

# Multiple Idiopathic External Apical Root Resorption: A Case Report of 13 Years Old Female

**Clinical Paper**

Volume 9 Issue 3 - 2018

**Mohanad Alsaadi\****Department of Pediatric Dentistry, University of Greifswald, Saudi Arabia*

**\*Corresponding author:** Mohanad Alsaadi, Department of Pediatric Dentistry, University of Greifswald, Mekkah, Saudi Arabia, Tel: +966544844489; Email: nasiraali20@gmail.com

**Received:** January 28, 2017 | **Published:** February 07, 2018**Abstract**

Idiopathic root resorption of the permanent dentition is a very rare condition, which can be diagnosed during routine dental examinations. A 13-year-old German female was referred to the Unit of Pediatric Dentistry regarding fistulas of all her 1<sup>st</sup> permanent molars as the patient did not have any specific symptoms with regard to her teeth. All the first molars have been affected in a symmetrical pattern due to a massive idiopathic external root resorption. Clinically, the oral hygiene was very good; the teeth were sealed and no dental caries. Histological and hematological examinations have been conducted. The past medical history revealed that she had a congenital kidney anomaly and she had spent almost the first six months of her life in the hospital. Since that time, she has been regularly visiting the nephrology department. There was neither a family history regarding the root resorption nor the congenital kidney anomalies.

**Introduction**

Idiopathic external root resorption is a very rare condition. It has been reported in single and multiple teeth. Pathological root resorption is related to local factors and sometimes related to systemic factors. Several local causes that may lead to pathological root resorption have been discussed: orthodontic therapy, dental trauma, periapical or periodontal inflammation, tumors, cysts, occlusal stress, impacted and supernumerary teeth, transplantation and reimplantation. The systemic causes that have been implicated are hyperparathyroidism, hyperparathyroidism, hypophosphatemia, hyperphosphatemia, Gaucher's disease, Paget's disease of the bone, Goltz syndrome, Papillon-Lefevre syndrome, anachoresis, Turner syndrome as well as the endocrine disturbances. "Idiopathic" is a term which means that the main etiological factor for root resorption cannot be identified. Two types of idiopathic root resorption have been observed, apical and cervical. Cervical root resorption starts cervically and progresses towards the pulp. Apical root resorption starts apically and progresses towards the coronal area, which leads to a short and round remaining root. In a recent literature review [1]. The idiopathic apical root resorptions were found to be more common in the upper jaw and molar region than in the lower jaw and single root teeth; however, root resorption may affect only the 1<sup>st</sup> molars in all quadrants in a symmetrical pattern. This article describes a case of idiopathic apical root resorption in which no local cause could be identified. A history of a congenital kidney disease could be implicated as a systemic cause.

**Case Report**

A 13-year-old German female was referred to the Unit of Pediatric Dentistry regarding fistulas of all her 1<sup>st</sup> permanent molars as the patient did not have any specific symptoms with

regard to her teeth. The past medical history revealed that she had a congenital kidney anomaly and she had spent almost the first six months of her life in the hospital. Since that time, she has been regularly visiting the nephrology department. There was neither a family history regarding the root resorption nor the congenital kidney anomalies. In our first intra-oral examination, the patient revealed a caries-free dentition (sealants on molars with the resin-based dental material, no initial lesions) and very good oral hygiene, with healthy gingiva. There was no history of dental trauma and no history of orthodontic treatment but an orthodontic treatment plan.

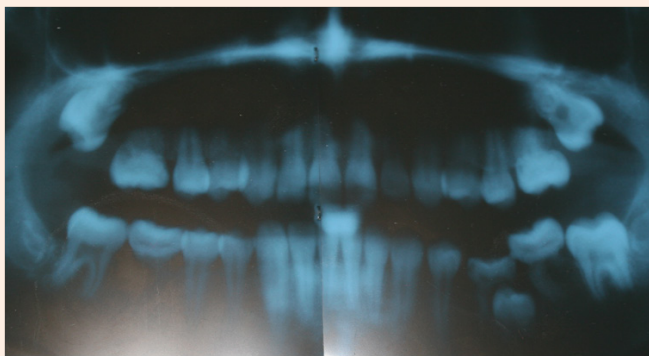
**Treatment**

All affected teeth (1<sup>st</sup> molar in each quadrant) had been extracted after injection of local anesthesia. The infected tissues had been debrided after extraction. A biopsy from the infected tissue has been taken and has been sent immediately to the pathologist.

