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# Corticosteroid Use in Traumatic Optic Neuropathy

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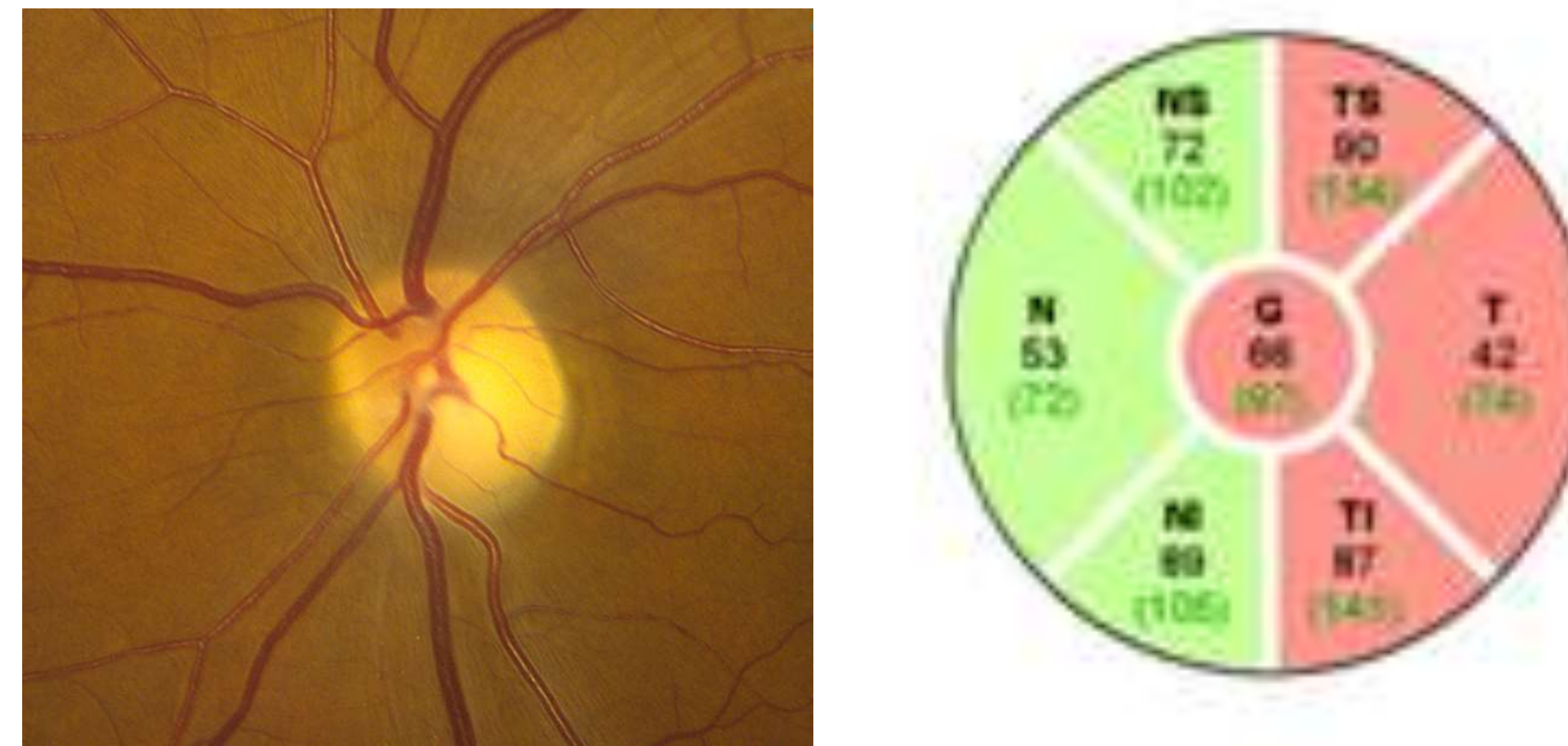


