

RESEARCH ARTICLE

CLINICAL PROFILE OF PATIENTS PRESENTED WITH POST TRAUMATIC VISION LOSS IN A TERTIARY CARE CENTRE

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Abstract

Purpose: To explore the epidemiological aspects, clinical profile and outcome of TON.

Methods: 36 eyes of 36 patients were examined from August 2021 to April 2022 admitted at Emergency department presented with post traumatic uniocular sudden loss or diminution of vision. Visualacuity, fundus examination, OCT, NCCT head with orbit, MRI brain with orbit done in all patients. T-test and Fisher's exact test were used as statistical methods.

Results: Younger (18- 35 years) age group was more vulnerable to optic nerve injury. Indirect optic nerve injury was more common that direct optic nerve injury. Visual outcome was better in patients presented within 8 hours of injury. Eight patients managed surgically had BCVA (Best corrected visual acuity) at discharge 6/18 to 6/6.Twenty-eight patients who received medical management had BCVA 6/24(V.A.finger count at 3meter).

Conclusion: Indirect optic nerve injury was common in cases of TON. Early surgical intervention associated with better visual outcome. Medical managementif started within 8 hours of injury associated with relatively better visual outcome.

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Introduction:-

Optic nerve is vulnerable to injury by trauma as a consequence of road traffic accidents or falls. Trauma can cause direct optic nerve injury or indirect nerve injurycausing impairment of vision^[1]. The diagnosis of optic nerve injury may delayed due to presence of other life-threatening medical conditions. Signs of trauma to the optic nerve are usually clinical and the proper ophthalmological examination of acutely injured eye posses difficulties for the Ophthalmologist. 0.4% of all trauma patients had traumatic optic neuropathy (TON)^[2]. There is very little data available about the epidemiology, clinical presentation and outcome of traumatic optic neuropathy (TON). In this study we have explored the epidemiological aspects, clinical profile and outcome of TON.

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Review Of Literature:-

Many studies have been conducted on the management of traumatic optic nerve injury. Levin,L.A., et al ,1999 conclude no clear benefit between medical and surgical management.^[3]Sarkies N.2004 conclude no significant difference in medical and surgical management of traumatic optic neuropathy.^[4] Lai and Liao, 2018,19, 21 received pulsed steroids, and 17 received canal decompression (NR). 34% of treated patients showed improved vision. There is limited data available on traumatic optic neuropathy.Objective of this study is to assess various clinical features and outcome of surgical versus medical management.

Material And Method

Study has been conducted at Department of Ophthalmology, Maharani Laxmi Bai MedicalCollegeJhansi,Uttar Pradesh, India betweenAugust 2021 to April 2022.43 eyes of 43 patients were examined, admitted at Emergency department presented with post traumatic uniocular sudden loss or diminution of vision.Traumatic Optic Neuropathy was defined as any patient with new optic nerve dysfunction attributable to recent trauma in the absence of significant open globe trauma, with a RAPD in unilateral cases. 07 out of 43 eyes were excluded due to corneal opacity. Total 36 eyes of 36 patients were included. All patients were divided in two groups according to nature of injury, time of admission and method of management.All patients undergone visual acuity, Fundusexamnation, OCT, NCCT head with orbit, MRI brain with orbit. Monitoring of patientsdone, managed surgically or medically.Follow up of all patients done in the department of ophthalmology after discharged from emergency. Out of 36 patients 8 patients undergone surgical management and 28 patients had received medical management in the form of I.V. MPS followed by oral prednisolone in a dose of 1mg/kg/day.T-test and correlationFisher's exact test were used as statistical methods.

Following parameters were observed.

