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| 9A-4 |
| **Pathology Question:** |
| What pathological changes occur within the bone in patients with periapical osseous dysplasia? |
| **Report:** |
| Periapical osseous dysplasia, also called periapical cemento-osseous dysplasia (PCOD), is one of the three subtypes of cemento-osseous dysplasia (COD). COD is the most common type of fibro-osseous lesion of the maxillofacial region (Resnick et al, 2008), and these benign lesions arise in odontogenic areas. The three subtypes of COD are florid, focal, and periapical. All subtypes of COD are typically asymptomatic, affect teeth that are still vital, and are usually discovered when examining dental radiographs that were taken for another purpose. The etiology of COD is not well understood, but the most common hypothesis is that the lesions originate from the periodontal ligament (Senia and Sario, 2015). When a patient has COD, their normal alveolar bone is being replaced by fibrous connective tissue and poorly cellularized cementum-like tissue (Resnick et al, 2008). The early stages of COD can resemble endodontic pathology because of the pronounced radiolucencies appearing on radiographs. Over time, the lesions mineralize and become progressively more radiopaque on radiographs. But, it is important to note that the teeth remain vital. Additionally, as these alveolar bone lesions calcify and mature, they present without tooth displacement or tooth resorption (Noffke et al, 2019). PCOD is the most common subtype of COD, with the lesion affecting the periapical region of the anterior mandible. There can be either one lesion or multiple in the same area. Similar to the other subtypes, PCOD progresses through three stages of maturation. There are several names to classify each stage. The first stage can be called the early, fibrous, radiolucent, or osteolytic stage. This stage is characterized on a dental radiograph by a well-defined, round radiolucency at the apex of one or more teeth (Senia and Sario, 2015). This appearance is due to the normal bone being replaced by fibrous tissue, often continuous with the PDL (Resnick et al, 2008). The second can be called the mixed, intermediate, or cementoblastic stage. During this stage, radiopaque tissue can be seen within the radiolucent tissue on the radiograph. The lesion has a mixture of fibrous and mineralized tissues (Noffke et al, 2019). The final stage can be called the mature, calcified, or radiopaque stage. When the lesion is mature, it stops enlarging and is typically fully radiopaque with a thin radiolucent margin at the periphery.  It is important to recognize the different pathological changes and other characteristics that are unique to PCOD, so as to avoid unnecessary treatment, expenses, and potential complications. The lesions of COD are poorly vascularized, so certain operative treatments could expose the lesion to the oral environment and create the risk of secondary infection (Resnick et al, 2008).  |
| **References:** |
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