

Introduction

Spontaneous intracerebral hemorrhage (ICH) is a rare but severe complication of anticoagulation, particularly in patients with underlying vascular or connective tissue disorders. RIN2-syndrome and Ehlers-Danlos Syndrome (EDS) are both associated with connective tissue fragility, potentially increasing hemorrhagic risk. This is a case of a female with both RIN2-syndrome and EDS who developed a spontaneous ICH shortly after initiation of a therapeutic heparin infusion for renal artery thrombosis

Case Presentation

Initial Presentation:

- Middle-age female presented with abdominal pain, nausea, and vomiting. BP 153/101
- PMH: RIN2-syndrome, EDS, HTN, tobacco use
- UA (+) glucose, ketones, blood, protein
- Underwent CT Abd/pelvis showing segmental infarction of R anterior kidney with occlusion of a feeding branch or R renal artery

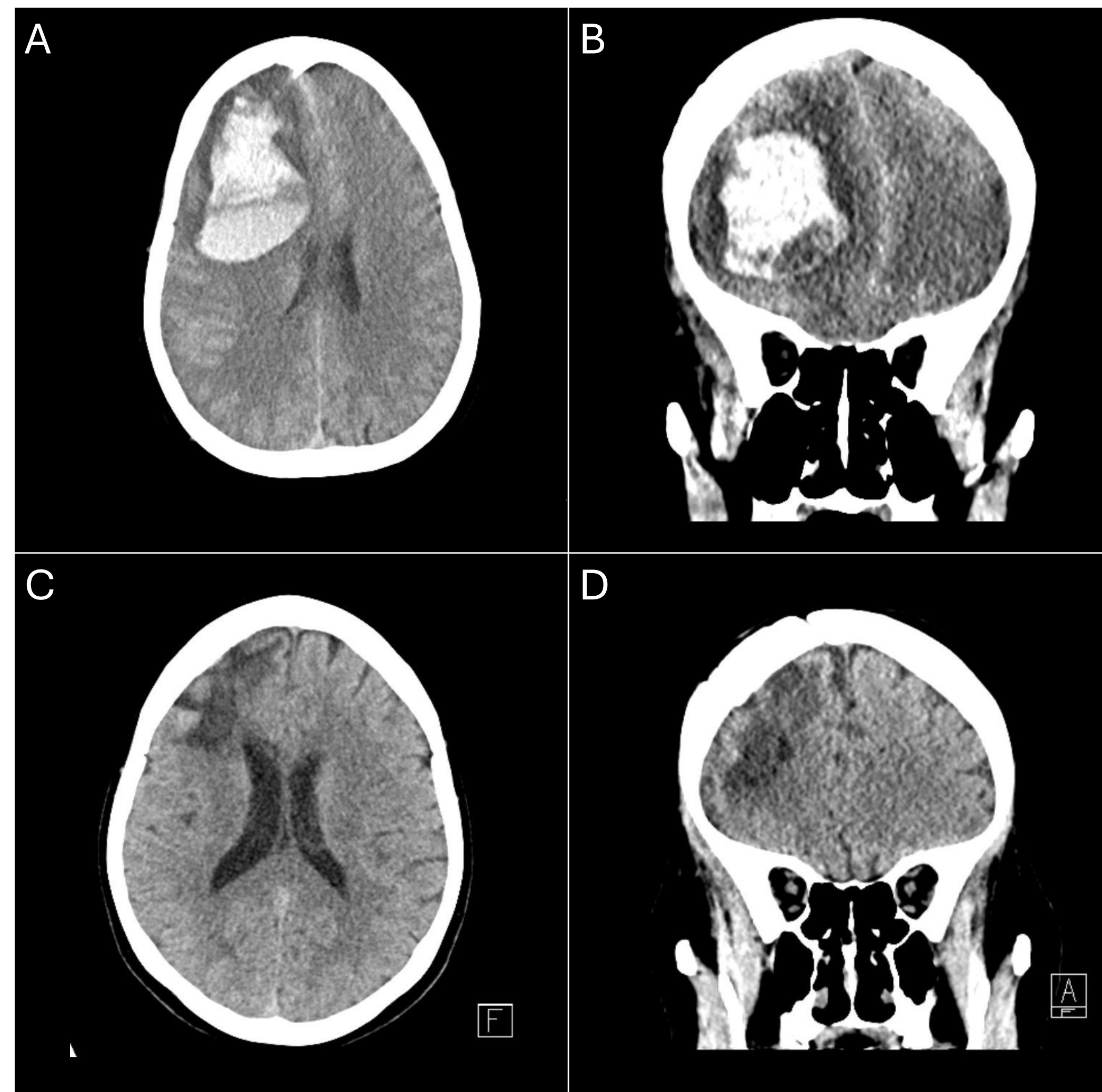
Hospital Course:

