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# Case Report: Hypermobility of TMJ

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***ABSTRACT***: *Hypermobility of the temporomandibular joint (TMJ) is a rare but clinically significant condition that can manifest with a variety of symptoms, including pain, clicking, and functional limitations. This case report presents the clinical course of a 19-year-old female patient presenting with chronic orofacial pain and joint instability attributed to hypermobility of the TMJ. Through a comprehensive evaluation including patient history, clinical examination, and diagnostic imaging, hypermobility of the TMJ was confirmed. Conservative management strategies, including patient education, occlusal splint therapy, and physical therapy, were implemented to alleviate symptoms and improve functional outcomes. The patient demonstrated significant improvement in pain levels and jaw function following a multidisciplinary treatment approach. This case report underscores the importance of recognizing TMJ hypermobility as a potential etiology for orofacial pain and dysfunction and highlights the efficacy of conservative management strategies in improving patient outcomes. Further research and clinical observation are warranted to refine diagnostic criteria and optimize treatment approaches for individuals presenting with TMJ hypermobility.*

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## I. INTRODUCTION

Temporomandibular disorders (TMD) are called to a group of painful conditions with a prevalence rate of 3-15%, in which temporomandibular joints (TMJs) and/or masticatory muscles are typically involved. TMDs are often described based on some signs and symptoms like: TMJ sounds, impaired mandibular movement, limitation in mouth opening, preauricular pain, facial pain, headaches, and jaw tenderness on function. In cases of persistent and recurrent pains, TMD may demonstrate a chronic course. TMD is not a life-threatening disease, but the quality of life may be reduced. Generalized joint hypermobility is a hereditary problem defined by the increase in range of motion in multiple joints, which might affect TMJ in some cases that is named TMJ hypermobility (TMJH). Joint range of motion might be affected by numerous factors including: Biochemical changes in the structure of collagen and elastin, loss of resistance to traction, laxity, and increase joint mobility.[1]

Hypermobility syndrome (HMS) is a dominant inherited connective tissue disorder described as "generalized articular hypermobility, with or without subluxation ordislocation."(p586) The primary manifestation is excessive laxity of multiple joints. Hypermobility syndrome is different from localized joint hypermobility and other disorders that have generalized joint hypermobility, such as Ehlers-Danlos syndrome, rheumatoid arthritis, lupus, and Marfan syndrome. Laboratory tests are used to rule out these other systemic disorders when HMS is suspected.[2]

Recent studies estimate the combined prevalence of hypermobility spectrum disorders (HSD) and hEDS to be 1:500, suggesting that hEDS may not be a rare condition at all. At present, it is not possible to precisely report distinct prevalence rates for HSD and hEDS.

Classical EDS is inherited in an autosomal dominant manner and is characterized by considerable locus heterogeneity. Clinically, it is characterized by marked extensibility and fragility of the skin and joint hypermobility. Hypermobile EDS is also inherited in an autosomal dominant manner, although the underlying genetic defect is unknown. It is characterized by moderate extensibility of the skin, lack of brittleness, and marked hypermobility of the joints . The current classification differentiates between hEDS, where all diagnostic criteria must be met, and HSD, where some but not all diagnostic criteria are met.

Affected individuals often suffer from pain, in many cases even from chronic musculoskeletal pain . As the disease progresses, neuropathies and central sensitization of pain signals develop, causing about 90% of affected individuals to suffer from chronic pain . Few studies on treatment modalities make it challenging to guide treatment management for patients with EDS and chronic pain .

According to current literature, patients with EDS are inherently more likely to suffer from temporomandibular joint (TMJ) problems . Furthermore, a positive relationship between temporomandibular disorder (TMD) and generalized joint hypermobility has been demonstrated . TMD is defined as a group of craniofacial pain disorders, affecting the masticatory musculature, the temporomandibular joints or related tissue

structures . The frequent prevalence of TMJ problems in patients suffering from EDS explains the disease's effect on oral structures and collagen. However, the exact nature of this relationship remains unknown.

Recent studies have shown that oral health-related quality of life (OHRQoL) is worse in people affected by EDS. However, this lower OHRQoL does not correlate with lower objective oral health . In addition, long diagnostic pathways to detect EDS were a common problem for affected individuals.[3]

Hypermobility disorders of the temporomandibular joint (TMJ) can be defined as hypertranslation of the mandibular condyle anterior and superior to the articular eminence during mouth opening [1]. Although no definite classification scheme exists yet it can be commonly classified as: subluxation, acute, chronic and recurrent dislocations of the TMJ [2]. Subluxation is defined as a self-reducing partial dislocation of the TMJ, during which the condyle passes anterior to the articular eminence [3]. In distinction, dislocation may be considered a long-lasting inability to close the mouth due to locking of the condyle anterior to the eminence that is maintained by muscle spasms [4].

