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| **Name:** |
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| **Pathology Question:** |
| How does alveolar bone change as one ages? |
| **Report:** |
| With aging, bone becomes more fragile and less able to perform its mechanical functions. Calcium stores are also depleted. This overall means impaired function of bone. However, this varies between individuals, so there is ongoing research about the factors that are a part of these bone changes.  In alveolar bone specifically, there is decreased width and length of the jaws with aging. This occurs more in the mandible than in the maxilla. It can also lead to tooth crowding. Similar to systemic bone changes with aging, alveolar bone changes depend on the individual. The degree of change is determined by hereditary and anatomical factors, like patient bite.  Since alveolar bone loss does not occur in all aged individuals it is not attributable to aging but may be accelerated in aging. There are age-associated factors that play a role in alveolar bone change, including poorer nutrition, changes in oral hygiene, and hormonal changes. Other important factors that are associated with alveolar bone loss are systemic osteoporosis and local factors, especially chronic periodontitis.  Osteoporosis is one of the more researched factors of alveolar bone loss. Osteoporosis is a disease of progressive bone loss leading to decreased bone mineral density. It is seen particularly in post-menopausal women. Studies have shown moderate correlations between vertebral or hip bone mineral bone density and alveolar bone density, especially in the mandible. There have been mixed findings between studies, but this is still a factor that should be considered clinically.  A final important factor in alveolar bone loss is tooth loss. Tooth loss is not a consequence of aging as patients may think, but as more teeth are lost more alveolar bone is lost. This loss is because alveolar bone depends on the functional forces exerted by the teeth to maintain its structure. There is ongoing research about the best way to preserve the alveolar ridge following tooth extraction so that prostheses are possible since prosthetic replacements can be difficult in patients with severe bone loss. |
| **References:** |
| Avila-Ortiz, G, et al. "Effect of alveolar ridge preservatoin after tooth extraction: a systematic review and meta-analysis." *Journal of Dental Research* (2014).  Boskey, A L and R Coleman. "Aging and Bone." *Journal of Dental Research* (2010). |