

PAY ATTENTION TO PAID SYNDROME: A CASE OF PAROXYSMAL AUTONOMIC INSTABILITY WITH DYSTONIA FOLLOWING TRAUMATIC BRAIN INJURY

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INTRODUCTION

- Paroxysmal Autonomic Instability with Dystonia (PAID) is a subset of the more commonly encountered complication of severe traumatic brain injury (TBI), paroxysmal sympathetic hyperactivity (also known as “storming”).
- PAID syndrome may involve agitation, diaphoresis, hyperthermia, tachycardia, hypertension, tachypnea, hypertonia, and extensor posturing.
- The onset of PAID is soon after brain injury, often within the first week. PAID syndrome’s early onset, fluctuating presentation, and wide symptomatic overlap with other critical conditions may make recognition challenging.
- The disordered movements in PAID, including dystonia and extensor posturing, may be mistaken for other serious brain injury sequelae including worsening herniation, malignant hyperthermia, decerebrate posturing or seizure activity.
- If extensor posturing is not approached with caution, accurate diagnosis of PAID may be clouded.

CASE DESCRIPTION

- A 77-year-old female presented to the hospital following a fall with head-strike leading to severe TBI.
- Initial Glasgow Coma Scale (GCS) score was 3T, with computed tomography of the head showing a large subdural hematoma with transtentorial and subfalcine herniation. She subsequently underwent emergent decompressive hemicraniectomy (**Figure 1A-B**).
- During the first day of hospitalization, she developed extensor tone, tachycardia, and hypertension.
- Her increased tone was initially attributed to decerebrate posturing associated with an overall poor prognosis. However, the extensor tone and vital sign abnormalities fluctuated, with the patient intermittently demonstrating purposeful behavior including raising her hand toward the endotracheal tube. Her inconsistent exam with fluctuating extensor tone and purposeful behavior was ultimately attributed to PAID rather than decerebrate posturing.
- She was started on propranolol and gabapentin with improvement in tone and stabilization of vital signs. She steadily improved and was discharged to inpatient rehabilitation with GCS score of 15.

CONCLUSIONS

- Prompt and accurate recognition of PAID syndrome is important in caring for individuals with severe TBI.
- Correct identification of extensor posturing etiology in these patients is important for both targeted treatment and proper prognostication.

REFERENCES

1. Blackman JA, Patrick PD, Buck ML, Rust RS Jr. Paroxysmal autonomic instability with dystonia after brain injury. *Arch Neurol*. 2004 Mar;61(3):321-8.
2. Goddeau RP Jr, Silverman SB, Sims JR. Dexmedetomidine for the treatment of paroxysmal autonomic instability with dystonia. *Neurocrit Care*. 2007;7(3):217-20.
3. Wang VY, Manley G. Recognition of paroxysmal autonomic instability with dystonia (PAID) in a patient with traumatic brain injury. *J Trauma*. 2008;64(2):500-2.
4. Lee HS, Oh HS, Shin JH. Paroxysmal autonomic instability with dystonia managed using chemodenervation including alcohol neurolysis and botulinum toxin type a injection: a case report. *Ann Rehabil Med*. 2015;39(2):308-12.
5. Vale TC, Echenique L, Barsottini OGP, Pedrosa JL. Paroxysmal autonomic instability with dystonia. *Tremor Other Hyperkinet Mov*. 2020;10(1):1-4.

