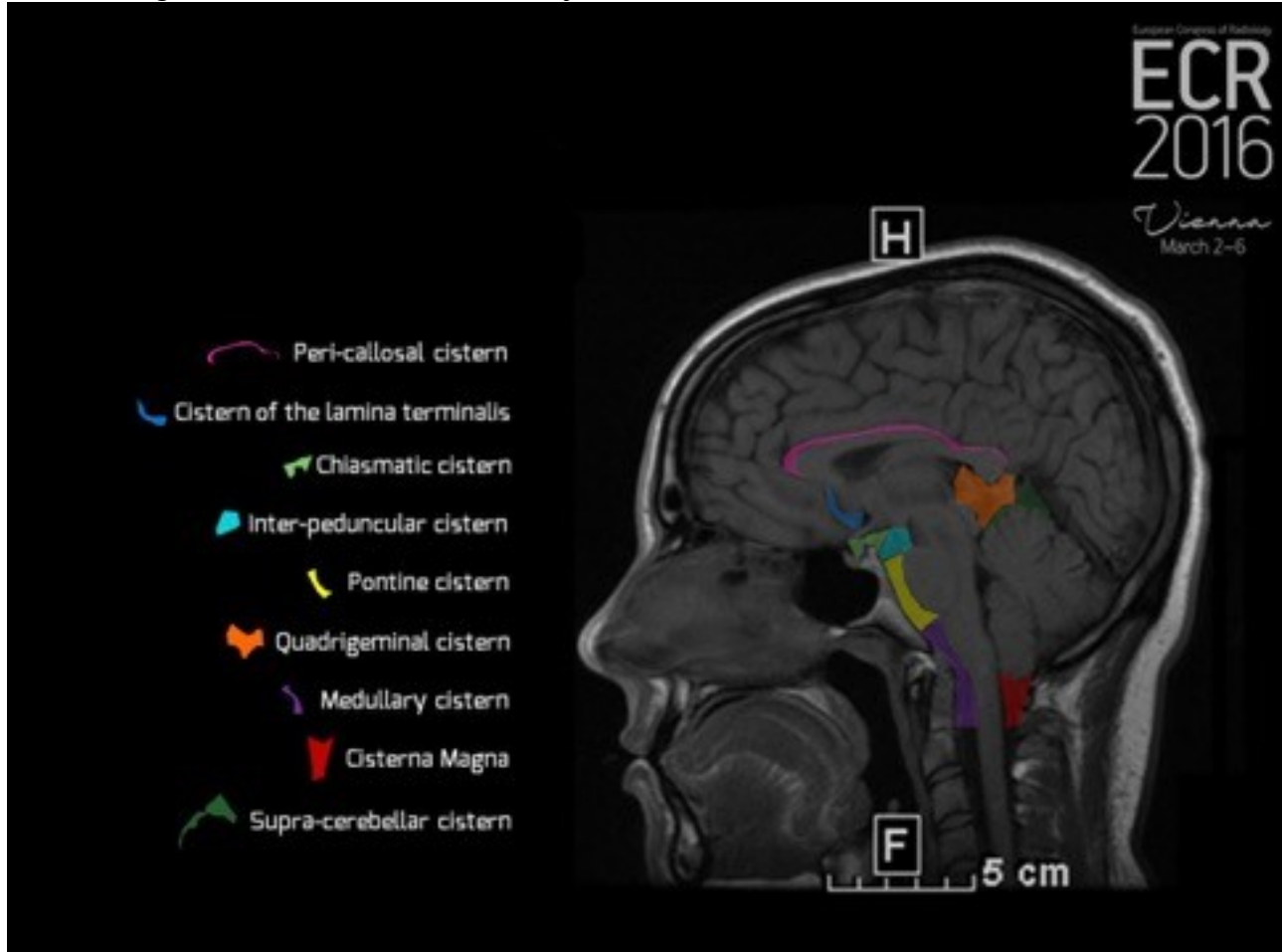
- a. Electrolyte disturbances eg Hypokalemia - Flaccid weakness
- b. Muscle disorders - Periodic paralyses or metabolic defects of muscle, mitochondrial disorders. LMN type of weakness
- c. NMJ d/o - Myasthenia Gravis, Lambert Eaton Syndrome
- d. CNS d/o - Brainstem involvement or a cervical cord involvement. Weakness involving the Brain is usually associated with changes in consciousness level or cognition along with spasticity, hyperreflexia ie UMN type.
- e. Somatization