- Started on heparin drip and transferred to hospital with vascular surgery
- Rapid Response called overnight for new-onset weakness and dysarthria
- Stat CT head with evidence of intracranial hemorrhage

Outcome:

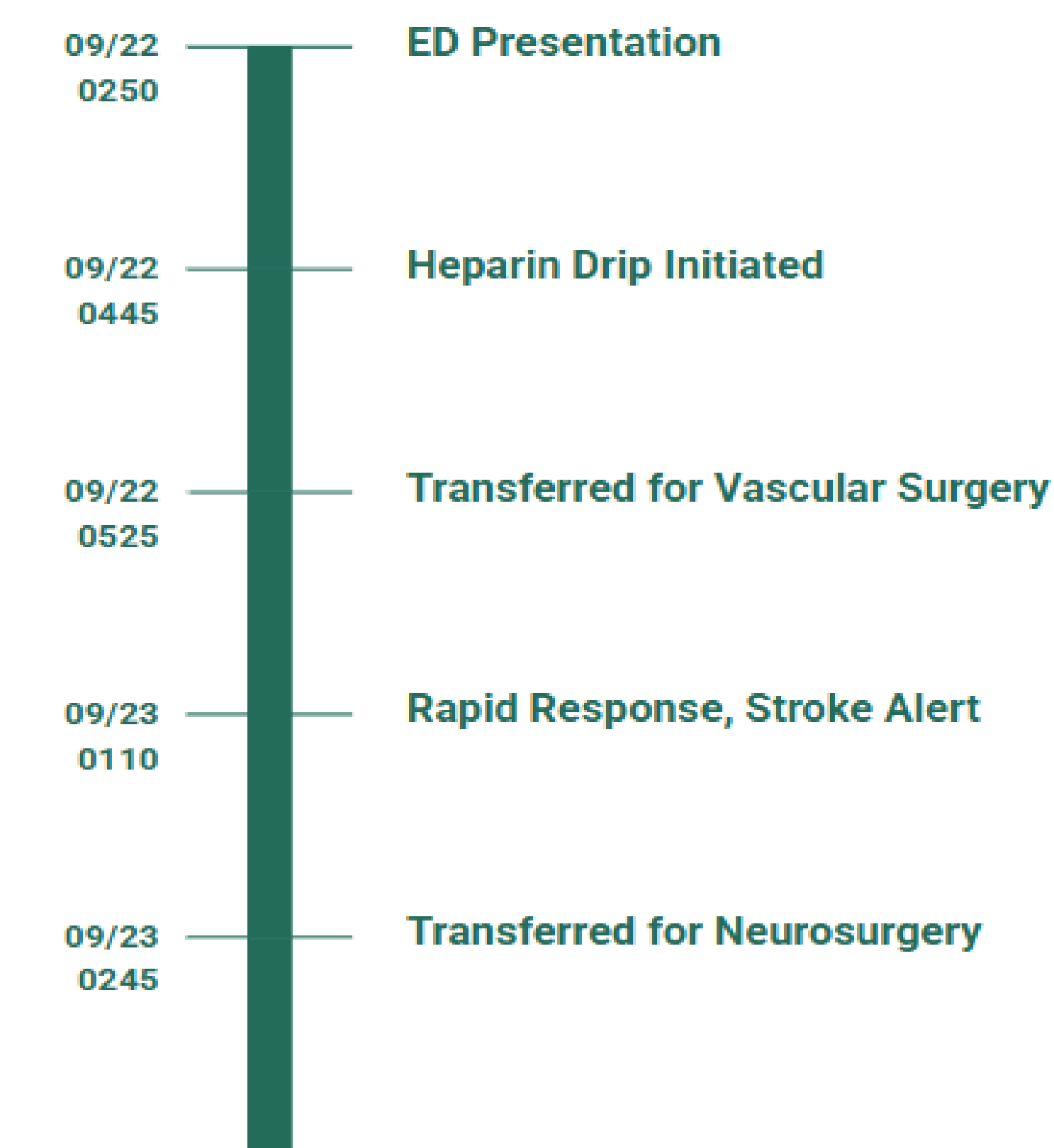
- Transferred for neurosurgical intervention and craniotomy with eventual full recovery

Follow Up



(A) Axial and (B) Sagittal slices of CT imaging obtained during Rapid Response and Stroke Alert on 9/23/24

