Dentigerous Cyst: An Orthodontic Perspective
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Abstract
Dentigerous cysts are one of the most common types of odontogenic cysts. This case report illustrates an unusual occurrence in the lower first molar in a fourteen year old girl which was managed by orthodontic traction.

Key Words: Dentigerous Cyst; Eruption; Dental Follicle; Marsupialization
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Introduction
Dentigerous cyst by definition is an odontogenic cyst which encloses the crown of an impacted tooth by expansion of its follicle and is attached to the neck. (1-3) This is caused by fluid accumulation between the reduced enamel epithelium and the enamel surface. This is one of the most common types of odontogenic cysts and it is estimated that about 10% of impacted teeth form a dentigerous cyst. (4) This case report illustrates an unusual occurrence in the lower first molar in a fourteen year old girl.

Case Report
A fourteen year old female patient came with a complaint of a missing lower tooth on the left side. Intraoral examination showed that the lower left first molar was missing. All the other teeth up to the second molars were present in all quadrants. 37 showed severe mesial tipping into the space of 36. Molar relationship was class I on the right side 26 was slightly extruded encroaching into 36 region. Palpation revealed expansion of buccal and lingual cortical plates in the region. OPG showed crown completion of all third molars and mesially angulated 37 (Figure 1). The 36 was impacted close to the lower border of the mandible with radiolucency surrounding the crown with incomplete root development. Mandibular occlusal view shows cortical expansion in the 36,37 region.

Treatment plan was a) to bring the 36 into occlusal plane after marsupialization by creating space for the eruption of 36 by up righting the 37, b) to wait for spontaneous eruption of 36 and on its failure use orthodontic traction. Marsupialization of the cyst was done under general anesthesia and 38 was enucleated in order to create space for distally tipping 37. The epithelium over the cyst was sent for biopsy. Histology revealed a thin connective tissue wall with a thin layer of stratified squamous epithelium lining the lumen and isolated islands of odontogenic epithelium and inflammatory cell infiltration. After six weeks a fixed appliance was banded on the lower arch. An attachment was bonded on 37 and 016 cu NiTi wires were fixed. Subsequently 018 cuniti and 016-022 cuniti were fixed (Figure 2).

37 was distally tipped to create adequate space for 36 and radiograph was taken after 8 months to show the 36 was moving closer to the occlusal plane. After 10 months of treatment, cusp tip of 36 was visible. Subsequent treatment was routine and uneventful and was completed within 26 months from the starting of treatment. Post treatment OPG reveals no pathology in relation to 36,8 was planned to be extracted after its eruption (Figure 3).

Discussion
The dentigerous cyst is potentially capable of becoming an aggressive lesion causing gross expansion of bone with subsequent facial asymmetry, pain, displacement of teeth and root resorption (5). It has been suggested by Struthers and Shears that dentigerous cysts have a greater tendency and potential than other cysts to produce resorption of the roots of adjacent teeth which may be due to its origin from the dental follicle. (5)

Figure 1 Pre-op Occlusal OPG Figure 2 Appliances in Position Figure 3 Post-Operative OPG
Two reasons for early surgical intervention in a young person is the speed with which the cyst can enlarge and the involved tooth should be given the best chance of eruption. If adequate space can be created for the tooth to erupt, then marsupialization is the best option. Marsupialization is the surgical technique of cutting a slit into a cyst and suturing the edges of the slit to form a continuous surface from the exterior to the interior of the cyst. Sutured in this fashion, the cyst remains open and can drain freely. This permits decompression of the cyst with a resulting reduction in the size of the bone defect. In our case the cyst was of central variety and eruption of the involved tooth was considered feasible without any orthodontic force. The pressure of the cyst was released from the tooth so that the tooth was able to resume its normal path of eruption. The mechanism of tooth movement has been attributed to four serious considerations such as bone remodeling, root growth, vascular pressure and ligament traction.

An orthodontist who observes the patient in various stages of tooth development can contribute significantly by recognizing altered eruption patterns and can help in early diagnosis of pathology such as dentigerous cysts. In radiograph the distinction between a small dentigerous cyst and enlarged follicle can be quite arbitrary. The normal follicular space is 3-4 mm and a dentigerous cyst can be suspected when the space is more than 5 mm. The role of the orthodontist in early detection and intervention is paramount.

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