Common etiologic factors of hypermobility include daily activities like yawning, wide biting, trauma, intubation with general anesthesia, dental extractions, forceful hyperextension, connective tissue disorders like Ehlers–Danlos syndrome and Marfan Syndrome, internal derangement, lost vertical dimension, occlusal discrepancies, psychogenic and drug induced such as Phenothiazine use [3]. These factors contribute by increasing capsule weakness and ligament laxity.

Treatment modalities available to treat chronic recurrent dislocations and troublesome subluxations are both conservative and surgical. Conservative methods include: restriction of mandibular movement, injection of botulinum toxin into the muscles of mastication, injection of sclerosing agents into the joint tissues, autologous blood transfer or a combination. Operations have also been tried including capsular plication, reduction or augmentation of the articular eminence, scarification of the temporalis tendon, lateral pterygoid myotomy, and condylectomy. Osteotomies like sagittal split and vertical ramus osteotomies have also been done utilizing the new joint position[4]

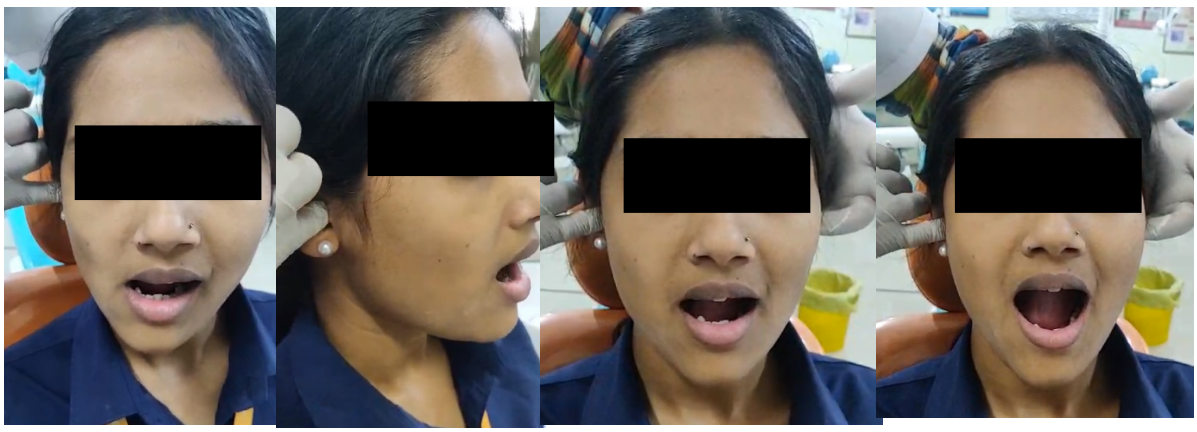
From a translational viewpoint, it is not known whether the pre-dictions from our biomechanical model correspond with the clinical diagnosis according to the DC/TMD. To this end, the generic biomechanical model should be altered to meet the anterior slope angle and the working lines of the jaw closers at an individual level.

Cone-beam computed tomography (CBCT) can provide these three-dimensional data with suitable resolution for diagnostics and treatment planning. The use of CBCT in the field of oral and maxillofacial imaging is currently widely accepted due to advantages over computed tomography like lower cost and dose.It has also been shown that CBCT has high-diagnostic accuracy in the assessment of osseous TMJ structures.

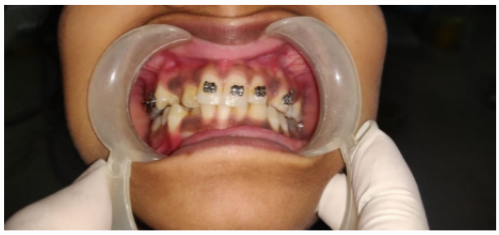
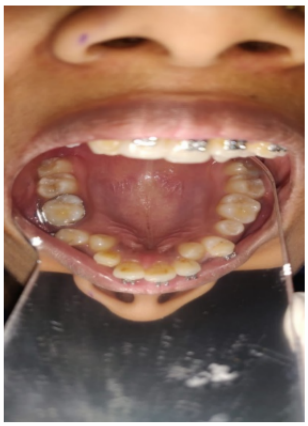
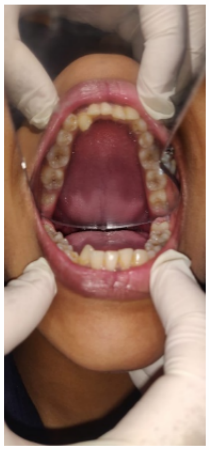
## II. CASE REPORT :

A 19 year old female patient who was student of engineering reported in march 2023 to the Department of Oral medicine and Radiology , Ranjeet Deshmukh dental college and Research centre , Nagpur . The patients chief complains of clicking in right and left TMJ since 1 year . Patient was undergoing orthodontic treatment Patient also gives h/o lock jaw since 1 year on yawning and mastication, h/o reduced mouth opening , h/o unilateral chewing on right side.

