



Traumatic mydriasis

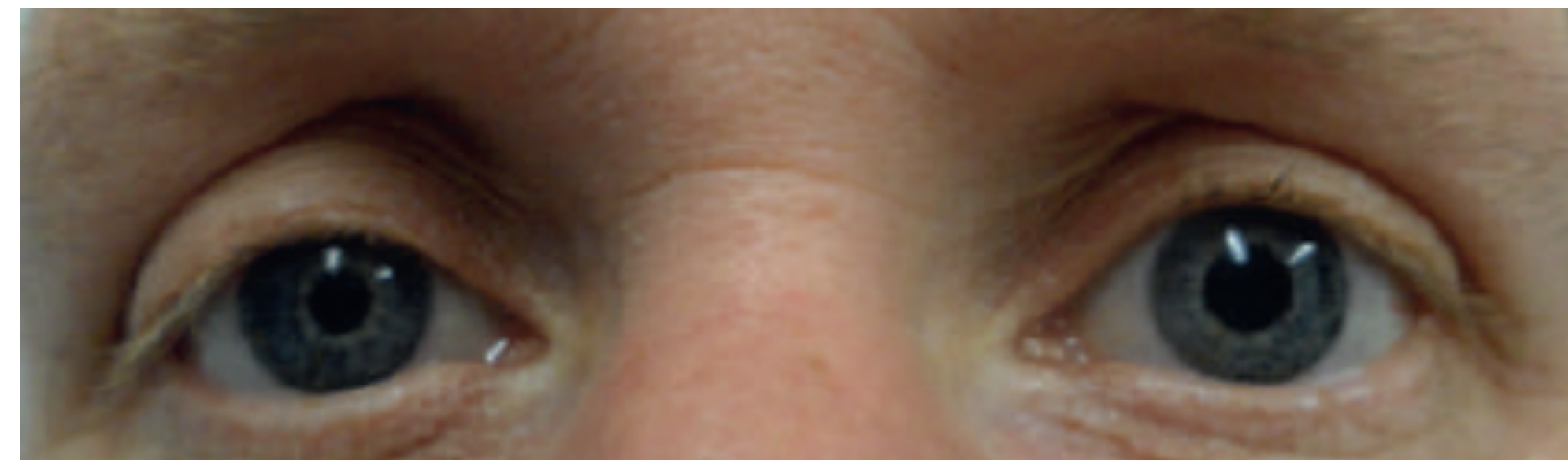
Jared McCallum, MD, Ryan Sankovic MD, Wendy Contreras, MD, P Tyler Roskos, PhD
 Department of Physical Medicine & Rehabilitation, Beaumont–Taylor Hospital, Taylor, Michigan

INTRODUCTION

The clinical significance of anisocoria can range from completely benign to immediately life threatening. A systematic approach is required to identify the potential severity of a situation and help direct testing appropriately.

