# Ramon Syndrome- A Rare Form of Cherubism

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## Abstract

Cherubism is an inherited, autosomal dominant disorder that affects the jaws of children. The disease is usually obvious as a painless bilateral swelling in which bone is replaced with fibrous tissue. Affected children appear normal at birth. Swelling of the jaws usually occurs between 2 and 7 years of age and relapses as age progresses leaving a few facial deformities and malocclusion. The disease is microscopically indistinguishable from other giant cell lesions. The association of cherubism with gingival fibromatosis, epilepsy, mental retardation, stunted growth, and hypertrichosis is referred to as a rare case of possible Ramon syndrome with extraordinary tissue enlargement over the teeth. Here, we present a case of Ramon syndrome in a 6-year-old girl describing the clinical and radiographic features successfully treated with a brief review of literature.

**Keywords:** Cherubism, fibro-osseous lesions, Ramon syndrome

## Introduction

"Cherubism" is a rare genetic disorder, first documented in 1933 by Dr. Jones describing a case of three siblings of the same family of Jewish Russian heritage.[1] The term "cherubism" refers to the chubby-cheeked facial resemblance of angels, in Renaissance paintings.

Cherubism was considered to be a benign self-limiting fibro-osseous disorder characterized by bilateral expansion of the mandible, maxilla, or both with upward gazing of eyes.

It is diagnosed in children between 2 and 7 years of age.[2] Affected children are usually normal at birth. Initially, it was considered as familial fibrous dysplasia of the jaws. However, recently, genetic investigations have established it to be a separate entity at the molecular level. In most cases, cherubism is due to mutations in the SH3-binding protein 2 gene on chromosome 4p16.[3]

Being a rare lesion, the clinical feature might not be uniform and can be different in a number of cases. Here, we present a case of cherubism, having an unique intraoral feature of gingiva enlargement suggestive of Ramon's syndrome. prenatal diagnosis is possible.

## Case Report

A 6-year-old girl was accompanied by her parents for the evaluation of unerupted teeth. She was initially evaluated with a panoramic radiograph and computed tomography (CT) scan at a primary health center before presenting to our department. History revealed that the patient developed seizures at the age of two and was under medication for the same which was later discontinued.

Her family history was not contributory, and none of her immediate family members and relatives were found to suffer from similar abnormality or feature of other syndromes.

General examination revealed that the patient was hyperactive and fails to respond to verbal commands. No palpable lymph node was present. Extraoral examination revealed a bilateral swelling of the face extending from lower border of the mandible to the inferior orbital margin which was not noticed by the parents. The swelling was painless. Intraoral gingival hypertrophy with unerupted teeth was evident. Gingival enlargement completely covers the teeth [Figure 1]. On palpation, the gingiva was firm and leathery in consistency.

Orthopantomogram revealed erupted primary dentition from the alveolar socket but covered with soft tissue. Incidental finding was multiloculated lesion involving the ramus with

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clinical correlation; the teeth were erupted [Figure 2], but idiopathic gingival enlargement was ruled out as there was no pocket formation. Probably, teeth would have erupted into the oral cavity displacing the gingiva outward.

Treatment plan was to surgically expose all primary dentition by mucosal excision up to cervical margin. The patient was taken under general anesthesia and surgical excision by laser initially was carried out, but failed to get proper result due to the thickness of gingiva and was time-consuming. Hence, blade and cautery were used to complete the excision and hemostasis was obtained, and all the primary dentition were exposed [Figures 3 and 4].

Postoperative period was uneventful. Minimal edema was present on the 1st postoperative day. Initially, she found it difficult to accept the new appearance of the tooth and refused to take food orally, may be due to sharp margins of the teeth and maintained on intravenous fluid for 2 days. Later on, she was encouraged on liquid and semisolid diet, and it took >2 weeks to teach the art of chewing. It takes a lot of diligence to convince the patient to get used to the new set of teeth. The patient is under regular follow-up for 2 years now. One year postoperative clinical picture and radiograph [Figures 5 and 6] show the natural exfoliation of the lower anteriors. The first molars have still not erupted and are under regular follow-up.