NATE	NO OF	V. A.	V.A.	PR	RAP	FUND	OC	NCCT	MRI
OF	PATIEN	ON	FELLO		D	US	Т	HEAD	BRAIN WITH
INJU	TS	ADMISSI	W					WITH	ORBIT
RY		ON	EYE					ORBIT	
Direct	07	PL	6/6	Defecti	RAP	WNL	WN	Multiple	Multiple
optic		negative		ve in	D		L	fractures(fro	fractures(frontal
nerve				all	grad			ntal bone	bone & lesser
injury				quadra	e 2			,lesser wing	wing of
				nts				of sphenoid,	sphenoid),hema
								hemorrhagic	toma
								contusion	
Indirec	29	PL-	6/6	Defecti		WNL	WN	EDH ,SAH	EDH ,SAH
t optic		positive to		ve in	RAP		L		
nerve		HM		nasal	D				
injury				quadra	grad				
				nt	e 2				

Table 1:- Differences in clinical features of Direct and Indirect TON.

TIMEOF	NO OF	TYPE OF	V. A.	V.A.	V.A. AT	Р
PRESENTATION	RESENTATION PATENTS		ON	FELLOW	DISCHARGE	VALUE
			ADMISSION	EYE		
WITHIN 8 HRS	21	SURGICALLY-	HM to PL-	6/6	6/60 -6/9	<0-05
		06	Positive with			
		MEDICALLY-15	PR Accurate			
ATER 8 HRS	15	SURGICALLY-	PL positive	6/6	FC at 2m -	<0-05
		02	with		6/36	
		MEDICALLY-13	PRdefective			
			to PL negative			

TREATMENT MODALITY	NO OF PATIENTS	V. A. ON ADMISSION	V.A. FELLOW EYE	V.A. AT DISCHARGE	P VALUE
SURGICALY	8	PL positive with	6/6	6/18-6/6	<0-05
MANAGED		PR defective			
MEDICALLY	28	HM -PL positive	6/6	Fc at 3m – 6/24	<0-05
MANAGED		with PR accurate			

Table 3:- Outcome of patients according to mode of Treatment.



Fig1:- Haemorrhagic contusion inRt Frontal lobe.



Fig2:- Focal edema in Rt Frontal lobe causing indirect optic nerve injury.

Discussion:-

In this study patient in age group between 18- 35 years were more vulnerable to optic nerve injury and presented with post traumatic vision loss.VLee et alalso suggested that young men were at greatest risk of TON^[5].Male to

female ratio was 2:1. Out of 36 eyes of 36 patients indirect optic nerve injury was present in 29 eyes and direct optic nerve injury in 7 eyes. Indirect optic nerve injury was more common than direct optic nerve injury. Visual acuity on admission was better in patients with indirectopticnerve injury. Projection reaction(PR) was defective in all quadrants in patients with direct optic nerve injury while in patients with indirect nerve optic injury it was defective only in nasal quadrant. In one report using computerized tomography (CT) imaging, about half of all TON cases were found to have an associated sphenoidal bone fracture ^[6]. Fractures of frontal bone, lesser wing of sphenoid, hemorrhagic contusion were also major cause of direct optic nerve injury in this study. Epiduralhemorrhage(EDH) and Sub arachnoidhemorrhage (SAH) were major cause of indirect optic nerve injury. Out of 36 patients 21 patients presented within 8 hours of trauma and 15 patients presented after 8 hours of trauma. Visual outcome was better in patients who presented within 8 hours of injury ^[7]. Various studies showed better outcome with surgical management ^[3,8,9]. Outof 36 patients eight patients underwent surgical management and had visual outcome at discharge-BCVA (Best corrected visual acuity) 6/18 to 6/6. Though data was statistically not significant yet showing that prompt surgical intervention associated with favorable prognosis. Many studies failed to show benefit of medical management over surgical.^[10]Twenty-eight patients whohad received medical management in the form of iv methylprednisolone (MPS) followed by oral prednisolone in a dose of 1mg/kg/day achieved BCVA- only(V.A. Finger count at 3meter)was 6/24. This result was statistically not significant may be due to small sample size. These results needs further evaluation on large scale.

Conclusion:-

Indirect optic nerve injury was common in cases of TON. Early surgical intervention associated with better visual outcome. Medical management with I.V. steroids if started within 8 hours of injury associated with relatively better visual outcome than initiated after 8 hours.

Conflict of interest:-

None.

Source of funding:-

None.

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