Mlada pacijentica s osteoartritisom temporomandibularnog zgloba: prikaz slučaja

A Young Patient with Temporomandibular Joint Osteoarthritis: Case Report

Introduction

Osteoarthritis (OA) is a degenerative joint disease characterized by degeneration of cartilage, subchondral bone sclerosis and formation of osteophytes. Like all other joints in the body, osteoarthritis can affect the temporomandibular joint, where destructive bone changes cause pain and / or dysfunction of the joint during mandibular movements. The etiology and pathophysiology of OA are complex, and the role in the onset of OA is often attributed to a variety of local and systemic factors that generally act synergistically in the occurrence of a pathological condition. Therefore, OA is considered to be multifactorial disease (1). According to the current literature, the degenerative changes in the TMJ are believed to result from the imbalance between dynamic processes (joint loading during functional and parafunctional movements of the jaw) and ability of the TMJ to tolerate them (2). Imbalance between dynamic processes and the ability of the joint to adapt can be caused by different stressors whose action begins with the help of the flexibility of its specific structure, functional remodeling and tissue repair (2). The accumulation of changes at the molecular level may result in macrochanges that somehow correspond at the molecular level. The accumulation of changes at the molecular level may result in macrochanges that somehow correspond at the molecular level.
Dijagnostika OA-e počinje anamnezom, a nastavlja se kliničkim pregledom i korišćenjem radioloških metoda. Pacijent s osteoartritisom često navodi unilaternalni bol zgloba i mehkih tkiva oko njega koja se pogoršava pri kretnjoj donje čeljusti, a nerijetko su prisutne i krepticije. Kliničkim pregledom potrebno je ustanoviti svako odstupanje od normalne funkcije stomatognatnog sustava. Ispitivanje se sastoji od pregleda mišića, zgloba i zuba te detekcije ograničenosti i smetnji pri funkcionalnim pokretima čeljusti. Posebno je važno zabilježiti koji od pokreta uzrokuju bol i pojavo žvuko- vka klikanja ili drobljenja (krepitus) (3). Dijagnostički krite- riji za istraživanje TMP-a (engl. Research Diagnostic Criteria for Temporomandibular Disorders – RDC/TMD), nosno njegova novija, poboljšana verzija DC/TMD, omogućuje standardizaciju najčešćih oblika TEMP-a povezanih s mišićima i zglobovima (4). Budući da klinički znakovi i simptomi nisu uvijek najjasniji pokazatelj degenerativen promjena u zglo- bu, pravilna dijagnoza OA-e postavlja se na temelju klinič- kog pregleda koji može biti praćen radiološkim metodama. Kompjutorizirana tomografija (CT) i cone-beam CT (CBCT) omogućuju precizan prilaz koštanih struktura i tvrdih tki- va te su pouzdana metode za otkrivanje koštanih promjena. CBCT je relativno nova metoda koja omogućuje vizualizaci- ju tvrdih tkiva uz razmjerno nisku dozu zračenja. Magnetska rezonancija (MR) vrlo je važna u dijagnostici pomaka zglob- nje pločice (5). Konvencionalna radiološka dijagnostika, pri- mjerice ortopantomogram, može prikazati nepoznatozova- destrukciju koštanoga tkiva u obliku zaravnjenja, no nije do- voljno detaljna kad je riječ o analizi stupnja i uznapredovalo- sti OA-e. Glavne radiološke karakteristike za dijagnozu OA-e su osteoftit, erozije i subkortikalna pseudocista (6). Dijago- zona osteoartritisisa još je izazov zbog slabove povezanosti između simptoma i radiološkog dokaza razorenosti zgloba (7).

Terapija OA-e može se podijeliti na neinvazivnu i invaziv- nu koja obuhvaća kiruršku terapiju i tzv. minimalno invazivne metode aplikacije različitih sredstava u zglob, bez obzira na nedostatak pravih znanstvenih dokaza o njihovoj dejelovornosti (1). Neinvazivna terapija uključuje edukaciju pacijen- ta, različite tehnike relaksacije, fizikalnu terapiju, primjenu različitih vrsta okluzijskih udlaga i ostale metode koje poma- žu olakšati simptome. U neinvazivnu terapiju također može- mo ubrojiti medicaciju i to najčešće nesteroide antireumatičke koji dobro djeluju na bolove u mišićno-koštanom sustavu. Stabilizacijska udlaga najčešće je korištena metoda u terapi- jii temporomandibularnih poremećaja (TMP) (2). Privremene promjena položaja kondila i povećanje vertikalne dimen- zije najvjerojatnije pridonose relaksaciji mišića i smanjenju bolova mišićnoga i zglobnog podrijetla. Uz to, nedostatak simptoma izravnog djelovanja na OA-u, stabilizacijska udlaga može pridonijeti redukciji utjecaja različitih rizičnih čimbenika na zglob (8 – 9).