## Discussion

According to the World Health Organization, cherubism belongs to a group of nonneoplastic bone lesions that affect only the jaws. It was found to be an autosomal dominant trait which presents as symmetrical, multilocular expansile, radiolucent lesions of the mandible, and/or maxilla. Swelling of the jaws usually appears between 2 and 7 years of age and increases in size until puberty. Fullness of the face is contributed by the local lymph nodes and this along with the heavenward look are considered to be the clinical sign of cherubism.[4] This is due to the stretching of skin overlying the expanded maxillary surface. Intraorally, diffuse swelling obscures the morphological distinction between alveolus and body of the mandible. Most frequently, cherubism is accompanied by abnormalities in the configuration of dental arch and dental eruption and that was the chief complaint and initial presentation in our case. Rarely, however, this condition occurs as part of other genetic disorders.

Ramon and Engelberg proposed a grading system for cherubism according to the basis of involvement: grade 1 for lesions involving both mandibular ascending rami; Grade 2 is same as Grade 1 with involvement of both maxillary tuberosity; Grade 3 for massive involvement of whole maxilla and mandible, except the condylar processes; and Grade 4 which is same as Grade 3 with involvement of the floor of the orbits causing orbital compression.[5] Extragnathic skeletal involvement is considered to be rare, Davis *et al*. have reported some rare occurrences in other bones. The present case could be categorized as Grade 2 as the involvement extended to the maxillary tuberosities bilaterally as seen in the radiograph.

The diagnosis of cherubism can be made based on the age, family history, clinical and radiographic findings. But newer diagnostic modalities include biochemical and molecular analyses.

Plain radiographs and CT scans are recommended for diagnosis of cherubism. CT contributes to the diagnosis at all stages of cherubim. The magnetic resonance imaging findings of cherubism were initially described by Beaman et al as homogeneous and heterogeneous on T1 and T2 weighted images which corresponds to the skeletal muscles and fat tissues respectively.[6]

Radiographically, cherubism is characterized by bilateral, expansive, multilocular, and radiolucent lesions of the jaws. Bone changes generally start at the angle and ascending ramus of the mandible. These changes may extend anterior to mandibular body, displacing the mandibular canal and even posterior to coronoid process. In our case also, there was a multilocular radiolucency involving angle, body, and ramus. Maxillary involvement is less frequent and less extensive. In severe cases, infiltration of the orbital bone can also occur. The teeth may have a floating appearance on radiographs.[7]

The present case was characterized by epilepsy, mental retardation, cherubism, and gingival displacement and meets both clinical and radiographic characteristics. The gingival displacement was a unique clinical finding. Literature suggests that cherubism occurs as part of syndromes and may have a different mode of genetic inheritance compared to the classic disease.[8] No familial history was detected in the present case. It seems to be a result of spontaneous mutations. Since the genetic analysis of the patient and her family was not performed, a familial inheritance cannot be completely ruled out.

However, cherubism associated with other syndromes is not well documented. In the present case, features with mental retardation and gingival fibromatosis along with classic cherubism features may relate to Ramon syndrome.

Gingival fibromatosis is a unique feature of Ramon syndrome which is not commonly seen in cherubism.[5] The exact etiology of gingival enlargement is unknown. Some literatures say that it may be because of some epilepsy drug therapy.[7] However, in our case, clinical features are not a feature of drug-induced enlargement which is usually more fibrous and arises from cervical margin or attached gingiva. The present clinical features are more of unerupted tooth appearance and radiographically tooth has been erupted from bone, but resorption did not happen with gingival epithelium. Surface epithelium appears to be more displaced, which is a unique feature of Ramson syndrome. The exact feature of cherubism is unexplained. Surgical intervention of such cases is necessary for proper function in the patient. Since the tooth is not fully exposed to oral cavity, proper chewing was not possible. The