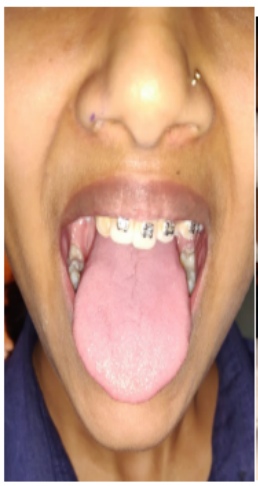
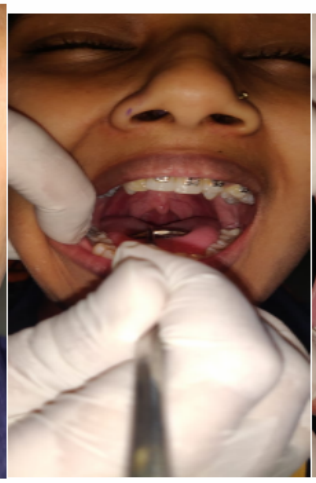
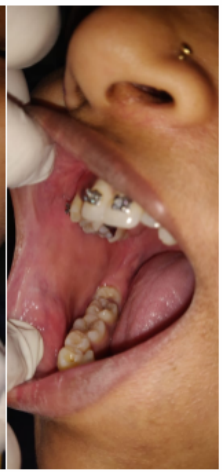
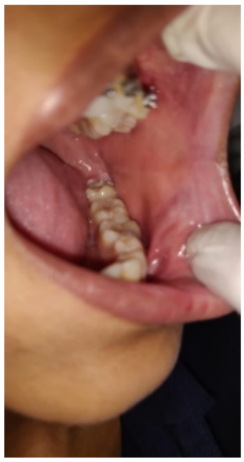
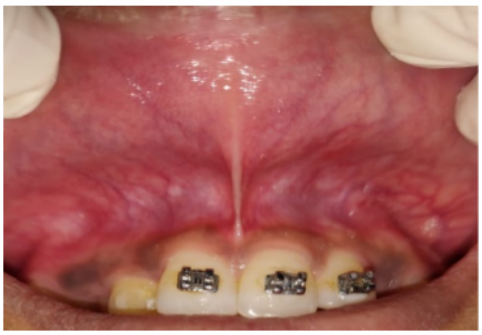
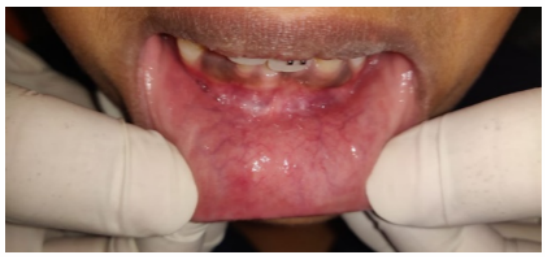
On examination face was bilaterally symmetrical . On TMJ examination , bilateral bicondylar movements palpable , deviation seen towards right , Clicking sound heard on wide opening of mouth . No deflection seen . on examination of muscles of mastication, right and left lateral pterygoid and medial pterygoid was tender on palpation where masseter was nontender with reduced mouth opening of 26 mm . with no dental abnormality/ dental pain .



On hard tissue examination , all teeth were present except 15 and 45 which was extracted while doing orthodontic treatment , 13 , 23 were palatally placed , 43 was lingually placed . orthodontic brackets were seen with 11,14 ,16, 21, 22, 26.

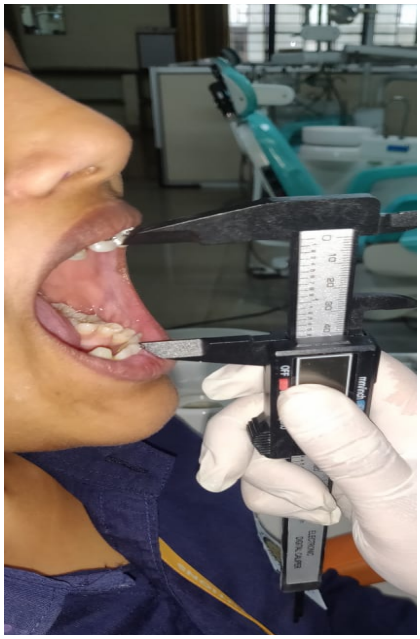
On soft tissue examination , Gingiva , right and left buccal mucosa , upper and lower labial mucosa, uvula , hard palate , soft palate , was normal.

