



# VISUAL IMPROVEMENT AFTER VISION THERAPY IN AN ADULT PATIENT WITH DIPLOPIA AND ENOPHTHALMOS FOLLOWING A PANFACIAL FRACTURE, WHICH INCLUDED AN ORBITAL FRACTURE RESULTING FROM A ROAD TRAFFIC ACCIDENT- A CASE REPORT

Caring vision therapy and neuro vision rehabilitation centre

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## INTRODUCTION

This case report shows the significant impact of Road Traffic Accidents (RTAs) on public health, revealing alarming injury rates. Annually<sup>(5)</sup>, 1.3 million lives are lost, with an additional 20 to 30 million people sustaining non-fatal injuries. Facial injuries, affecting 30-40% of those involved, include notable orbital fractures, comprising 20% of cases<sup>(4)</sup>. This case report focuses on patient with orbital floor fractures, specifically examining & managing the resulting cyclo-vertical deviation. Assessing the effectiveness of Vision Therapy (VT) in such cases is crucial for individual patients and informs broader strategies for managing post-RTA injuries and enhancing overall quality of life.

## CASE SUMMARY

A 28-year-old male, involved in an RTA 6 months back followed by unconsciousness for 3 days. He had a history of orbital fracture underwent open reduction and internal fixation of a pan facial fracture (ORIF). Patient diagnosed with (OD) **Post-Operative Enophthalmos** and partially recovered 3<sup>rd</sup> nerve palsy with pupil involvement. He visited our Caring Vision Therapy & Neuro-Vision Rehabilitation Centre and reported persistent Diplopia as his main concern post-surgery.

## PRE – VISION THERAPY

TEST	OD	OS
BCVA	6/7.5	6/6
COVER TEST	25prism exotropia 15prism hypotropia	ORTHO
Ocular movement	restricted adduction and levo depression	FULL FREE
Pupil	Anisocoria, midilated, sluggish RTL, sphincter tear towards 12 ocp.	RTL
Lids	Pseudoptosis, enophthalmos	Normal
Fundus	WNL	WNL
Colour vision	17/17	17/17
Amsler	WNL	WNL
W4DT	Diplopia	

## OUT COMES (POST -VISION THERAPY)

TEST	OD	OS
BCVA	6/6	6/6
COVER TEST	ORTHO	ORTHO
Ocular movement	FULL FREE	FULL FREE
Pupil	RRTL	RRTL
Lids	enophthalmos	Normal
Fundus	WNL	WNL
Colour vision	17/17	17/17
Amsler	WNL	WNL
W4DT	FUSION	

## DISCUSSION

- Recent studies shows that Blunt ocular trauma may causes various effects and damage all segments of the eye . It may be associated or more frequently occur as part of head trauma, particularly facial area encompassing the zygomatic bone and maxillary sinus.
- This case report focuses on patient with orbital floor fractures, specifically examining & managing the resulting cyclo-vertical deviation. In this case, patient started seeing changes and improved well post 90 in-office VT sessions.
- The efficacy of neuro-optometric rehabilitation has been proved over a range of neurological-related visual problem through a variety of clinical and experimental methods.
- Assessing the effectiveness of Vision Therapy (VT) in such cases is crucial for individual patients and informs broader strategies for managing post-RTA injuries and enhancing overall quality of life.

## TREATMENT

The primary clinical goal was to improve binocular fusion including fusional vergence ranges in all the gazes and monocular visual skills includes saccades, and pursuits, along with expansion of functional visual field and reduction of diplopia. we started with in-office VT session thrice a week of one hour each.

## POST VT IMAGE

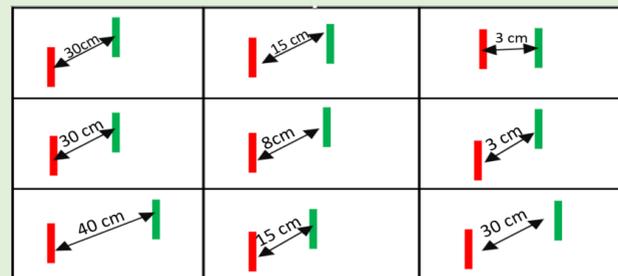


## CONCLUSION

Outcomes affirm the clinical significance of Vision Therapy in the rehabilitation of patients with post-RTA orbital fractures, offering a promising avenue for enhancing visual function and overall quality of life. the integration of Vision Therapy into comprehensive treatment plans could contribute significantly to the holistic care and recovery of individuals with similar visual complications. This case report shows the importance of exploring rehabilitative strategies like Vision Therapy in addressing the multifaceted challenges posed by RTA-induced orbital fractures.

## INITIAL TESTING (PRE- VISION THERAPY)

Diplopia charting shows a significant cyclo- vertical deviation and diplopia in the primary position.



## PRE VT IMAGE



## PHASE 1

SACCADES: SVI	Saccades module (Large target) promoted eye hand coordination monocularly
HART CHART	10x10 saccadic chart (large size) at 1meter monocularly
PURSUIITS: SVI	1. Rotator module (large size) clock and anticlock wise with reduced speed. 2. Tracking module (large size) at 1meter  Rotating peg board (slow speed).
PEG BOARD	
VERGENCE VTS	Manual vergence BO at near
TRANAGLAPH	Series 500 BO
BROCK STRING	Promoting fusional vergence in primary gaze with single bead at variable distances.
PERIPHERAL AWARENESS	Peripheral chart (large) with 4 direction

## PHASE 2

SACCADES: SVI	Saccades module (Medium target) monocularly  2 saccadic chart and 10x10 charts at 2 metres monocularly
HART CHART	
PURSUIITS: SVI	1. Rotator module (medium size) clock and anticlock wise with minimal speed. 2. tracking module (medium size) at 2meter  Rotating peg board (medium speed).
PEG BOARD	
VERGENCE VTS	Manual vergence BI and BO at 1 meter gradually increased to 2 meters.
TRANAGLAPH	Series 600 BI and BO
BROCK STRING	Inducing fusional convergence in primary gaze with three beads
PERIPHERAL AWARENESS	Peripheral chart (medium) with 6 direction

## PHASE 3

SACCADES: SVI	Saccades module (small) monocularly  4 saccadic chart and 10x10 charts at 3m monocularly
HART CHART	
PURSUIITS: SVI	1. Rotator module (small size) clock and anti clock wise with maximum speed. 2. tracking module (small size) at 3meter. Rotational hart chart 10x10
HART CHARTS	
VERGENCE VTS	Manual vergence BI and BO at 3 meter in all different gazes ( 9 cardinal gazes)
TRANAGLAPH	Series 605,607,610 BI and BO
BROCK STRING	Voluntary convergence in all gazes with three beads
PERIPHERAL AWARENESS	Peripheral chart (small) with 8 direction

## REFERENCES