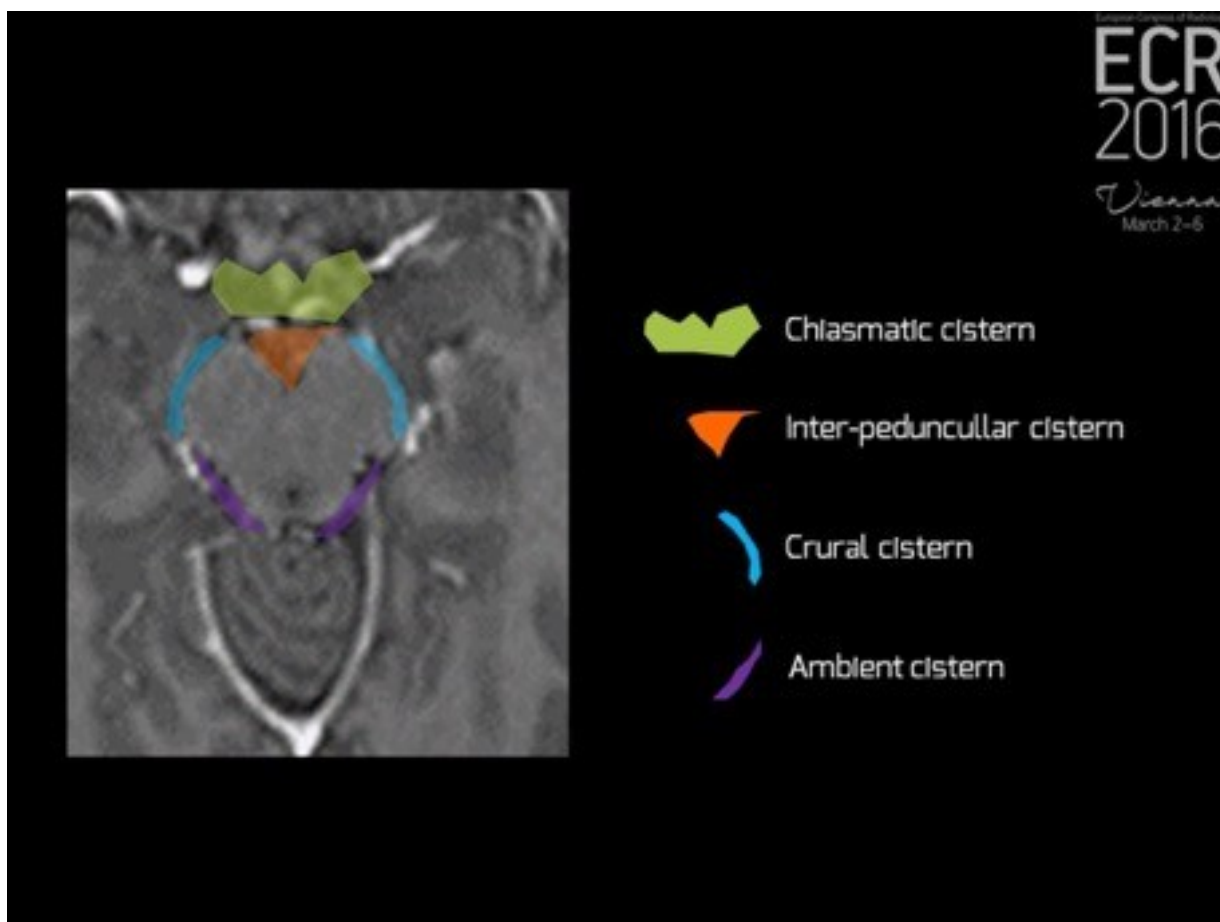
In our case scenario, a UMN type of acute onset Quadriparesis should be suspected. In the obtunded patient (as in our case), evaluation is to begin with CT scan of the brain while if UMN signs are present but patient is alert, we should order an MRI of the cervical cord.



When we first saw the NCCT brain in this patient was Heterogenous Lesion compressing the brainstem and extending into the Thalamus - what was surprising was it seemed to lie in the pontine/ interpeduncular cistern. For a quick recap we are posting here the basal cisterns of the brain and how to identify them on CT scan.

