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Saw marks in bones: a study of “secondary features” of false start lesions.

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Highlights

- A stereomicroscopy study of saw false starts in pig and human bones
- The main characters are the MKW, the shape of the walls and profile
- The striae on the kerf floor may help identify the type of set in ambiguous cases
- Blade drift and bone islands may suggest a weak TPI

Abstract

In this experiment, 170 experimental false starts on human (120 lesions) and pig bones (50 lesions) were analyzed under stereomicroscope. The goal was to evaluate the potential of three “secondary” features (patterns of striae on the kerf floor, blade drift and bone islands) to diagnose saw class and saw set. We also assessed the performance of each of these features in ambiguous cases observed in a previous study, based on three main characters (minimum width of the kerf, shape of the kerf walls, and shape of the kerf profile). Among these three “secondary” features, striae on the kerf floor proved to be useful: the undulating or undulating/straight pattern of the striae on the kerf floor indicates an alternating set whereas thin and straight striae indicates a wavy set. Blade drift and bone islands may be indicative of large teeth size. These secondary features, in combination with the three main characters previously studied, may help identify the class of the saw.

Keywords: Forensic anthropology, tool mark analysis, saw bone lesions, false starts, stereomicroscopy, dismemberment

Introduction

The analysis of saw marks in bones is extremely important in cases of dismemberment [1-10]. In a previous work [11] we studied 170 experimental false start lesions on pig and human bones: three features (the

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