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Soft Tissue Contributions to Pseudopathology of Ribs

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ABSTRACT

This study reports the results of a de novo classification and characterization of macroscopically perceivable bone alterations relating to the pathologic significance of rib alterations as noted in defleshed bones. We distinguish between nonspecific two-dimensional color alterations and three-dimensional surface modification which appears to have diagnostic significance. Color alterations were patchy in nature with brown being most prominent, followed by creamy, white and orange, but appear taphonomic in nature. Categorization of three dimensional alterations, e.g., periosteal reaction, bumps and holes, identifies which is specific for diagnosis of tuberculosis. Rib periosteal reaction is significantly more common among individuals with tuberculosis than those with non-tubercular pulmonary disease (Chi square = 33.75, $p < 0.0001$), cancer (Chi square = 5.82, $p < 0.02$), cardiac disease (Chi square = 7.404, $p < 0.008$), and others (Chi square = 63.19, $p < 0.0001$). This study explains past errors in recognition of the significance of rib alterations.

KEYWORDS

Periosteal Reaction; Hypertrophic Osteoarthropathy; Bumps; Color

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