

LETTERS

Using scanning electron microscopy to study mineral deposits in breast tissues

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ABSTRACT

Thin sections of breast tissues from patients with possible tumors also contained closely associated mineral deposits. Using scanning electron and backscattered electron microscopy (SEM-BSE) energy and wavelength dispersive chemical analyses, we found the deposits ranged from $<1\ \mu\text{m}$ to $50\ \mu\text{m}$ in size and were composed predominantly of calcium phosphate. Semi-quantitative chemical determinations indicate that the mineral exhibits different Ca/P ratios depending on the site of deposition. This high-resolution methodology to chemically analyze precipitates in human tissues is a novel approach that may provide some new insights into mineral deposition in soft tissues. Application of the technique to establish compositional biases in a wide variety of tissues seems warranted. Specifically, additional data on mineral deposits in breast tissues could contribute toward the understanding of the localized changes and to the development of disease at this site.