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Basic Science Question:

How does alveolar bone change as we age?

Report:

Alveolar bone, or process, contains cortical bone, trabecular bone, and dental alveoli housing the root of the teeth and acts as a support system for the teeth. Support of the teeth is also aided by the periodontal ligaments present in the dental alveoli, which connect the cementum of the root of tooth to the alveolar process. The alveolar process is under regular resorption and deposition, because the state of alveolar bone is mainly dependent on the teeth present in the dental alveoli. The masticatory forces you exert on your teeth keep the alveolar bone engaged, and the process continues to participate in bone deposition in order to keep bone around the tooth for support. Without teeth present in the dental alveoli, the process will engage in resorption. Although aging is widely associated with bone loss, bone loss in the alveolar process is not directly related to aging (Boskey and Coleman). Osteoporosis and periodontitis are two diseases discussed when considering the loss of alveolar bone. However, in aging, the alveolar process will normally become smaller, due to the reduction in size of the mandible. This, unlike alveolar bone loss, can be seen as a direct correlation to aging.

Both osteoporosis and periodontitis are diseases frequented in an older population. However, these diseases can be seen in any stage of life. Osteoporosis, progressive bone loss, is discussed in regards to alveolar bone loss, but is not as responsible for bone loss as periodontitis is. Periodontitis, a chronic inflammation, affects the tissue surrounding the teeth, eventually leading to tooth loss and loss of bone. The periodontal ligaments in the dental alveoli are no longer able to fully attach to the teeth, resulting in tooth loss. As mentioned earlier, the loss of teeth leads to the resorption of the bone at that site. Although aging can be a factor in the loss of alveolar bone, it is not the sole determinant of alveolar bone loss. Lack of proper oral hygiene leading to diseases, such as periodontitis, is more attributed to the loss of alveolar bone than aging.

References:

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Sarajlić, N., Topić, B., Brkić, H., & Alajbeg, I. Z. (2009). Aging quantification on alveolar bone loss. *Collegium antropologicum*, 33(4), 1165–1170.

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