U minimalno invazivna terapijska sredstva ubrajaju se metode koje obuhvaćaju aplikaciju različitih sredstava u zglob od kojih se u literaturi spominju aplikacija kortikoste- roida, lokalnih anestetika i plazme bogate čimbenicima rasta (PRGF) (10) te artrocenteza (uklanjanje upalnog ekscudata) u kombinaciji s injekcijama hijaluronske kiseline. Invazivna tij. kirurška terapija ima malu ulogu u liječenju OA-e koja ne times manifest as functional disorders during clinical exami- nations (1).

Diagnosis of OA includes medical history, clinical func- tional analysis, and radiological methods. Unilateral pain in the joint and soft tissue around it which increases dur- ing mandibular movements, as well as crepitus, may often be present. Clinical examination is necessary to determine any deviation from the normal function of masticatory sys- tem. Clinical evaluation includes the assessment of pain dur- ing the palpation of masticatory muscles, joint palpation, de- tection of limitations and interferences during functional jaw movements, as well as assessment of occlusion. It is very im- portant to note which of the movements cause pain and the occurrence of clicking sounds or crepitus (3). Research Di- agnostic Criteria for Temporomandibular Disorders RDC / TMD, or its newer, improved version DC / TMD, enables standardization of the most common forms of TMD asso- ciated with muscles and joints (4). Since the clinical signs and symptoms are not always the clearest indication of the presence of degenerative joint disease, correct diagnosis is mandatory by critical clinical evaluation supported by imaging. Computerized tomography (CT) and cone-beam CT (CBCT) allow accurate visualization of bone structures and hard tissues. CBCT is a promising new method to visualize hard-tissue changes with a relatively low radiation dose. Magn- netic resonance imaging (MRI) is of great importance in the diagnosis of dislocation of the disc (5). Conventional radio- logos, for instance a panoramic radiograph, can display advanced destruction of bone tissue in the form of flatten- ing, however, is not sufficiently detailed method for evaluat- ing the severity of OA. Imaging of an osteoarthritic joint typ- ically shows osteophytes, erosion and subcortical pseudocyst (6). The diagnosis of osteoarthritis is still a challenge because of the weak association between severity of symptoms and ra- diographic evidence of destruction of the joint (7).

Treatment of TMJ OA can be divided into non-invasive treatment and invasive treatment that include surgery as well as application of various agents into the joint. Recently, we have witnessed the increasing popularity of invasive methods, regardless of scarce scientific evidence of their effectiveness (1). Non-invasive treatments include patient education about different relaxation techniques, physical therapy, interocclusal appliances, and other methods that help in alleviating symp- toms. The most common and effective medications used for TMD management are NSAIDs, that have well pain-relieving properties. Stabilization splint is the treatment of choice for pain control in temporomandibular disorder (TMD) patients (2). The appliance changes the position of mandibular con- dyles and increases the vertical dimension, so these effects may lead to muscle relaxation and a reduction of pain of myofacial origin and TMJ arthralgia. Despite the impossibility of direct action on OA, stabilization splint can contribute to the reduc- tion of the impact of various risk factors to the joint (8-9).

Minimally invasive procedures include methods that comprise application of corticosteroids, local anesthetics, plasma rich growth factors (PRGF) (10) into the joint, as well as arthrocentesis (removal of inflammatory exudate) in combina- tion with hyaluronic acid injections. Invasive or surgical
Reagira na manje invazivne terapije. Kao što je već prije istaknuto, pravih dokaza o djelotvornosti invazivnih metoda u liječenju jako je malo i stoga se njihova primjena, prema danas dostupnim podacima iz literature, ne preporučuje (12). U velikom broju istraživanja pronađena je poveznica između pojavnosti i napredovanja osteoartritisa s dobi. Naime, therapy plays a small but important role in the treatment of OA, particularly in patients who do not respond to less invasive therapies. The real proof of the effectiveness of invasive methods in the treatment of TMJ is very scarce (12). A large number of studies have reported a relationship between the frequency and progression of osteoarthritis and
čelusni je zglob u procesu starenja izložen mnogobrojnim biološkim promjenama. S godinama se povećava razina kalcija u disku i zato on postaje čvršći, ali i manje elastičan, pa je prema tome manje sposoban prilagoditi se većim opterećenjima (2, 13). Ipak, uznarovali slučajevi osteoartritisa mogu se pronaći i u znatno mlajšoj populaciji, pri čemu prednjače žene u dobi oko 35 godina, a znatan broj pacijenata u anamnezi navodi makrotraumu (2, 14, 15). Osim toga smatra se da ženski reproduktivni hormoni imaju posebnu ulogu u razvoju OA-e, osobito estrogen koji utječe na katabolizam fibro-zno-hrskavićnog tkiva zgloba (16).

