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Review Article

Oral lesions and impacted teeth interlinked?-A review

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ABSTRACT

Oral lesions are most prevalent in oral cavity. These have many etiologic factors. One of the most important being impacted teeth. These unerupted teeth become hazards both for patient and dentist. Also some lesions are connected with these developmental tooth anomalies. These have to be dealt seriously as if ignored they can transform into bigger oral pathologies that can be life threatening. This article sheds light onto these factors an attempt is made to highlighten these lesions that if diagnosed earlier, can be helpful in treatment planning clinically.

1. Introduction

Oral lesions and oral conditions go hand in hand. It is duty of the dentist to be aware of these conditions in the patient's oral cavity. Of these, impacted teeth are known to have given rise to many oral pathogies. It is imperative we study such developmental teeth anomalies. Also we should know the diagnosis and subsequent management of these trouble shooting dental problems.

Some common lesions seen with impacted teeth are dentigerous cyst, calcifying odontogenic cyst, unicystic (mural) ameloblastoma, ameloblastoma, ameloblastic fibroma (af), adenomatous odontogenic tumor (aot), keratocystic odontogenic tumor, calcifying epithelial odontogenic tumor (ceot), Ameloblastic fibro odontoma, odontoma and squamous odontogenic tumor (sot).[1]

Most lesions associated with impacted teeth are seen in male while in female are seen- adenomatoid odontogenic tumor, central mucoepidermoid carcinoma and central odontogenic fibroma. Calcifying odontogenic cyst and odontoma are not gender biased. Most lesions occur in second and third decades of life, while central mucoepidermoid carcinoma and calcifying epithelial odontogenic tumor occurs in fourth, fifth decades of life. These lesions are mostly seen in mandibular third molar while adenomatoid odontogenic tumor, calcifying odontogenic cyst and compound odontoma are seen in anterior maxillary teeth. Also adenomatoid odontogenic tumor is commonly seen in impacted cuspids. Most frequently with impacted teeth are seen ameloblastic fibro odontoma, unicystic ameloblastoma, dentigerous cyst and adenomatoid odontogenic tumor. Least frequently seen lesions include squamous odontogenic tumor, odontogenic keratocyst and central odontogenic fibroma. These lesions are associated with an impacted tooth and their differential diagnosis helps a clinician for better treatment plan.[1]

2. Impaction

Tooth impaction is a common dental problem, often diagnosed by dentists when patients come to clinic for routine checkup. It needs an interdisciplinary approach and has harmful consequences if untreated.[2–4] It ranges from 0.8 - 3.6% of the general population and arises usually when the tooth should have erupted but has not. Most common teeth impaction are third molars (prevalence 16.7-68.6%),

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maxillary canines, mandibular premolars and maxillary central incisors.[5–10] It is a tooth that was prevented from erupting into the correct position due to lack of space, malposition or other impediments,[11] including those that have failed to erupt into the dental arch within the expected time frame.[12] An impacted tooth can be a nidus for dental caries, infection, destruction of adjacent teeth, periodontal disease, and even oral and maxillofacial cysts or tumors.[13] In another report,[14] Carteret al. (meta-analysis study) found 24.4% worldwide third molar tooth impaction. In this it showedthat impaction of third molars in mandible was greater than maxilla, but its prevalence was indifferent between men or women.[15] Also it is found that extraction of impacted third molars is controversial in dentistry.[16–20] Problems in tooth impaction can be simple to complicated life threatening problems as caries, pulp disease, periapical and periodontal disease, temporomandibular joint disorder, infection of the facial area, resorption of root and the adjacent tooth, and head and neck tumors. Hyperplastic dental follicule, dentigerous cyst or odontogenic keratocyst are among the most common simple problems observed in tooth impaction.[10,16,21] So in such cases, prophylactic extraction of third molar teeth is suggested for future disease prevention. Also limited evidence about caries and periodontitis in a second molar in adjacent place to a retainedthird molar, is seen.[22] In most studies it is seen that pericoronal radiolucency greater than 2.5 mm around the crown of impacted teeth is suggestive of a pathologic lesion.[23–25]

If impacted teeth are neglected, then complications arise[2] which include morbidity of the deciduous predecessor and migration of the adjacent teeth, development of a dental cyst, resorption of a crown of an impacted teeth, akyloses, infraocclusion, pain and/or discharge (related to infected cysts, tumors), displacement of the adjacent teeth and shortening of the dental arch.