**Results**

A panoramic radiograph revealed severe apical root resorptions affecting all maxillary and mandibular first molars (Figure 1). *The severity of the resorption increased in the cervical area of the lower first molars. This had progressed almost to the radicular furcation, but there was no evidence of alveolar bone loss or peri radicular periodontitis. The hematological and biochemical screening was within the normal range. A diagnosis of multiple idiopathic external apical root resorptions (MIEARR) was mostly based on the radiographic findings (Figure 2). Periapical x-ray shows an obvious radiolucency related to the deformed roots (Figure 3). An extracted upper 1<sup>st</sup> molar (1#6) shows a hole due to the massive resorption in the coronal part of the root. Granulation*

tissue has been seen on the coronal part of the root surface (Figure 4). Periapical x-ray shows an obvious radiolucency related to the deformed roots (Figure 5). An extracted upper 1<sup>st</sup> molar (2#6) shows deformed roots. The apical part of the roots was smooth and rounded with infected tissue on the remaining surface of the deformed roots (Figure 6). Periapical x-ray shows an obvious radiolucency related to the deformed roots (Figure 7). An extracted lower 1<sup>st</sup> molar (3#6) shows deformed roots. The surface of the apical part was smooth and rounded with infected tissue on the remaining surface of the deformed roots (Figure 8). An extracted lower 1<sup>st</sup> molar (4#6) shows deformed roots. A granulation tissue has been seen on the root surfaces. The distal root is shorter than the mesial one.



**Figure 1:** Panorama for whole teeth.



**Figure 2:** Shows x-rays for upper 1<sup>st</sup> molar (1#6).



**Figure 3:** Shows an extracted upper 1<sup>st</sup> molar (1#6).



**Figure 4:** Shows x-rays for upper 1<sup>st</sup> molar (2#6).



**Figure 5:** Shows an extracted upper 1<sup>st</sup> molar (2#6).



**Figure 6:** Shows x-rays for upper 1<sup>st</sup> molar (3#6).



Figure 7: Shows an extracted upper 1<sup>st</sup> molar (3#6).



Figure 8: Shows an extracted upper 1<sup>st</sup> molar (4#6).

## Discussion

Few cases of multiple idiopathic apical root resorptions (MIARR) exist in the literature. The first well-documented report was in 1930 [2] and since then more cases were presented [3-5]. With no absolute etiological factor identified, we considered this case as multiple idiopathic apical root resorptions. All teeth had vital pulps and there was no periodontal or periapical inflammation. Resorption was found incidentally in the panoramic view and the patient was very asymptomatic. No local etiologic factor was detected and clinical appearance of the teeth and periodontium were normal. Regarding the number of affected teeth in literature review that were about eighteen on average [4], in this report only three teeth were involved. It may be related to the age of the patient compared with other reported cases. The average reported age was 23.2 years [4]. The present case was among a few cases who were under 21 years old at the time of detection. The condition has been reported to have a predilection for young females [6] and 14 cases of MIARR have been being presented in females until now [7-15].

## Conclusion

The etiology of multiple idiopathic external apical root resorptions still needs further investigations to reveal its molecular mechanism. So far, only symptom-based treatment is advisable.

## Acknowledgment

None.

## Conflict of Interest

None.

## References

1. Aldred Cholia SS, Wilson PH, Makdissi J (2005) Multiple idiopathic external apical root resorption: report of four cases. *Dentomaxillofac Radiol* 34(4): 240-246.
2. Mueller E, Rony HR (1930) Laboratory studies of unusual cases of resorption. *J Am Dent Assoc* 17(2): 326-334.
3. Aren Schätzle M, Tanner SD, Bosshardt DD (2005) Progressive, generalized, apical idiopathic root resorption and hypercementosis. *J Periodontol* 76(11): 2002-2011.
4. Moazami F, Karami B (2007) Multiple idiopathic apical root resorption: a case report. *Int Endod J* 40 (7): 573-578.
5. Rivera EM, Walton RE (1994) Extensive idiopathic apical root resorption. A case report. *Oral Surg Oral Med Oral Pathol* 78(5): 673-677.
6. Kerr DA, Courtney RM, Burkes EJ (1970) Multiple idiopathic root resorption. *Oral Surg Oral Med Oral Pathol* 29(4): 552-565.
7. Gupta R, Prakash V (2008) Bilateral extensive idiopathic apical root resorption in supraerupted maxillary molars: a case report. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 106(3): e44-47.
8. Henry JL, Weinmann JP (1951) The pattern of resorption and repair of human cementum. *J Am Dent Assoc* 42(3): 270-290.
9. McMullin A, Fleming PS, Dibiasi AT (2008) Idiopathic generalized apical root resorption: a report of three cases. *Int J Paediatr Dent* 18(4): 312-316.
10. Bakland LK (1992) Root resorption. *Dent Clin North Am* 36(2): 491-507.
11. Neff P (1995) Trauma form occlusion. Restorative concerns. *Dent Clin North Am* 39(2): 335-354.
12. Kelsen AE, Love RM, Kieser JA, Herbison P (1999) Root canal anatomy of anterior and premolar teeth in Down's syndrome. *Int Endod J* 32(3): 211-216.
13. Desai SS (1997) Down Syndrome: A Review of the Literature. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 84(3): 279-285.
14. Soğur E, Soğur HD, Baksi Akdeniz BG, Sen BH (2008) Idiopathic root resorption of the entire permanent dentition: systematic review and report of a case. *Dent Traumatol* 24 (4): 490-495.
15. Boekenoogen DI, Sinha PK, Nanda RS, Gosh J, Currier GF, et al. (1996) The effects of exogenous prostaglandin E2 on root resorption in rats. *Am J Orthod Dentofacial Orthop* 109(3): 277-286.