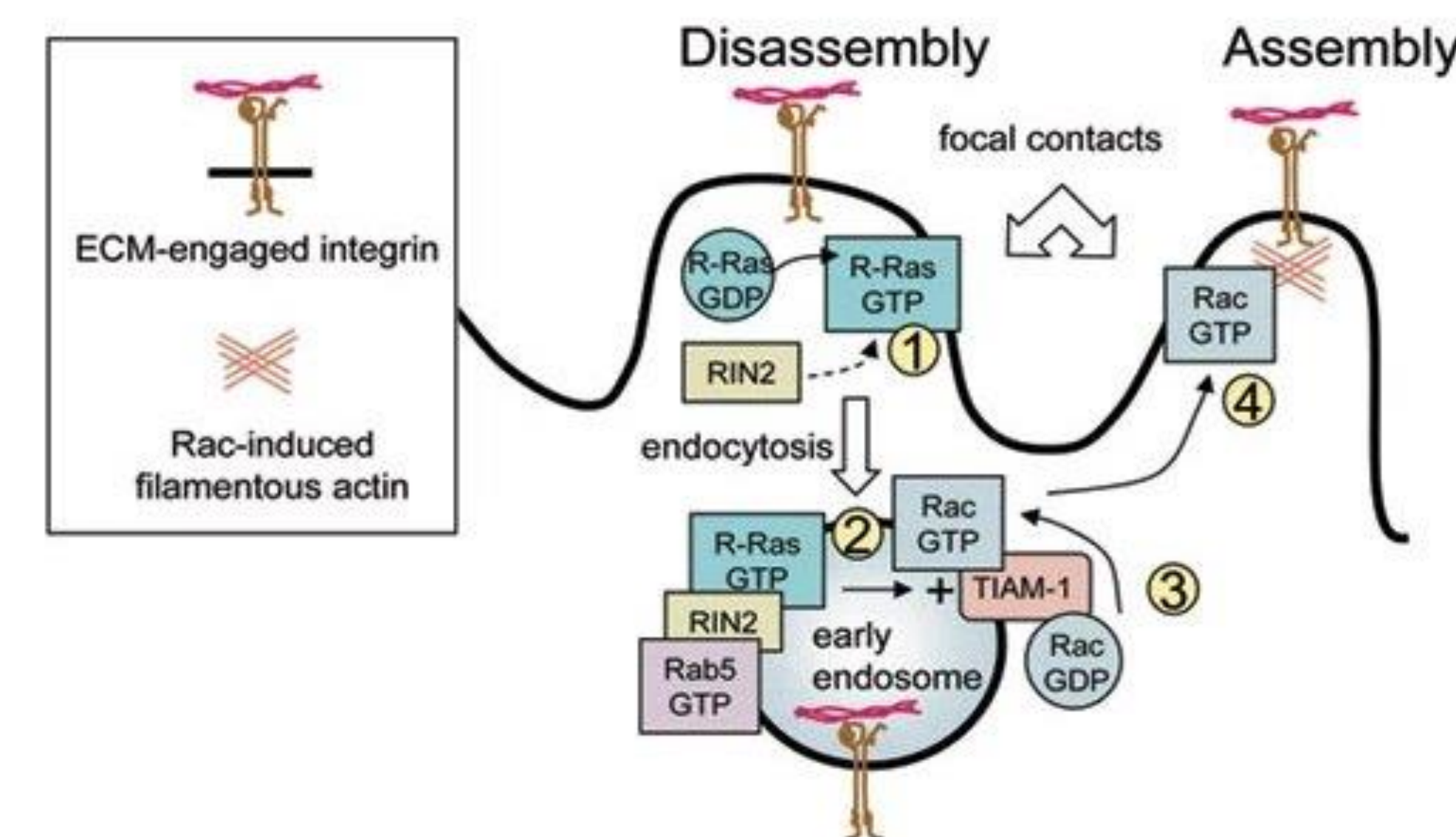
(C) Axial and (D) Sagittal slices of CT imaging obtained on 1/26/25 after patient had undergone craniotomy with subsequent wound washout and debridement



Timeline of patient's hospital course

Discussion

RIN2 is part of the R-Ras/RIN2/Rab5 complex that has been shown to be involved in the regulation of β 1-integrin internalization in endothelial cells. This association has led to the hypothesis of vascular fragility as collagens are a ligand for β 1-integrin contributing to the observed abnormal collagen fibril morphology.



Model proposed by Sandri et al. for the regulation of focal adhesion dynamics by R-Ras

Acknowledgments

I gratefully acknowledge Dr. Gregory Volk, Internal Medicine Program Director as well as Kettering Health Network for their support and guidance. I would also like to acknowledge KPN, KHDO ICU, as well as Dr. Peter Bouz, neurosurgeon, for acting quickly and providing this patient with the best possible outcome.

Conclusion

- This case highlights the significant risk of anticoagulation-associated complications in patients with connective tissue disorders such as RIN2-syndrome and EDS
- Development of spontaneous ICH following heparin initiation reflects underlying vascular fragility and further research is needed to better define anticoagulation risks in this population of patients
- Whole-person care should be at the forefront of our practice—recognizing how chronic genetic conditions impact not only physiology but also vulnerability to interventions
- Early goals of care discussions are essential to ensure that interventions align with patient values and prognosis

References

