CE. lecture **Panoramic Radiography** **(by Dr. Areej Ahmed)**

Panoramic radiography is a radiologic technique that provides an overview of the jaws and surrounding structures. It is frequently indicated when professionals want to evaluate some structures such as

1. Un-erupted third molars
2. orthodontic treatment
3. tooth development
4. developmental abnormalities
5. Trauma
6. large lesions

The panoramic radiograph allows the dental professional to view a large area of the maxilla and mandible on a single film

Indications and contraindications of panoramic radiographs

In dental clinical practice, panoramic radiography is one of the most indicated radiographic examinations by dentists because it provides a general overview of dentomaxilomandibular structures and it is not so costly for patients.

Some contraindications of panoramic radiographs are clinical situations that require detail and definition, such as

1. carious lesions
2. visualization of alveolar crests
3. level of root canal filling

Alterations observed on panoramic radiographs that might compromise oral and general health

Due to the broad coverage of panoramic radiographs, sometimes we can visualize some structures that affect more than the patient's oral health, but also general health. Many changes are asymptomatic and can be identified casually, as when the panoramic radiography is required for dental evaluation. Among them, there are the calcified stylohyoid complex, arterial calcifications and other soft tissue calcifications.

Calcified stylohyoid complex

The styloid process is a cylindrical bone originated on the temporal bone in front of the stylomastoid foramen , being located between the internal and external carotid arteries and laterally to the tonsillar fossa. The stylohyoid ligament is attached to the lesser horn of the hyoid bone. The term calcified stylohyoid complex describe the elongated process with advanced calcification. calcification of the stylohyoid complex includes the stylohyoid ligament which connects the styloid process to the lesser horn of the hyoid bone.

The etiology of elongated styloid process is unknown . It was suggested that calcified styloihyoid complex could be resulted from local chronic irritations, history of trauma, endocrine disorders in female at menopause, persistence of mesenchymal elements, bone tissue growth and mechanical stress or trauma during stylohyoid ligament development

Arterial calcifications

The common carotid artery originates from the aorta artery and in the height of the upper edge of the thyroid cartilage branches into two terminal branches: internal and external carotid artery. The identification of the point of bifurcation is often located 3 cm below the lower edge of the mandible. Carotid artery atherosclerotic plaques develop when fatty substances, cholesterol, platelets, cellular waste products, and calcium are deposited in the lining of the artery. Some risk factors for atherosclerosis are: diabetes mellitus, obesity, hypertension, smoking, inadequate diet, chronic kidney disease and menopause among others

Radiographical interpretation

Calcified carotid atheroma is initially developed at the bifurcation of arteries, soft tissues of the neck, and adjacent to the greater horn of the hyoid bone and the cervical vertebrae C3 and C4 or the intervertebral space between them. They are radiopaque, usually multiple and irregularly shaped, with a vertical distribution and they have an internally heterogeneous radiopacity. The shape varies from circular to mostly linear with irregular margins.

Sialolithiasis

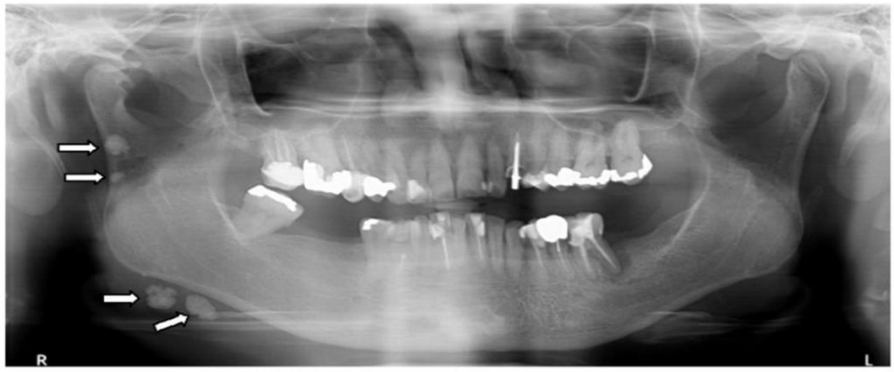
Sialolithiasis is the most common disease of the salivary glands .characterized by obstruction of salivary secretion by a calculus, associated with swelling, pain and infection of the affected gland. More than 80% of the salivary gland calculi occur in the submandibular gland and 5%-20% in the parotid gland and rarely in the sublingual gland and the minor salivary glands (1% to 2%). It is common in adults (1.2% of the population), with a male predominance. Patients with sialolithiasis may complain of moderate to intense pain when it involves the duct of a major salivary gland, particularly at mealtimes, when salivary flow is stimulated, associated with enlargement of the gland.

Tonsilloliths

Tonsilloliths are calcifications within a tonsillar crypt, which involve primarily the palatine tonsil caused by dystrophic calcification as a result of chronic inflammation. Small concretions are not uncommon findings especially in the aged population, however large The exact etiology and pathogenesis is unknown. Repeated episodes of inflammation may produce fibrosis at the openings of the tonsillar crypts. Bacterial and epithelial debris then accumulates within these crypts and contributes to the formation of retention cysts. Calcification occurs subsequent to the deposition of inorganic salts and the enlargement of the formed concretion takes place gradually. The tonsilloliths derive their phosphate and carbonate of lime and magnesia from saliva secreted by salivary glands. The mineral content of tonsilloliths can be composed by phosphorus, calcium, carbonate or magnesiumtonsillar concretions occur with a much lower incidence.

Radiographical interpretation

- Appear as single and unilateral, may be multiple or bilateral.
- commonly appear as multiple, small, and ill-defined radiopacities
- Tonsilloliths should be the first differential diagnosis when multiple opaque lesions with ill-defined borders, which are superimposed on the palatal uvula and the ramus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