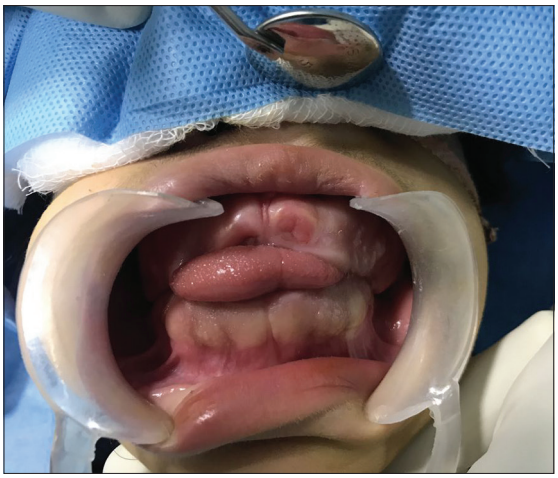

**Figure 1:** Gingival enlargement completely covers the teeth

**Figure 3:** Lower primary dentition exposed after gingival excision

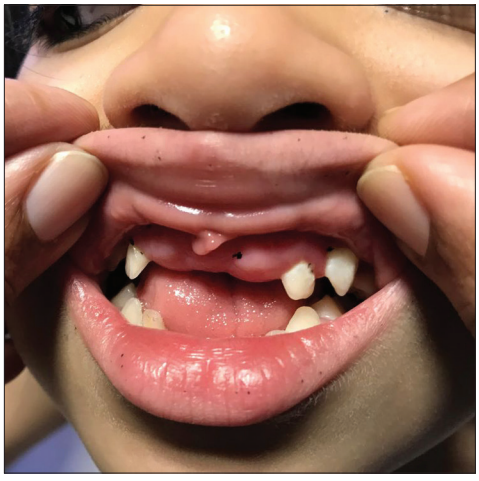

**Figure 5:** One-year postoperative

timing for intervention is questionable since, at the age of 6 years, all teeth were exposed surgically. However, the patient was unable to cope with the newly erupted tooth and it was sharp and took around two weeks to get used to bite with it without biting down on any oral soft tissue.

