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Case Report

SEM-EDX Analysis of a Submandibular Gland Salivary Calculus: A Case Report

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ARTICLE INFO

Article history:

Received: 1 January, 2021

Accepted: 18 January, 2021

Published: 25 January, 2021

Keywords:

Sialolithiasis

salivary stones

EDX-SEM

ABSTRACT

Sialolithiasis or “salivary lithiasis” is a pathological condition that involves the formation of calcified concretions within the gland parenchyma and its ductal system of the main salivary glands of the head and neck area. Various theories of lithogenesis have been reported, but the etiology of sialoliths still remains unclear. The aim of this case report was to evaluate the biochemical composition and the surface morphology of a sialolith using energy dispersion X-ray spectroscopy (EDX) and scanning electron microscopy (SEM). SEM images of the sialolith detected a concentric laminar architecture of the sialolith's core surrounded by radial structures that are arranged from the center to the periphery of the sialolith. EDX analysis detected a high percentage of carbon in the central area of the sialolith, indicating the abundance of organic materials. Structures corresponding to a foreign body or bacteria were not detected in any area. Thus, the sialolith presented a mixed genesis, and the increased presence of organic substances over inorganic ones suggests its phlogistic nature.

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