A Rare Case of Cheerleader Syndrome, Case Report

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Abstract
Idiopathic Condylar Resorption (ICR), often termed Cheerleader Syndrome, is a specific condition that affects the temporomandibular joints. It affects, mostly, teenage girls participating in sport activities through minor or major trauma to the jaws, which can initiate or exacerbate the condition. ICR has been documented but poorly understood as a disease process.

Iraqi female 20 years old and attended to Al-Esraa university college with lower anterior teeth mobility grade three, with missing all posterior lower teeth. Clinical examination revealed lack of mandibular bone at the angle, ramus in both sides. There is only soft tissue. Radiographic examination showed that condyles, coronoids and rami of the mandible in both sides are missing. There is only remnant of the body of mandibular bone in the anterior symphysis associated with bone resorption around the remaining anterior teeth. It also showed a floating of lower 3rd molar in right side.

Introduction
Idiopathic condylar resorption is a specific condition that affects the jaw joints (temporomandibular joints or TMJs) that has been referred to as cheerleaders syndrome. It has 9:1 female-to male frequency ratio and rarely develops after the age of 20 years (Wolford, 2001). It has been reported mostly in teenage girls participating in sports activities, which through minor or major trauma to the jaws, can initiate or exacerbate the condition.

Case Report
Iraqi female 20 years old (Figure 1) referred to Radiology Department, Al-Esraa university college with lower anterior teeth mobility grade 3 and missing posterior lower teeth on both sides.
The patient had no medical history. Past dental history revealed multiple extractions for lower posterior teeth on both sides, because of severe tooth mobility. Extra-oral inspection did not show any abnormal findings. On extra-oral palpation there was no evidence of rigid bony tissue in both side of the mandibular body, angles and rami. Intra-oral examination revealed absence of posterior teeth in both sides with grade 3 mobility for lower anterior teeth.

Examination of the face and mandibular bone there is only soft tissue and no finding of rigid bone at angle, ramus of the mandible in both side on her face when send to plan mega Romexis the interpretation for this case both condyle, coronoid, ramus of the mandible missing, there is only remnant body of mandibular bone in the anterior symphysis associated with bone resorption and severe periodontitis, also there is floating of lower 3rd molar in right side.

Radiographic examination (Plan Mega Romexis®) showed that both condyles, coronoids, rami of the mandible were missing. Lower anterior teeth and lower right mandibular wisdom tooth were floating in the soft tissue. The only remaining mandibular bony tissue was found in the lower border of the symphysis area as shown in Figure 2.

**Figure 1: frontal view of the patient**

**Figure 2. Radiographic examination (Plan Mega Romexis®) showed that both condyles, coronoids, rami of the mandible were missing.**
The surgical treatment was discussed with the patient and her family. The surgeon suggested to remove all the floating lower teeth from the lower jaw and preparing RP model (Rapid prototype) 3D skull model and preparing the titanium reconstruction plate (Long one with bilateral condyles) and taking a bone graft from both iliac crests (LTand RT) to reconstruct the whole mandible then 6 months after the operation we will insert a dental implant to the lower jaw to maintain bone height and minimize bone resorption. The patient refused surgery .and for the last 3 months, the patient failed to attend the X-ray Department for follow up, despite the attempts to contact her she did not show again.

Discussion
Local and systemic factors have been considered to play a role in development of Cheer Leader Syndrome; these include inflammatory, traumatic, autoimmune causes and infection. However, it is a specific disease entity with its own diagnostic presentation and treatment protocol. Orthodontic treatment and orthognathic surgery have been considered to have specific cause and effect relationship with CLS (De Clercq CA, 1994; Moore KE et al., 1991).

Estrogen receptors have been identified in human TMJ of female primates. This supports the notion that hormonal changes during puberty may have a role in this disease development. Estrogen is known to effect cartilage and bone metabolism in the female TMJ. Increase Estrogen receptors might exacerbate joint response to trauma, parafunctional activities. There will be hyperplasia of the synovial tissues with subsequent destructive substrates, which break the ligamentous structures that stabilize the articular disc. This in turn will result in anterior displacement of the disc further exposing the condylar head to the subtracts initiated the resopitive phenomenon at the first place (Aufdemorte et al., 1986; Milam SB et al., 1987).

An effective and reliable treatment method has been suggested by Wolford and Cardenas. It involves removal of hyperplastic synovial tissue from the joint with repositioning of the articular disc and stabilizing of condyle by Mitek mini anchor (Mitek Products, Inc., Westwood, Mass) followed by surgical reposition of both jaws (Wolford LM et al., 1993; Wolford LM and . 2000). To the best of authors’ knowledge this is the first reported case with complete resorption of the mandible from LT to RT condyle. The suggested treatment planning was to remove all the floating lower teeth from the lower jaw; preparing of 3D Rapid prototype (RP) for the skull model; construction of titanium plate with bilateral condyles and taking a bone graft from both iliac crests (LTand RT) to reconstruct the whole mandible. Six months later, dental implant will be inserted in the lower jaw to maintain bone height and minimize bone resorption. The patient, however, refused surgery. The reason behind the patient’s decision was patient by the fact that the resorption problem has no significant aesthetic effect on the patient outlook and the patient, gradually, adapted to its presence. Hence, when surgical plan was explained by the surgeon, patient found it difficult to accept such complicated procedures with its morbidities including lingual nerve injury, limping, graft resorption and infection, and future implant surgeries later on.
This extreme case of Cheerleader Syndrome raises the attention for the importance of early radiographic investigation for TMD. The complexity of aetiological factors related to Idiopathic Condylar Resorption, such as trauma, emotional stress, orthopaedic instability, muscular hyperactivity, inflammatory and degenerative diseases compromise the equilibrium of the temporomandibular joint (TMJ) (Marques et al., 2010; Wolford, 2001).

The bony alterations that occur in these disorders like erosions, osteophytes, pneumatisation of articular eminence that are difficult to be detected in conventional radiographs due to overlapping of the anatomic structures. This warrants the use of advanced imaging modalities like magnetic resonance imaging, arthrography, computed Tomography (CT) and Cone Beam Computed Tomography (CBCT) (Chang et al., 2015; Marques et al., 2010).

Another important aspect of this case was the irrational multiple extractions performed by dentists for the posterior teeth. Extraction is a traumatic procedure that might exacerbate the problem, beside the fact that there was no obvious justification for removing the posterior teeth; extraction by itself is a traumatic surgical procedure. It might contribute to the extent of resorption seen in this case.

**Conclusion**

ICR is a rare condition and difficult to be treated if not diagnosed early and miss-managed. Early detection and proper radiographic imaging technique might be crucial for better treatment outcome.

**References:**


