

INPLASY

Massive hemothorax resulting from blunt vertebral fracture: report of two cases and literature review

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ADMINISTRATIVE INFORMATION

Support - Nil.

Review Stage at time of this submission - Completed but not published.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 3 January 2025 and was last updated on 3 January 2025.

INTRODUCTION

Review question / Objective This systemic review tries to delineate comprehensive data on demographics, clinical presentations, diagnostic tools, hospital courses, and outcomes related to massive hemothorax caused by blunt vertebral fractures.

Rationale Although vertebral fractures rarely resulted in massive hemothorax, we did find few cases encountered this critical condition. However, clinical data regarding this issue are scarce in the current literature.

Condition being studied Massive hemothorax caused by blunt vertebral fractures.

METHODS

Search strategy We conducted an extensive literature search using the PubMed and Google Scholar databases for articles published up to September 2024, focusing on studies of massive

hemothorax resulting from blunt vertebral fractures. Additionally, reference lists of potentially eligible studies were screened to identify relevant articles.

Participant or population Case reports and cases series about massive hemothorax caused by blunt vertebral fractures.

Intervention No intervention need to evaluate in this review.

Comparator No comparative intervention.

Study designs to be included During the preliminary search, no randomized controlled trials or retrospective studies on this specific issue were identified. Therefore, we included case reports and case series of hemothorax caused by vertebral fractures.

Eligibility criteria We included case reports and case series of hemothorax caused by vertebral fractures.

Patients with penetrating injuries or cases in which the source of hemothorax could not be identified were excluded from the analysis.

Information sources Descriptions of case in each manuscript.

Main outcome(s) Descriptive analysis of the clinical features about patients with massive hemothorax caused by vertebral fracture.

Additional outcome(s) We compared the features of two subgroups of included cases.

Data management We recorded the clinical features of included cases in an Excel file. Statistical analyses were performed using SPSS 15 (SPSS, Chicago, IL, USA). Categorical data are presented as frequencies and percentages, whereas continuous data such as age and GDA size are presented as medians within interquartile ranges (IQRs). The Mann–Whitney U test was employed to assess differences of continuous data between groups. For categorical data, intergroup comparisons were performed utilizing the chi-square test.

Quality assessment / Risk of bias analysis Data are derived from case reports and case series, the risk of bias is high.

Strategy of data synthesis Descriptive analysis of included cases.

Subgroup analysis The cases were categorized into two groups based on the source of the hemothorax: group 1, in which bleeding originated directly from fractured vertebrae, and group 2, in which bleeding arose from arteries associated with vertebral fractures.

Sensitivity analysis We did not conduct sensitivity analysis.

Language restriction No language limitation.

Country(ies) involved Taiwan.

Keywords hemothorax; vertebral fracture; thoracolumbar junction; thoracotomy; transarterial embolization.

Contributions of each author

Author 1 - Kuo-Chang Lee - Search eligible studies.
Read and record data from included studies.
Conducted statistical analysis.
Finalize the manuscript.

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Author 2 - Kuo-Tai Chen - Search eligible studies.
Read and record analyze data from included studies.

Draft the manuscript.

Produce table and figures.

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