## BACKGROUND

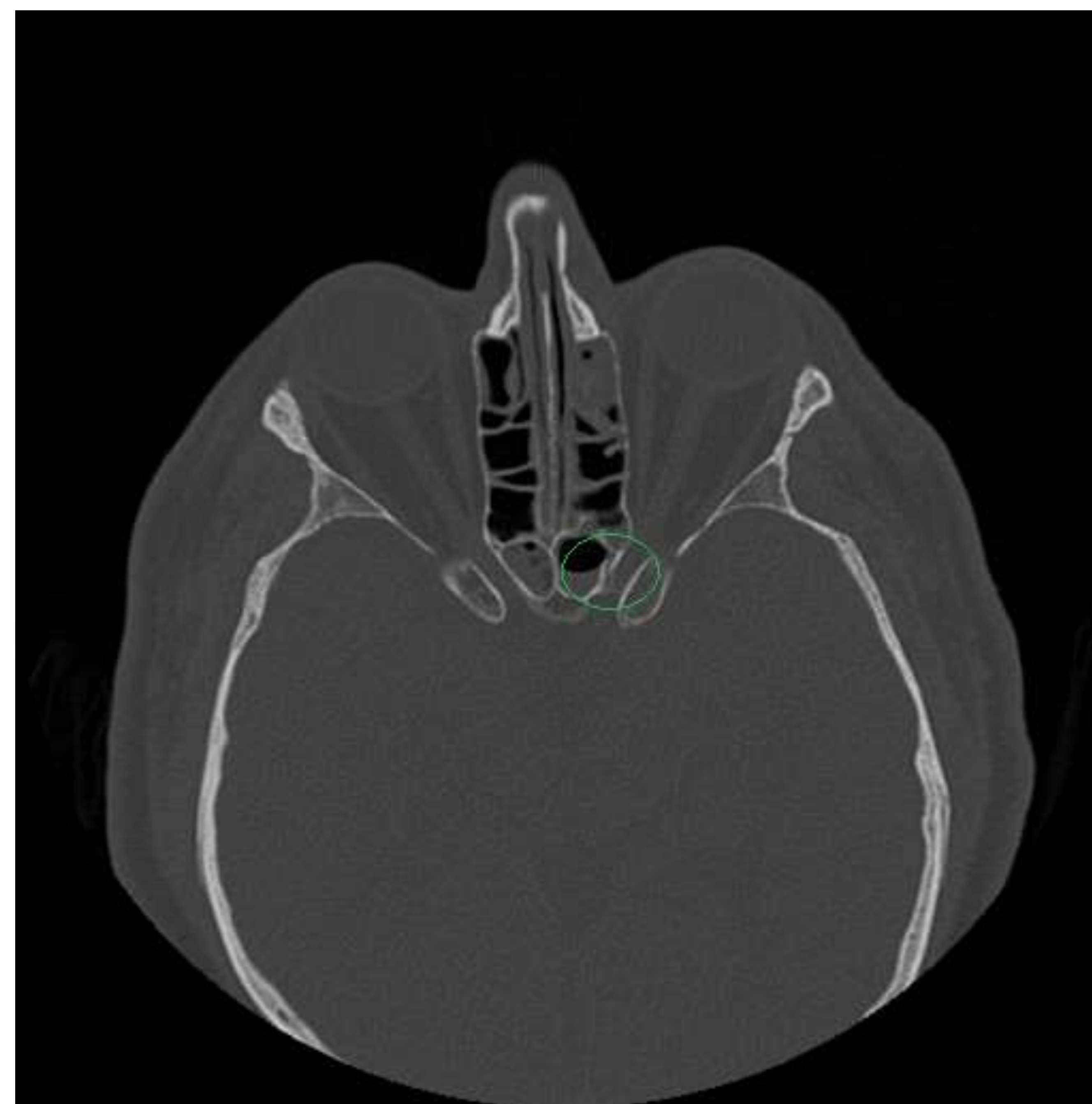
Traumatic optic neuropathy is a potentially visual devastating event caused by acute injury to the optic nerve from direct or indirect trauma. We report a case of traumatic optic neuropathy improved with corticosteroid use.

## CASE REPORT

A 47 year old male presented with decreased vision of the left eye after falling down the stairs. Exam showed a vision of no light perception in the left eye, 4+ relative afferent pupillary defect, and a normal fundus exam. Computed tomography (CT) orbit showed displaced acute fracture of the medial wall and roof of the left orbit as well as a fracture of the left optic canal concerning for optic nerve compromise. This clinical picture was likely traumatic optic neuropathy. Patient was started on IV Solumedrol 30 mg/kg loading dose, followed by 5.4 mg/kg q 6 hours for 48 hours. He was also started on brimonidine to help improve optic nerve perfusion although his intraocular pressure was normal at 17. On Day 12, it was noted his vision improved to count fingers from not even being able to see light. At 5 weeks, patient's vision continuing to be count fingers and his optic nerve developed temporal optic nerve pallor. At 4 months, his vision was also count fingers and his left optic nerve progressed to show diffuse optic nerve pallor.



**Figure 1:** Fundus photo showing temporal optic nerve pallor and OCT confirming nerve fiber layer damage temporally.



**Figure 2:** CT scan shows a fracture of the medial wall of the optic canal.

## Discussion

Steroids are thought to reduce edema to help reduce optic nerve damage. Research thus far has been inconclusive about the use of corticosteroid use in traumatic optic neuropathy (TON). Levin studied visual outcomes in cases of TON treated by corticosteroids, orbital decompression surgery, or observation and showed no statistical difference.<sup>2</sup> However, the study was limited as the number of eyes in study total was 127. As patient had no contraindication to steroids in our case, we thought giving corticosteroids had more potential benefits than harm. Of note, the CRASH trial did show higher risk of death than the placebo group so consideration of steroids should be individualized to the patient.<sup>1</sup>

## CONCLUSION

- Traumatic optic neuropathy usually presents with decreased vision, significant relative afferent pupillary defect, and an initial normal fundus exam
- Order CT scan of the head and orbit with both coronal and axial views with 1 mm cuts
- There is currently no definitive treatment, but corticosteroids should be considered in the right settings

## REFERENCES

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