

Thesis Submitted for the Partial Fulfillment of the Master Degree in General Surgery

By By **Mohammed Fathy Mohammed**

92091721 M.B., B.Ch.

Supervised by

Prof. Dr. Ahmed Samir Ahmed El-Molla

Prof. and Head of Neurosurgery Department Ain Shams University

Prof. Dr. Mohammed Tawfik Hosni

Head of Neurosurgery Department Maadi Armed Forces Hospital

Dr. Emad Ghanem

Lecturer of Neurosurgery Ain Shams University

Faculty of Medicine Ain Shams University 1997



بينم الله الرحمن الرحيم القالوا سينمانك لا علم لنا إلا ما علمتنا، إنكأنت الغليم المكيم صدق الله العظيم

سورة البقرة، الآية ٣٢



Acknowledgment

I would like to express my sincere thanks and gratitude to Prof. Dr. Samir El-Molla; Professor and head of the Neurosurgical Department, Ain Shams University, for his kind guidance, great help and continuous support.

I wish to express my deep gratitude to Prof. Dr. Mohammed Tawfik, Head of the Neurosurgical Department, Maadi Armed Forces Hospital, for his great help, supervision and encouragement.

My special thanks to **Dr. Emad Ghanem**, Lecturer of Neurosurgery, Ain Shams University, for his kind supervision, continuous direction and kind advice.

Lastly, I would like to express my deep thanks to every member in Neurosurgical Department, Maadi Armed Forces Hospital, both seniors and juniors.



List of tables

		Page
•	Table (1): Lesions causing focal and diffuse patterns	_
	of damage after head injury	7
•	Table (2): Complications after head injury that cause	
	secondary insult to damaged brain	8
•	Table (3): Glasgow coma scale and score	28
•	Table (4): Children's coma score	30
•	Table (5): Neonatal arousal scale	31
•	Table (6): Relationship of computed tomography	
	categories to outcome	88
•	Table (7): Outcome of the studied cases	92
•	Table (8): Age distribution among the studied cases	92
•	Table (9): Correlation between age and outcome	93
•	Table (10): Sex distribution among studied patients	93
•	Table (11): Mechanism of injury among studied	
	patients	94
•	Table (12): Correlation between mechanism of injury	
	and outcome	94
*	Table (13): Distribution of patients according to the	
	pathology	94
•	Table (14): Correlation between pathology and	
	outcome	95
•	Table (15): Clinical presentation among the studied	
	patients	96
•	Table (16): Distribution of patients according to	
	Glasgow coma score	96
•	Table (17): Correlation between G.C.S. and outcome	96
•	Table (18): Lower brain stem reflexes affection	
	among the studied patients	97
•	Table (19): Correlation between lower brain stem	
	reflexes affection and outcome	97
٠	Table (20): C.T. scan findings among studied patients	97
•	Table (21): Correlation between CT scan brain	
	findings and outcome	98
•	Table (22): Treatment modalities among studied	
	patients	98
•	Table (23): Correlation between treatment modality	
	and outcome	98
•	Table (24): Associated injuries among studied	
	patients	99



List of figures

•	Fig. (1): Brain CT showing posterior fossa extradural	
	hematoma	100
•	Fig. (2): Brain CT showing acute subdural hematoma	101
•	Fig. (3): Brain CT showing intracerebral hematoma	102
•	Fig. (4): Brain CT showing multiple brain contusions	103
•	Fig. (5): Brain CT showing diffuse brain swelling	104
•	Fig. (6): Brain CT showing subarachnoid haemorrhage	105
•	Fig. (7): Plain X-ray cervical spine shwoing fracture	
	dislocation of C1-2	106



List of abbreviations

SD: Standard deviation

EDH: Extradural hematoma

ICH: Intracranial hematoma

SDH: Subdural hematoma

G.C.S.: Glasgow Coma Scale

G.O.S.: Glasgow Outcome Scale

A.S.H.: Acute subdural hematoma

I.C.P.: Intracranial pressure

C.P.P.: Cerebral perfusion pressure

R.T.A.: Road traffic accident

CT: Computed tomography

MRI: Magnetic resonance imaging



List of contents

	Page
Introduction & aim of the work	1
Review of literature	5
 Classification of head injuries 	5
 Pathology and pathophysiology 	10
 Assessment and clinical presentation 	25
 Investigations 	49
 Management 	60
 Outcome and prognosis 	81
Material and methods	91
Results	92
Discussion	107
Conclusion	111
Summary	112
References	114
Arabic summary	