3. Dentigerous Cyst

The most common developmental lesion affecting children's jaws are those having odontogenic origin ie dentigerous cysts. They are associated with an erupted or developing tooth, mandibular third molars, maxillary canines, maxillary third molars and rarely central incisors. Children become victims of these jaw lesions that originate from developmental aberrancy to neoplasia.[26–30] Â these are epithelium lined developmental odontogenic cysts enclosing the crown of an unerupted impacted tooth at the CEJ.[31,32] Also the relationship between the dentigerous cyst and crown of the impacted tooth shows 3 types of radiographic patterns: central, lateral and circumferential of which the central variety is the commonest.[33–35] Most of these are solitary while bilateral and multiple cysts are found in cleidocranial dysplasia and Manoteaux lamy syndrome.[32]

Possible complications arising from long untreated dentigerous cysts include loss of permanent teeth, permanent bone deformation or pathologic bone fracture, expansive bone destruction and development of squamous cell carcinoma, mucoepidermoid cancer and ameloblastoma.[36] Tumors such as ameloblastoma, mucoepidermoid carcinoma or squamous cell carcinoma occasionally arise from the lining of the dentigerous cyst.[37]

Unicystic ameloblastomaua 50-80% are associated with impacted tooth and 90% of lesions are found in mandibular third molar region. They arise from pre existing odontogenic cysts, dentigerous cyst or may arise de novo.[38,39]

4. Odontomes

They are commonest mixed odontogenic tumors- complex and compound. It is seen that in 40-50% of cases, impacted teeth is associated with compound odontomes and complex odontomes are seen in mandibular posterior areas.[40]

5. Conclusion

Impacted Teeth or any dental development anamoly can produce several complications and lesions. It's upto the dentist to assure thorough examination diagnosis and treatment planning for successful prognosis.

Tooth eruption is natural process of a tooth from its developmental site in the bone to its functional position in the oral cavity. Sometimes due to local, systemic, or genetic factors, the tooth cannot complete its movement toward the oral cavity so we get 'impacted teeth.' These can be observed in different parts of the jaws because of genetic factors, ankylosis of the primary teeth, early loss of the primary teeth, abnormal eruption paths, endocrine disorders, presence of supernumerary teeth, tooth crowding, loss of space, dental trauma, pathological lesions, and root dilation. They are asymptomatic unless detected during routine examinations. It is advised patients should undergo routine examinations and recall visit to dentists. Impacted teeth lead to carious lesions, infections, resorption of adjacent teeth, periodontal diseases, and even cysts or tumors. Also it becomes duty of the dentist and his team that patients with impacted teeth to have regular dental examinations. The patients should not neglect routine control measures and all risks be also told to them.[41]

Also odontogenic lesions associated with impacted or unerupted teeth are a good percentage of odontogenic lesions so regular follow-ups for the early detection and timely identification improve patient outcomes, and overall oral health, quality of life. It has been seen that odontogenic tumours associated with impacted teeth can be variable due to study populations, sample sizes, geographic locations across different research studies and diagnostic criteria. Also it is seen that frequency was slightly higher in males than females and sometimes vice versa. Unicystic

ameloblastoma was the commonest odontogenic tumor associated with impacted tooth (10%), while the commonest odontogenic tumor was ameloblastoma and odontoma was the most common odontogenic tumor.

Impacted teeth cause gingival edema and ulceration, adjacent bone and tooth loss, and development of cysts and tumors. If retained in the jaw can also cause resorption of the adjacent teeth, infection, development of odontogenic cysts and tumors (around the crown of impacted teeth following pathological changes in dental follicle or odontogenic epithelium).

Peri-coronal radiolucencies manifest as a normal or slightly enlarged follicle on dental X-ray. If noticeable the it leads to cystic degeneration or the formation of an odontogenic tumor. Also these cause pain, tooth displacement, swelling, sensitivity, and mobility, especially if the lesion exceeds 2cm in size. A peri-coronal space exceeding 2.5mm on intraoral radiographs or 3mm on panoramic radiographs is suspicious and histopathological analysis is equally important.[42]

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7. Conflict of Interest

None.

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