CASE DESCRIPTION

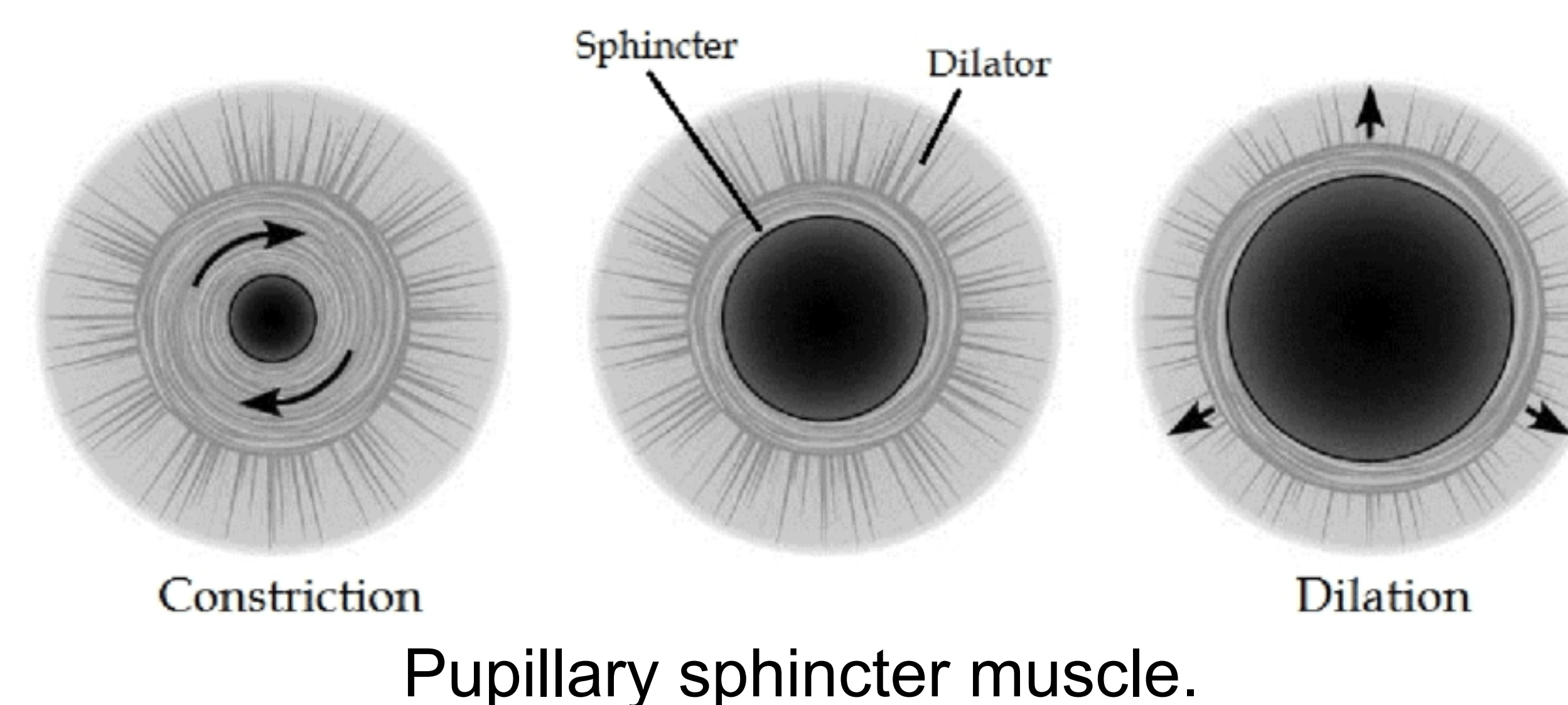
A 54-year-old male presented following an assault with loss of consciousness for an unknown period of time. GCS on arrival to the Emergency Department was 13. Imaging was significant for right subarachnoid hemorrhage, trace left subdural hemorrhage, and left medial orbital wall fracture. His pupils were noted to be equally round and reactive to light on initial physical examination. However, on the third day of admission, his left pupil was found to be dilated and nonreactive. The patient offered no new subjective complaints and his neurological exam was otherwise stable. Repeat head imaging redemonstrated the fracture and hemorrhages, which were stable. Ophthalmology reviewed prior facial CT and could not identify any injury along the cranial nerve III pathway. Following full ophthalmological examination, he was diagnosed with traumatic mydriasis.



Anisocoria: the larger pupil (left) is the affected one.



Left medial orbital wall fracture on CT head.



DISCUSSION

Traumatic mydriasis is pupillary dilation following ocular trauma and usually results from injury to the pupillary sphincter muscle. The ability of the pupil to react to light and accommodate varies, however the defect is present in both direct and consensual light. The absence of ptosis and diplopia are important distinctions. Some differentials include physiological anisocoria, pharmacologic mydriasis, third nerve palsy, and intracranial pathology. Traumatic mydriasis is a diagnosis of exclusion and more serious etiologies must be ruled out.

CONCLUSION

Traumatic mydriasis could potentially be present in trauma patients during their rehabilitation course. Other causes of anisocoria must be ruled out. However, thorough examination, documentation, and expert opinion can aid in proper identification and limit unnecessary repeat testing.

REFERENCES

1. Kedar, S. et al. (2019, May 29). *Approach to the patient with anisocoria*. UpToDate. <https://www.uptodate.com/contents/approach-to-the-patient-with-anisocoria>.
2. Salmon, J.F. (2019). *Neuro-ophthalmology*. Kanski's Clinical Ophthalmology: A Systematic Approach, 9th Ed. (pp. 783). Elsevier.
3. Serrano, F. et al. (2013, December 12). *Traumatic eye injury management principles for the prehospital setting*. Journal of Emergency Medical Services. <https://www.jems.com/patient-care/traumatic-eye-injury-management-principi-0/>.
4. Tomeo-Reyes, I. (2015). *Robust iris recognition using decision fusion and degradation modelling* [Unpublished doctoral dissertation]. Queensland University of Technology.