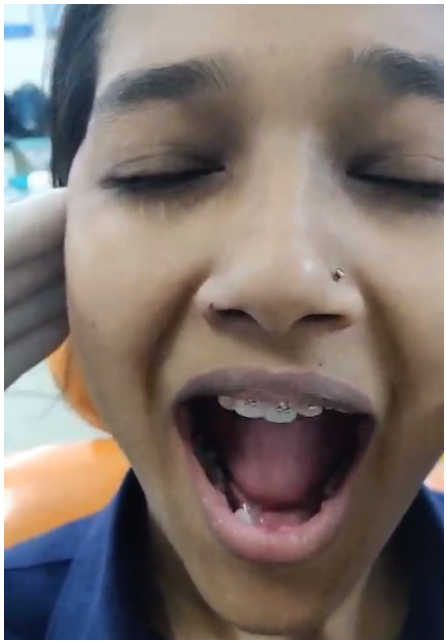







The patient was dignosed with hypermobility of TMJ and advised to have soft and blant diet , hot and cold fomentation and referred to Department of Orthodontics for occlusal stability and prosthodontic department for splint appliances for further management with medications advised tab. Flexon MR – 5 days b.d with tab pan – D. OD for 5 days and recalled after 7 days .

After 7 days of recall , On TMJ examination, Bilateral bicondylar movements was palpable , Deviation persists on right side , clicking sound reduced but heard on right and left TMJ , Muscles of mastication was nontender

and inter-incisal distance was increased by 12 mm i.e. 38mm . Then patient was advised physiotherapy with continuation with previously given instructions with orthodontic and prosthodontic support.





## III. CONCLUSION :

In conclusion, this case report highlights the significance of recognizing and addressing temporomandibular joint hypermobility as a potential contributing factor to orofacial pain and dysfunction. Through comprehensive assessment and targeted interventions, including patient education, conservative management strategies, and collaboration with interdisciplinary healthcare providers, effective management and improvement of symptoms can be achieved. Continued research and clinical observation are warranted to further elucidate the underlying mechanisms and optimize treatment approaches for individuals presenting with temporomandibular joint hypermobility.

## IV. DISCUSSION :

The hypermobility of the temporomandibular joint (TMJ) is a condition that warrants thorough discussion due to its potential impact on oral health, functional limitations, and quality of life. This section aims to delve into various aspects related to TMJ hypermobility, including its etiology, clinical manifestations, diagnostic challenges, and management strategies.

Firstly, the etiology of TMJ hypermobility remains multifactorial and often involves a complex interplay of genetic predisposition, ligament laxity, muscle imbalance, trauma, and habitual behaviors such as bruxism or excessive jaw movements. Understanding these contributing factors is crucial for tailoring appropriate treatment plans and addressing underlying causative factors.

Clinically, TMJ hypermobility may present with a spectrum of symptoms ranging from mild discomfort to severe pain, joint clicking or popping, restricted jaw movements, and functional limitations such as difficulty chewing or speaking. Additionally, patients may experience associated symptoms such as headaches, neck pain, and dental abnormalities, further complicating the diagnostic process.

Diagnosing TMJ hypermobility can be challenging, as it requires a comprehensive evaluation encompassing patient history, clinical examination, and diagnostic imaging modalities such as magnetic resonance imaging (MRI) or cone-beam computed tomography (CBCT). Differentiating TMJ hypermobility from other TMJ disorders, such as disc displacement or arthritis, is essential to guide appropriate management strategies.

Management of TMJ hypermobility typically involves a multidisciplinary approach, incorporating conservative interventions aimed at symptom relief and functional improvement. These may include patient education, occlusal splint therapy, physical therapy, pharmacotherapy for pain management, and behavioral

modifications to address parafunctional habits. In cases refractory to conservative measures, surgical interventions such as arthroscopic or open joint procedures may be considered, although their use is typically reserved for severe or refractory cases.

Furthermore, it is imperative to emphasize the importance of patient-centered care and shared decision-making in the management of TMJ hypermobility. Engaging patients in discussions regarding treatment goals, expectations, and potential risks allows for collaborative decision-making and promotes adherence to recommended therapies.

In conclusion, TMJ hypermobility represents a complex clinical entity that requires a comprehensive understanding of its etiology, clinical manifestations, diagnostic approach, and management strategies. By employing a multidisciplinary approach tailored to individual patient needs, clinicians can effectively address symptoms, optimize functional outcomes, and improve the overall quality of life for individuals affected by this condition. Continued research and clinical collaboration are essential to further enhance our understanding of TMJ hypermobility and refine treatment approaches in the future.