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DENTIGEROUS CYST – A CASE REPORT.

Dental Science

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ABSTRACT

Dentigerous cysts are usually easy to treat when small. However, extensive cysts are more difficult to manage requiring cyst enucleation and extraction of associated teeth. We advocate the use of assessment criteria to dictate the treatment modality indicated in each individual case such as cyst size and site, patient age,the dentition involved, and the involvement of vital structures. A 24 years old male patient reported with pain in lower left back tooth region since 3 months. Marsupialisation is done followed by enucleation of cyst and followed up for a period of 6 months. The treatment was successful and no recurrence was seen.

KEYWORDS

Dentigerous cyst, Enucleation, Marsupialisation, Carnoy's solution.

INTRODUCTION –

The dentigerous cyst is the second most common type odontogenic cyst and originates from reduced enamel epithelium after the crown of the tooth has begun to form. It is most prevalent in the third molar region and is therefore a common cause of a radiolucency associated with the crown of an impacted third molar. Dentigerous cysts are usually solitary. Bilateral or multiple dentigerous cysts are rare, mainly found in association with syndromes.[1]

By definition, this lesion is attached to the cervix of an impacted tooth and results from proliferation of reduced enamel epithelium after the enamel formation. Dentigerous cysts are usually discovered on routine radiographic examination or when films are taken to determine the reason for failure of a tooth to erupt. They are always radiolucent and usually unilocular, although large lesions occasionally show a scalloping multilocular pattern. Third molars followed by maxillary canines (the most commonly impacted teeth) and occasionally supernumerary teeth or odontomas are involved in cyst formation. Their pathogenesis remains unknown. Proliferation of the epithelium in a fluid filled sac may be induced by osmotic pressure during the extended period of time the tooth is impacted. Were the tooth to erupt, the dentigerous cyst would burst and cease to be a pathologic entity, as it is usually the case in small eruption cysts. Small cysts are also easy to treat surgically.[2]

CASE HISTORY –

A 24 years old male patient reported to the department of Oral and maxillofacial surgery with the pain in lower left back tooth region since 3 months. History dates back to approximately 6 months, when the patient first experienced severe pain and underwent extraction irt 38 followed by taking medications suggested by the clinician . Later he noticed throbbing type of pain in the same region 3 months after the extraction was done. On examination, extra orally, no gross facial asymmetry and no clicking sounds were noted. Mouth opening was adequate. Intra orally, On Inspection, teeth were in occlusion with mild swelling and no abnormality in soft tissues and onpalpation, vestibular tenderness is present and all inspectory findings were confirmed in the lower left back tooth region. After examination patient's radiographic analysis was done with Orthopantomogram. The extensive radiolucency of the jaw indicated the condition as ameloblastoma, due to the presence of multilocular radiolucency with soap bubble appearance and well demarcated corticated borders. So, the clinical condition was provisionally diagnosed as the Ameloblastoma.

TREATMENT -

Considering the age factor and the complications of surgical treatment outcome, a conservative approach was planned. Aspiration of the lesion fluid revealed a serous and bloody liquid content. The clinical diagnosis of dentigerous cyst was concluded allowing the beginning of an initial treatment with marsupialization of the cyst. Incisonal biopsy was done. After biopsy, the histopathological examination confirmed the clinical diagnosis of the dentigerous cyst for the lesion, the lesion was treated by decompression and was followed up for next 3 months.

Eventually after treatment , during pandemic the size of the cyst was increased to the large size measuring about 5 x 7 cm. Later , due to increament of size of the cyst , the patient was advised for enucleation under general aneasthesia. After decompression, it was decided to enucleate the cyst according to the radiologic evaluation of the affected site.

PRE OPERATIVE ORTHOPANTOMOGRAPH

Under general anaesthesia with an intra oral approach, the cyst was totally enucleated, and carnoy's solution is applied and later irrigation is done with normal saline.lavage. And then primary closure is done with 3-0 vicryl suture. The specimen is placed in the 10% buffered formalin fixative, and was submitted to the pathology department. The diagnosis of a dentigerous cyst was reconfirmed postoperatively by the histopathologic examination. No complications occurred intraoperatively. Antimicrobial and anti inflammatory drugs were prescribed for the first post operative week. At the first control appointment, the patient had complaint of a paresthesia at the left side of the lower lip. After prescription with neurogenerative vitamins, his complaint of paresthesia had totally disappeared at 12 weeks after surgery. Six months after the enucleation, routine radiographic follow up revealed that adequate bony regeneration was evident at the surgical site.