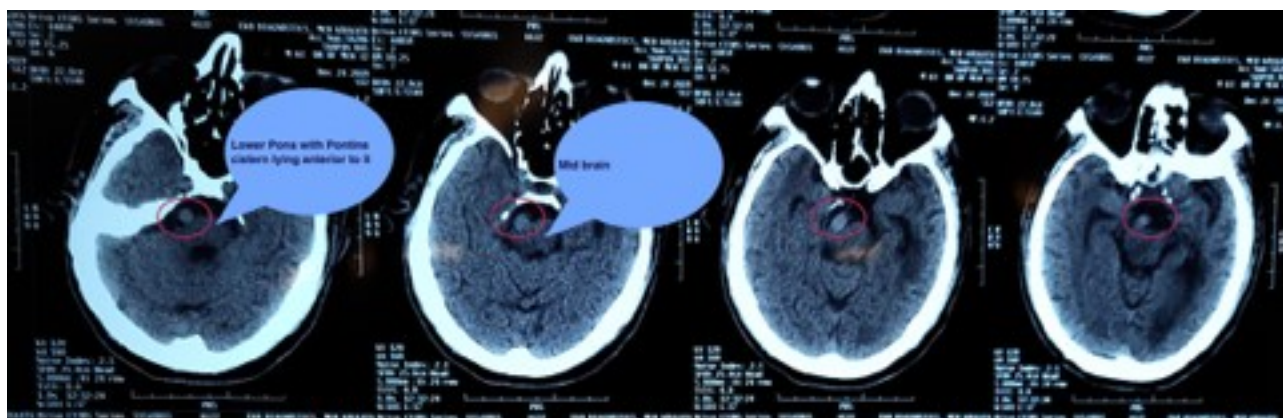
This is a Sagittal view of the basal cisterns, just so that we are clear about their locations.



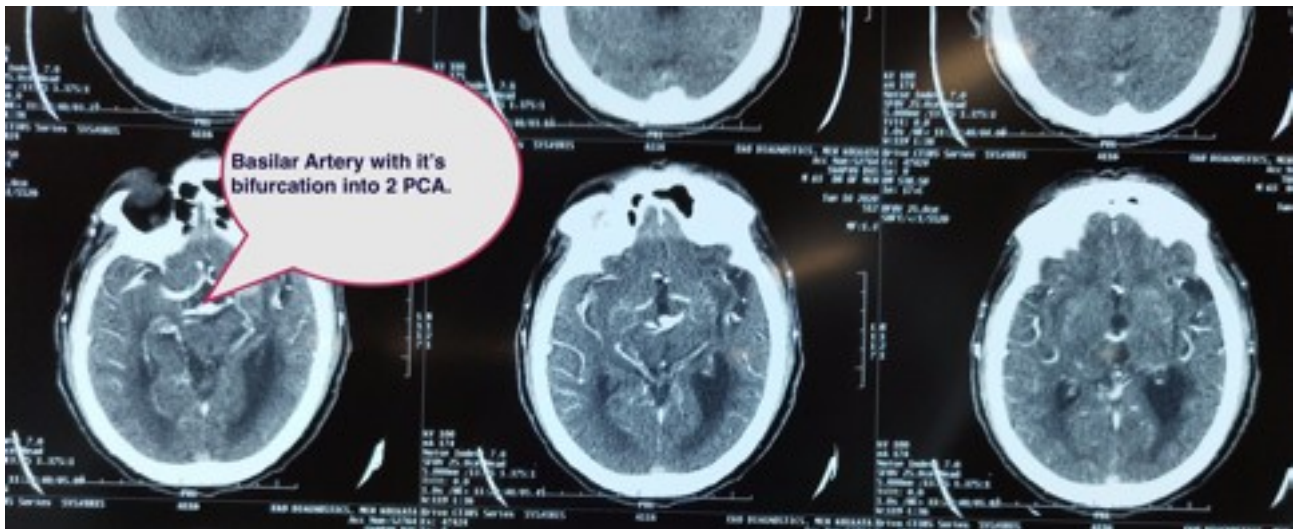


This is an axial view of the same. Now compare these with the following Cross sections in our patient :

Offending lesion has been encircled in Red. So as you can see it's located in the cisterns lying in front of Pons and Midbrain i.e Pontine cistern and the interpeduncular cistern and compressing upon the brainstem . Another aspect to realise is the contents of these cisterns. As you all probably recall, the two vertebral arteries join to form the basilar artery at the lower level of Pons and terminates into 2 PCA at the lower level of Midbrain. The Basilar Artery thus lies in the Pontine cistern while the PCA in the interpeduncular cistern. The entire Posterior circulation is called the Vertebro-basilar System.



Next what we did was get a CT Angiogram of the Brain which confirmed our suspicion. It was suggestive of a vertebro-basilar dolichoectasia which is just a fancy way of saying that a part of the basilar artery had become tortuous and dilated ( kind of like an aneurysmal dilation ) and this was compressing upon the brainstem of our patient leading to his misery.



VBD has variable clinical manifestations. Although some patients are asymptomatic and VBD is discovered only as an incidental finding, the most common symptom is ischaemic stroke, followed by brainstem and cranial nerve compression, hydrocephalus, and cerebral haemorrhage.

What matters in the ER however is not a rare diagnosis but the approach. From this case study, we were able to recapitulate the causes of an acute onset quadriparesis and how to proceed with investigations along with some relevant neuroanatomy.

Dr. Souvik Sarkar  
NEET PG mentor  
ESIC Medical College