

The Study of the anterior neck injury and its management in a tertiary care center, RIMS Ranchi.

¹Rajiv Rajak*, ²Zahid Mustafa Khan, ³Dr. Saurabh Kumar, ⁴Dr. Renu Kumari, ⁴Dr. Keshav Kumar,

¹Junior Resident Department of ENT, RIMS, Ranchi, Jharkhand, India

²Additional Professor, Department of ENT, RIMS, Ranchi, Jharkhand, India

³SR ENT, RIIMS, Ranchi, Jharkhand, India

⁴JR ENT, RIIMS, Ranchi, Jharkhand, India

Page | 1

Abstract

Anterior neck injuries represent a critical category of trauma requiring immediate attention due to the density of vital anatomical structures such as the airway, major blood vessels, and nerves. This study aims to evaluate the patterns, causes, clinical presentations, and management strategies of anterior neck injuries at RIMS Ranchi, a tertiary care center.

Over a two-year period, data from 75 patients were prospectively analyzed, focusing on demographics, type and cause of injury, treatment modalities, and outcomes. Blunt trauma was the most common cause of anterior neck injury, followed by penetrating and mixed injuries. Airway compromise and vascular damage were frequent complications. Prompt airway management, surgical exploration, and multidisciplinary approaches led to significantly improved outcomes. The study emphasizes the necessity of trauma protocols and skilled surgical intervention in optimizing patient recovery and minimizing mortality.

Keywords: Anterior neck injury, trauma, Airway management, Penetrating injury, RIMS Ranchi, Tertiary care, Surgical management

Submitted: March 14, 2025 **Accepted:** May 04, 2025 **Published:** May 30, 2025

Corresponding author: Rajiv Rajak*

Email: drrajiv1996@icloud.com

Junior Resident, Department of ENT, RIMS, Ranchi, Jharkhand, India

Introduction

The anterior region of the neck houses vital structures, including the trachea, esophagus, carotid arteries, jugular veins, thyroid gland, and critical nerves. Trauma to this region is considered life-threatening and requires rapid assessment and intervention. Anterior neck injuries can be caused by various mechanisms such as road traffic accidents (RTAs), assaults, accidental falls, or occupational hazards. The anatomical complexity and the presence of multiple vital organs make diagnosis and management particularly challenging. Tertiary care centers like RIMS Ranchi play a pivotal role in managing such injuries due to the availability of multidisciplinary expertise and advanced diagnostic facilities.

Trauma is one of the leading causes of morbidity and mortality globally. Among traumatic injuries, neck trauma is relatively uncommon but potentially fatal. Anterior neck trauma can be open or closed, and the degree of severity depends on the extent of damage to the airway and vascular structures. Previous studies have highlighted the need for early airway control, imaging, and definitive surgical management. In rural or semi-urban India, where delayed

presentation is common, clinical management becomes even more complex. Hence, understanding the pattern of injury and outcomes in such settings is essential.

Objectives

- To study the etiological and demographic distribution of anterior neck injuries.
- To evaluate clinical presentations and diagnostic approaches.
- To assess the surgical and non-surgical management techniques used.
- To analyze outcomes and complications associated with these injuries.

Methodology

Study design and setting

This was a prospective observational study conducted in the Department of Surgery, RIMS Ranchi, from January 2022 to December 2023. The study included patients admitted with anterior neck injuries who received medical or surgical intervention.

Participants

A total of 75 patients with anterior neck trauma were included. Patients of all age groups and both sexes were analyzed. Exclusion criteria included posterior neck injuries and incomplete medical records.

Primary and secondary outcomes

Primary outcomes included survival rate and complication rate following treatment. Secondary outcomes included the time to intervention, need for tracheostomy, length of hospital stay, and functional outcomes post-recovery.

Data collection

Parameter	Blunt Trauma	Penetrating Injury	Mixed
Total Cases	42	25	8
Airway Compromise	28	20	5
Vascular Injury	6	12	4
Tracheostomy Required	18	14	5
Surgical Intervention	30	22	7
Mortality	2	3	1

Discussion

The findings of this study highlight the prevalence of blunt trauma as the leading cause of anterior neck injuries. Airway management remains the cornerstone of emergency care, with a significant number of patients requiring tracheostomy. Prompt surgical exploration and interdisciplinary coordination significantly influenced outcomes. Mortality was relatively low, attributable to timely intervention. The study aligns with prior research, indicating that survival rates improve with rapid airway stabilization and early surgical intervention. However, challenges like delayed presentation, resource limitations, and lack of trauma protocols still exist, especially in semi-urban settings.