Incision Given

Exposure Of Site

Excision Done

Excised Specimen

Closure Of The Sugical Site

Follow Up Of 1st Month

Follow Up Of 3rd Month

Follow Up Of 6th Month

DISCUSSION –

Dentigerous cysts which are associated with an embedded or an unerupted tooth are among the most common jaw cysts in children. On radiographs they are seen as well defined radiolucent lesions of alveolar bone. Although they are often symptomless and found on routine dental radiographic examination, the pressure of the cyst may cause displacement of the tooth, effect eruption and reach considerable sizes, engendering facial deformities.

Microscopic examination of dentigerous cysts reveals a thin, non distinctive, non keratinised, fluid filled, epithelium lined sac. The epithelial lining consists of two to four layers of cuboidal epithelial cells, and the epithelium connective tissue interface is flat. It is possible for the lining of a dentigerous cyst to undergo transformation to an Ameloblastoma, Squamous cell carcinoma may also arise in the lining of a dentigerous cyst. The frequency of such neoplastic transformation is very low.[2]

Panoramic films are the preferred imaging procedures in all cases, while in 30% an additional CT scan is required.[3] Panoramic radiograph, which provides a survey of the entire mandible and a part of the maxilla, may be used as an initial radiographic examination. However, in cases of extensive lesions, CT scans are more helpful for the assessment of information about the origin, size, and content of the lesion, as well as the status of the cortical plates and relationship of the lesion with the adjacent anatomic structures. In the present case, the panoramic radiograph has given the impression of a multilocular radiolucency due to the bone trabeculae on the cavity walls of the cyst, bearing the characteristic radiologic features of a Ameloblastoma.

However, definitive diagnosis cannot be reached on the basis of radiographic examination alone but requires a histopathologic examination as well. Thus, in the large dentigerous cysts, an incisional biopsy from an accessible site has to be done to rule out other lesions that mandate separate, more aggressive treatment protocols. Cysts less than 3 mm in diameter can be treated by primary excision. However, larger lesions require decompression or marsupialization for easier surgical management.[4]

Most dentigerous cysts are treated with enucleation of the cyst and removal of the associated tooth. Large dentigerous cysts may be treated with marsupialization when enucleation and curettage might otherwise result in neurosensory dysfunction or predispose the patient to an increased chance of pathologic fracture.[5]

Marsupialization and enucleation are the classic techniques for the treatment of dentigerous cyst, and may be associated. The decompression maneuver, using a decompression device represents itself an option when followed by enucleation, for the treatment of the large ones. As accepted criteria for diagnosis and treatment, the size of the cyst , the age of the patient, the teeth involved and the involvement of anatomical structures must be taken into account. The treatment modality to be chosen will depend on the clinical and radiographic characteristics in question.[6]Iatrou et al. choose the technique of enucleation, reserving the marsupialization to large cysts. An association of both techniques can be suggested for the more aggressive cysts to reduce the volume of the lesion, before surgical removal.Conservative techniques for the treatment of odontogenic cysts have evolved gradually the last decades. Marsupialization and decompression are minimal surgical intervention but decompression is less invasive because it requires a smaller bony window. Decompression may envelope marsupialization, and it includes any method that keeps an opening into the exterior by using a conduit to decrease intracystic pressure. After decompression, the cystic cavity must remain open, numerous means have been described such as stents, stents fixed by mini screws, packs of iodoform gauze, tubes for decompression, and retainers.

Ghandour et al. recommended the placement of a gauze during the first two days after the surgery to keep the surgical site open. Preserving the fenestration open may allow to reduce the size of the cystic lesion postoperatively, to reduce the infection, iodoform can be used. A clinical and radiographic follow-up will be necessary, every three months initially, then every six months, until the end of the eruption of the tooth and the healing of the bone.[7]

Enucleation of lesion is an aggressive and fast technique however; it has the risk of compromising important structures nearby. In such cases marsupialization is an alternative that allow the shrinkage of lesion before removal. In both methods, bone gain has occurred. With regard to bone gain after enucleation, different authors have given bone regeneration ratios in cyst cavities at various time periods. Chacko et al. reported 25.8%, 57%, and 81% average reduction in size of cysts at post operative 6 months, 9 months, 12 months respectively.[8]

CONCLUSION –

The original features of this case among the others are the very young age of the patient, the extent of the lesion, the provision of adequate bone regeneration without the use of any graft material, and also the follow-up. This case highlights the advantages of the enucleation method and also the importance of performing a biopsy to define the histologic type of these lesions in the management protocol of odontogenic cysts.

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