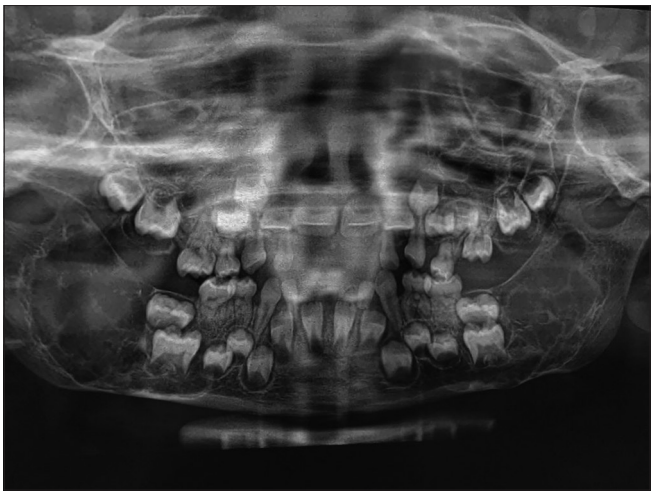

**Figure 2:** Orthopantomogram revealed erupted primary dentition from alveolar socket, but covered with soft tissue

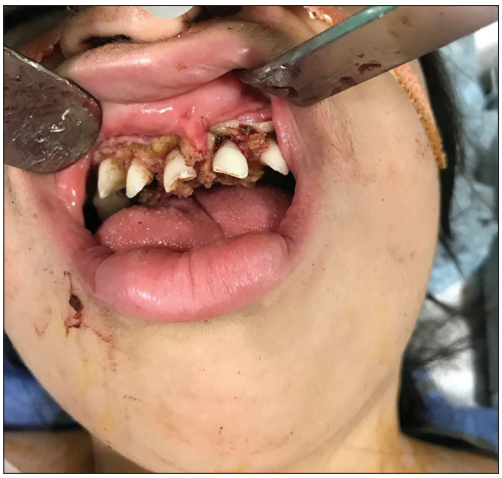

**Figure 4:** Upper primary dentition exposed after gingival excision

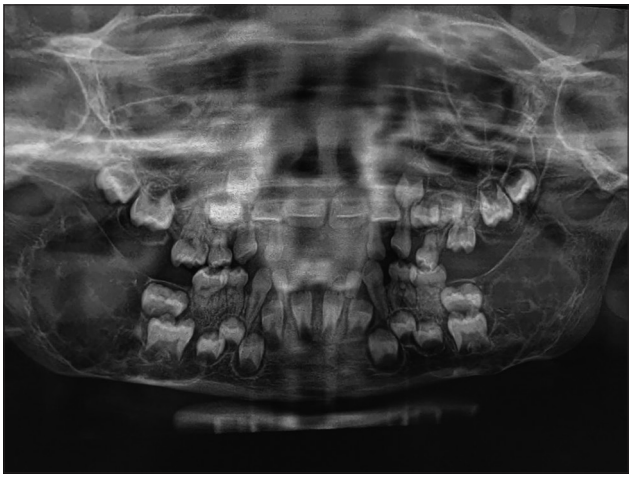

**Figure 6:** One-year postoperative radiograph

The decision to treat cherubism or not is a subject of controversy. Regression usually follows puberty, but in some cases, the disease may persist till adulthood. Studies involving

long-term follow-up of the patient with cherubism show contradictory results. In some cases regression of the lesion was seen spontaneously without any treatment and in certain instances aggressive enlargement may happen.

A standardized protocol for cherubism is not established till now. As it is a self-limiting condition, surgical treatment appears to be unnecessary, but concurrent conditions should be ruled out along with timely interventions to aid in proper function. Curettage can be considered in aggressive cases. Radiotherapy is contraindicated because of the chance of retardation of jaw growth, osteoradionecrosis, and chance of malignant transformation.[9]

Positive results are reported with calcitonin therapy in cherubism. In our case, the patient is under regular clinical and radiographic follow-up postgingivectomy for 2 years, and bilateral lesions are under observation for regression, as suggested in the literature review.

## Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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## Conflicts of interest

There are no conflicts of interest.

# References

1. Jones WA. Familial multilocular cystic disease of the jaws. Am J Cancer 1933;17:946-50.
2. Papadaki ME, Lietman SA, Levine MA, Olsen BR, Kaban LB, Reichenberger EJ, *et al.* Cherubism: Best clinical practice. Orphanet J Rare Dis 2012;7 Suppl 1:S6.
3. Mangion J, Rahman N, Edkins S, Barfoot R, Nguyen T, Sigurdsson A, *et al.* The gene for cherubism maps to chromosome 4p16.3. Am J Hum Genet 1999;65:151-7.
4. Colombo F, Cursiefen C, Neukam FW, Holbach LM. Orbital involvement in cherubism. Ophthalmology 2001;108:1884-8.
5. Ramon Y, Engelberg IS. An unusually extensive case of cherubism. J Oral Maxillofac Surg 1986;44:325-8.
6. Beaman FD, Bancroft LW, Peterson JJ, Kransdorf MJ, Murphey MD, Menke DM. Imaging characteristics of cherubism. AJR Am J Roentgenol 2004;182:1051-4.
7. Suhanya J, Aggarwal C, Mohideen K, Jayachandran S, Ponniah I. Cherubism combined with epilepsy, mental retardation and gingival fibromatosis (Ramon syndrome): A case report. Head Neck Pathol 2010;4:126-31.
8. Alexander SP, Nampoothiri S, Rao L, Nambiar A, Veeraraghavan R, Puthalath U. Ramon's syndrome: A rare entity. World J Dent 2010;1:199-204.
9. Ali IK, Karjodkar FR, Sansare K, Salve P, Dora AC. Non-familial cherubism with bilateral maxilla and mandible involvement – Clinicoradiographic findings. Cureus 2016;8:e709.