Svrha ovoga rada bila je osvrt na ciljeve i mogućnosti konzervativne terapije OA-e. Također se željelo pokazati kako se uznarovali slučajevi OA-e mogu pronaći i u mladoj populaciji, što pridonosi opisu osteoartritisa kao etiološki i patofiziološki još uvijek ne sasvim jasnog stanja, čija je inicijacija kompleksna i ovisi o mnogobrojnim vanjskim i unutarnjim rizičnim čimbenicima. U radu je opisan slučaj mlade pacijentice u dobi od 21 godine sa znakovima i simptomima degenerativnih promjena TMZ-a.

**Prikaz bolesnika**

pacijentica u dobi od 21 godine upućena je u Zavod za mobilnu protetiku Stomatološkog fakulteta Sveučilišta u Zagrebu 2013. godine zbog bolova ispred i u području desnog TMZ-a koji su se pojačavali pri kretnji donje čeljusti. Iz anamneze se doznaje da je prije tri mjeseca sudjelovala u prometnoj nezgodi u kojoj je dobila jači udarac u glavu. Od tada su age. This is because of the cumulative exposure of temporomandibular joint to a number of biological changes associated with aging. Aging increases the level of calcium in the articular disk and therefore it becomes stronger, but less elastic and less able to handle overload (2, 13). However, severe cases of osteoarthritis may be found in a much younger population, particularly women of around 35 years of age. A majority of those patients reported macrotrauma in the medical history (2, 14, 15). In addition, it is considered that the female reproductive hormones play a special role in the development of OA, especially estrogen, which influences the catabolism of cartilage-fibrous tissue of the joint (16).

The aim of this study was to review the goals and possibilities of conservative treatment of OA as well as to show how severe cases of OA can also be found in younger population. This contributes to the description of osteoarthritis as etiologically and pathophysiologicaly not quite clear condition which initiation is complex and depends on many external and internal risk factors. We report on a young, 21-year-old woman with signs and symptoms of degenerative changes of TMJ.

**Case report**

The 21-year-old patient was referred to the Department of Prosthodontics, School of Dental medicine at the University of Zagreb in 2013 because of pain in front and in the right TMJ, which increased during mandibular movements. Medical history revealed that 3 months ago, the patient was involved in a traffic accident where she suffered a strong blow to the head.
počele tegobe u obliku otežanog i bolnog otvaranja usta, otežane lateralne kretanje donje čeljusti te otežana mastikacija.

Klinička dijagnostika
Palpacijaža na kretnim donje čeljusti ustanovljeno je ograničenje otvaranja – neasistirano otvaranje usta iznosi 22 mm interincizalno, a primjenom blage sile u smjeru otvaranja usta raspon otvaranja nije se uspio povećati više od 2 mm (slika 1.). Tijekom otvaranja usta bila je prisutna neizravna njega lateralna kretanja donja čeljusti (slika 2.). Bosna zglobna pločica ne doseže do zglobne kvržice, što upućuje na hipoaktivnost zgloba koja se klinički očituvala kao ograničenje otvorenog i otvorenog ustima, vidljivo je tijekom otvaranja usta raspon otvaranja usta raspon otvaranja. Palpacijaža zgloba složena je razaranja lateralnog polea desnog kondila izazvavala pojavu palpacijom lateralnog pola desnog kondila izazvala pojavu poznate, već doživljene boli. Palpatorio je uočen i kreptitus desnog zgloba. Kretanje otvaranja i protruzije također su izazivale pojavu poznate boli.

Evaluacijom raspona kretanja donje čeljusti ustanovljeno je ograničenje otvaranja – neasistirano otvaranje usta iznosi 22 mm interincizalno, a primjenom blage sile u smjeru otvaranja usta raspon otvaranja nije se uspio povećati više od 2 mm (slika 1.). Tijekom otvaranja usta bila je prisutna neizravna njega lateralna kretanja donja čeljusti (slika 2.). Bosna zglobna pločica ne doseže do zglobne kvržice, što upućuje na hipoaktivnost zgloba koja se klinički očituvala kao ograničenje otvorenog i otvorenog ustima, vidljivo je tijekom otvaranja usta raspon otvaranja. Palpacijaža zgloba složena je razaranja lateralnog polea desnog kondila izazvavala pojavu palpacijom lateralnog pola desnog kondila izazvala pojavu poznate, već doživljene boli. Palpatorio je uočen i kreptitus desnog zgloba. Kretanje otvaranja i protruzije također su izazivale pojavu poznate boli.