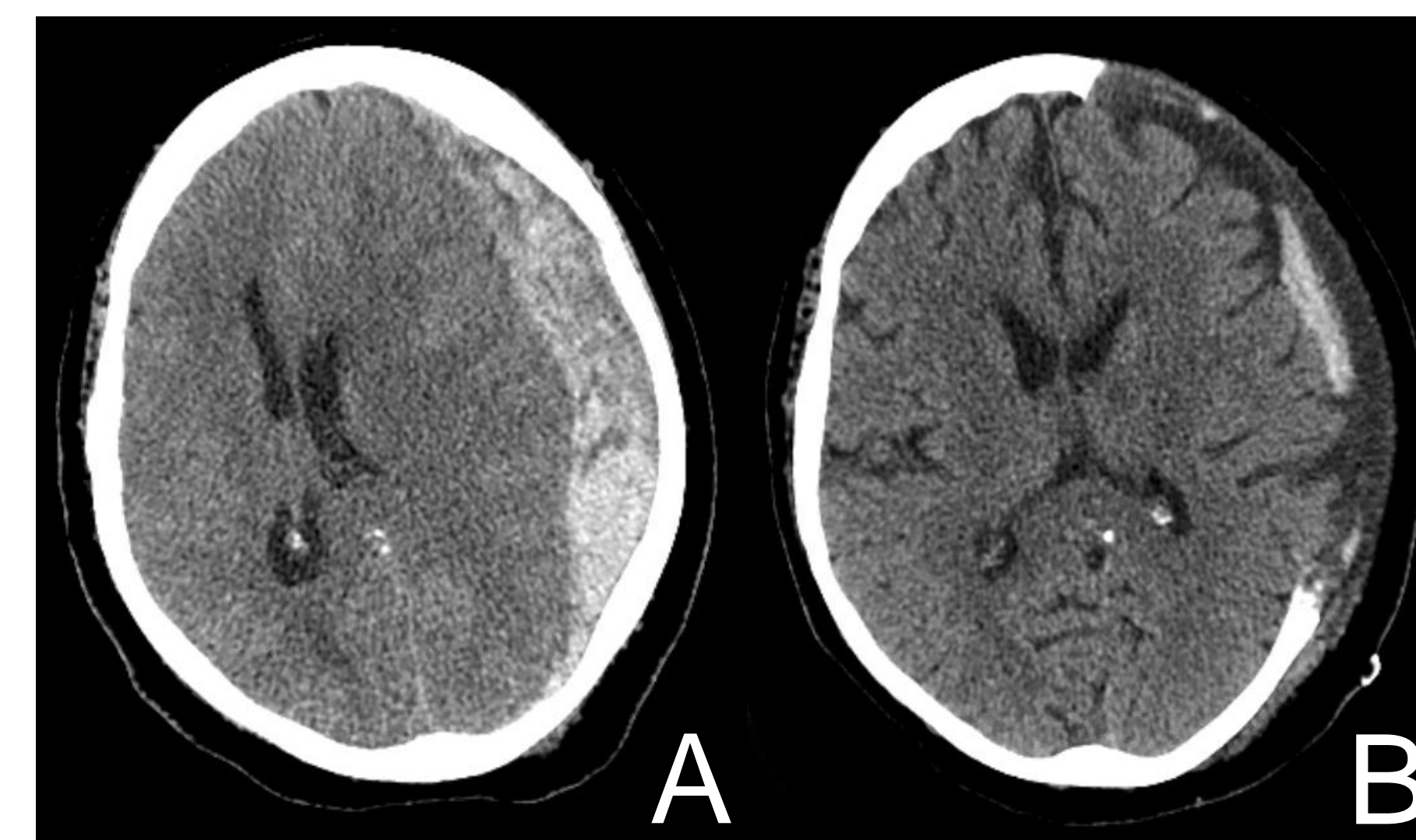
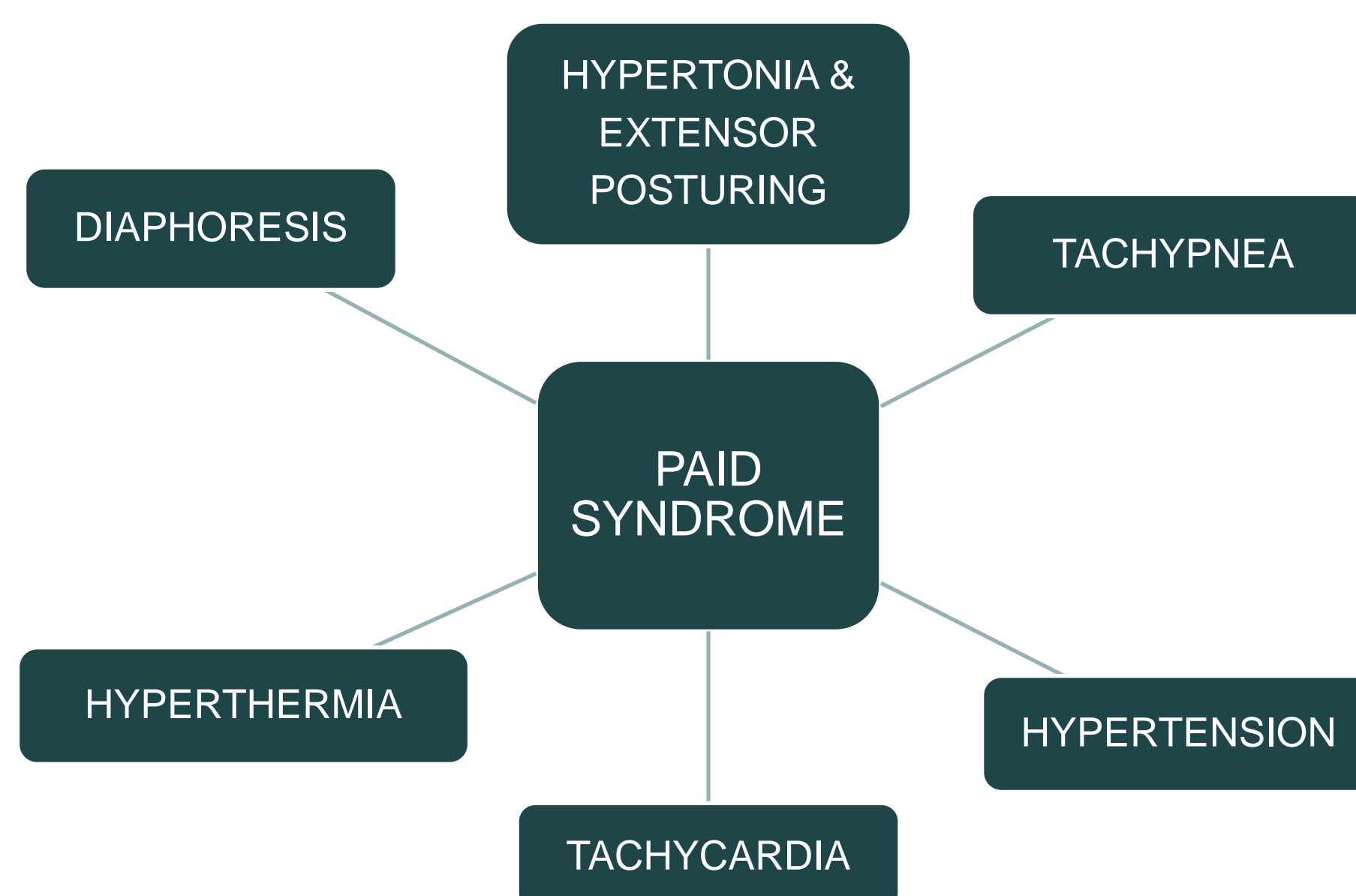


Figure 1A-B: Computed Tomography Axial Views Pre-and Post-Hemicraniectomy. **A.** Extensive subdural hematoma measuring 20 mm in depth over the left cerebral convexity resulting in sulcal and ventricular effacement with 16 mm of midline shift. In addition, both subfalcine and transtentorial uncal left to right herniation is present. **B.** After left decompressive hemicraniectomy with decreased sulcal and ventricular effacement and near resolution of midline shift.