

Imaging Correlation in Vertebral Destruction Syndrome: Preliminary Findings from a Retrospective Case Series

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Introduction

Vertebral Destruction Syndrome (VDS) involves collapse and instability of vertebral structures from infectious, neoplastic, or metabolic causes. Its overlapping imaging features often complicate diagnosis. As imaging studies are crucial for determining etiology, this study evaluates characteristic imaging patterns to establish correlations with etiology to enhance diagnostic accuracy, guide treatment decisions, and improve patient outcomes.

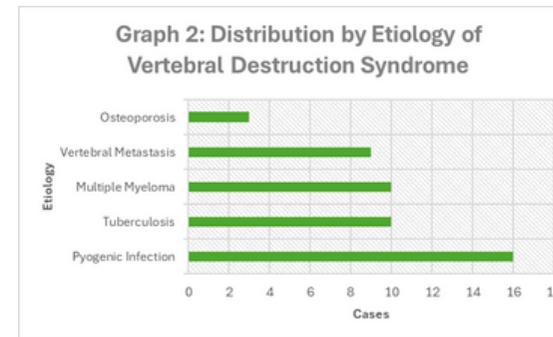
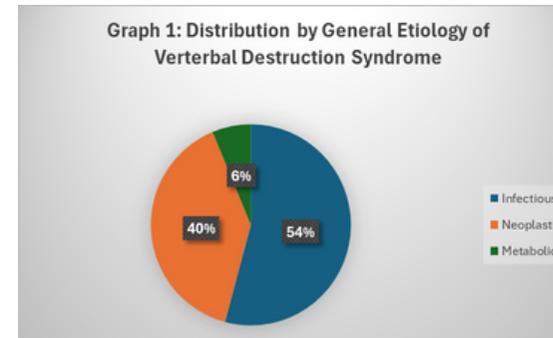
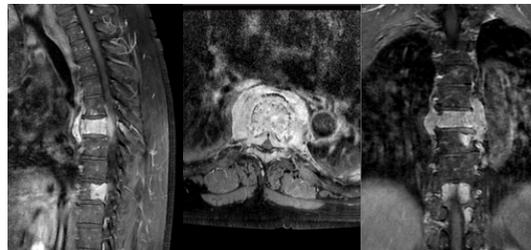
Objective

This study aims to correlate imaging findings with the underlying etiology of Vertebral Destruction Syndrome (VDS). By analyzing radiographic, CT, and MRI features, this study seeks to identify characteristic patterns for infectious, neoplastic, or metabolic causes, enabling earlier diagnosis and improved management.

Methodology

A retrospective case series analyzed 48 randomly selected cases of Vertebral Destruction Syndrome (2013–2023). Radiographs, CT, and MRI were reviewed to assess vertebral morphology, disc and endplate involvement, paravertebral tissues, and spinal canal compromise. Cases were categorized by etiology: infectious, neoplastic, or metabolic. Cramer's V was used to assess the strength of association between categorical imaging findings and confirmed etiologies.

Case No. 3: VDS of T6 with Multiple Mieloma as underlying cause.



When stratified by specific causes (Graph 2), pyogenic infection was the most frequent with 16 cases (33%), followed by tuberculosis (10 cases, 21%), multiple myeloma (9 cases, 19%), and vertebral metastasis (9 cases, 19%), while osteoporosis accounted for 3 cases (6%).

The predominance of infectious and tumoral etiologies underscores the diagnostic value of imaging differentiation for early etiologic assessment. These findings reaffirm the importance of systematic imaging evaluation, particularly in distinguishing infectious from neoplastic presentations of Vertebral Destruction Syndrome.

Study with no conflicts of interest

Preliminary Results

The analysis of the cases revealed a predominance of infectious etiology (54%), followed by neoplastic causes (40%) and metabolic origin (6%) (Graph 1).

References