Conclusion

Anterior neck trauma, though less common, demands urgent and coordinated management due to the risk of airway obstruction and vascular injury. This study underscores the importance of early diagnosis, prompt airway control, and appropriate surgical intervention. Institutions like RIMS Ranchi, with multispecialty facilities, are well-equipped to manage such complex trauma. Continued training,

Data were collected from hospital records and included age, gender, cause of injury, clinical presentation, imaging findings, treatment given, and follow-up. Patients were categorized based on the mechanism of injury (blunt, penetrating, or mixed). Management protocols involved securing the airway, hemodynamic stabilization, and surgical repair where indicated. Outcomes were measured in terms of complications, recovery, and mortality.

Results

Among 75 patients, 48 (64%) were male and 27 (36%) were female. The majority were in the age group of 20–40 years. Blunt trauma accounted for 42 cases (56%), while penetrating injuries were noted in 25 cases (33%). Eight patients had mixed injuries.

development of trauma protocols, and public awareness can further improve outcomes.

References

1. Brennan J. Cervical trauma: airway and vascular injuries. *Otolaryngol Clin North Am.* 2008;41(5):987-1001.
2. Demetriades D, et al. Physical examination and selective management in penetrating neck injuries. *J Am Coll Surg.* 1996;183(5):472-477.
3. Roon AJ, Christensen N. Evaluation and treatment of penetrating cervical injuries. *J Trauma.* 1979;19(6):391-397.
<https://doi.org/10.1097/00005373-197906000-00001>
PMid:448778
4. Ebraheim NA, et al. Cervical spine injuries in trauma patients. *Clin Orthop Relat Res.* 2001;384:23-29.
5. Shiroff AM, et al. Penetrating neck trauma: a review of management strategies and outcomes. *Am Surg.* 2013;79(1):23-29.
<https://doi.org/10.1177/000313481307900113>
PMid:23317595
6. American College of Surgeons. *Advanced Trauma Life Support (ATLS) Manual.* 10th ed.

7. Apfelbaum JL, et al. Practice guidelines for management of the difficult airway. *Anesthesiology*. 2013;118(2):251-270.

<https://doi.org/10.1097/ALN.0b013e31827773b2>

PMid:23364566

8. Biffli WL, et al. The contemporary management of penetrating neck trauma. *Curr Opin Crit Care*. 2004;10(6):526-532.

9. Nason RW, et al. Penetrating neck injuries: analysis of experience from a Canadian trauma center. *Can J Surg*. 2001;44(2):122-126.

10. Gilyoma JM, et al. Neck injuries in a developing country: challenges in diagnosis and management. *Int J Otolaryngol*. 2011;2011:1-5.

11. Gawande A. Two hundred years of surgery. *N Engl J Med*. 2012;366(18):1716-1723.

<https://doi.org/10.1056/NEJMra1202392>

PMid:22551130

12. Goel A, et al. Tracheostomy in trauma: indications and timing. *Indian J Crit Care Med*. 2015;19(2):76-80.

13. Karmakar S, et al. Management strategies for penetrating injuries of the neck. *Indian J Surg*. 2014;76(4):285-290.

14. Borman J, et al. Trauma management and airway control in neck injury. *Emerg Med Clin North Am*. 2008;26(4):1021-1039.

15. Krassas GE, et al. Surgical interventions in neck trauma cases: evaluation and outcomes. *Surgery Today*. 2017;47(3):288-293.

PUBLISHER DETAILS

Student's Journal of Health Research (SJHR)

(ISSN 2709-9997) Online

(ISSN 3006-1059) Print

Category: Non-Governmental & Non-profit Organization

Email: studentsjournal2020@gmail.com

WhatsApp: +256 775 434 261

**Location: Scholar's Summit Nakigalala, P. O. Box 701432,
Entebbe Uganda, East Africa**