Zubni status
Kliničkim pregledom i analizom ortopantomograma ustanovljeno je da pacijentica ima sanirane zube bez protetičkih radova. Uočena je rastresitost zuba te pomak donje sredine zuba je 4 mm, a desna lateralna kretanja iznosi 11 mm i to bez bolya. Iznos protruzije bio je 6 mm (slika 2.). Bol na analogno-vizualnoj ljestvici (VAS = 0 – 10) pacijentica je ocijenila kao VAS = 7. Pri lateralnim kretnjama detektiran je kreptitus u području desnog kondila.

Radiološka dijagnostika
Analizom ortopantomograma ustanovljeno je zaravnanje slika 3.a i b.). S obzirom na ograničene mogućnosti spomenute radiološke metode i nemogućnost prikaza stupnja i uznapredovale destrukcije kosti, dijagnoza osteoartritis TMZ-a (RDC/TMD kriteriji, Os I, Skupina III) potvrđena je snimanjem čeljusnih zglobova CBCT-om. Na trodimenzionalnom prikazu desnoga zgloba CBCT-om, pri zatvorenim i otvorenim ustima, vidljivo je da tijekom otvaranja kondila ne doseže do zglobne kvržice, što upućuje na hipomobilnost zgloba koja se klinički očituvala kao ograničenje opseg kretnje pri otvaranju usta. No kako s pomoću CBCT tehnologije nije moguće procijeniti položaj zglobne pločice, to upućuje na moguću protruzu zglobne pločice, to upućuje na moguću protruzu zglobne pločice. Te utrke su izazivale pojavu palpacijom lateralnog pola desnog kondila izazvala pojavu poznate, već doživljene boli. Palpatorio je uočen i kreptitus desnog zgloba. Kretanje otvaranja i protruzije također su izazivale pojavu poznate boli.

Palpacijom zgloba složena je razaranja lateralnog polea desnog kondila izazvavala pojavu palpacijom lateralnog pola desnog kondila izazvala pojavu poznate, već doživljene boli. Palpatorio je uočen i kreptitus desnog zgloba. Kretanje otvaranja i protruzije također su izazivale pojavu poznate boli.

Terapija
Pacijentica je dobila upute za provođenje fizikalne terapije. Tretman se sastojao od ustalanog protokola – vježbi pasivnog istezanja mišića (pacijent, gledajući se u zrcalo, vježba otvaranje usta po ravnom lanci), te asistiranog istezanja (pacijent primsta lagano isteže mišicu te tako povećava otvaranje kod ograničenog otvaranja usta) (slika 5.). Nakon dva tjedana postignut je zadovoljavajući napredak u relaksaciji žvačne since then difficulties while opening and pain during the normal functional movements and mastication were present.

Clinical diagnostics
Palpation of the masticatory muscles did not provoke pain, but palpation of the lateral pole and provocation tests (opening and protrusive movements) produced report of “familiar pain.” Crepitus of the right TMJ was detected with palpation.

During clinical examination limitation in mouth opening was found, with unassisted opening of 22 mm. The application of mild force in the direction of the mouth opening failed to increase the opening of more than 2 mm (Figure 1). During mouth opening, uncorrected deviation to the right side was present.

Patient reported pain in the right TMJ during left lateral excursion. Left lateral movement was 8 mm, while the right lateral movement was 11 mm, and was carried out without pain. The amount of protrusion was 6 mm (Figure 2). Opening and protrusion provoked a report of “familiar pain.” Patient self-assessed the level of pain using visual-analog scale (VAS = 0-10) as VAS = 7. During lateral movements crepitus in the right TMJ was detected.

Dental status
Clinical examination and analysis of panoramic radiograph revealed that the patient’s teeth were treated previously and were without prosthodontic restorations. In the transversal plane there was a 3 mm displacement of the medial line. Interdental spacing was present. The teeth 18, 28, 48 were erupting, while the tooth 38 was missing. Vertical overbite and horizontal overjet amounted to 4 mm.

Radiological Diagnosis
Panoramic radiograph showed flattening of the right condyle (Figure 3 a and b). Since panoramic radiograph has limited display options of the degree and severity of bone destruction, the diagnosis of osteoarthritis of the TMJ (RDC / TMD criteria, Axis I, Group III) was confirmed by recording TMJ CBCT. On a three-dimensional view of the right joint (CBCT), taken in closed and open mouth positions, it was evident that during the opening the condyle did not reach to the articular eminence indicating joint hypomobility that was clinically manifested as limited range of mouth opening (Figure 4). This indicated the possibility of the disc dislocation. However, by using CBCT technology it is not possible to estimate the position of the articular disc (17, 12). Therefore it was not possible to confirm the disc dislocation as the cause of joint hypomobility.

Treatment
The patient was instructed to restrict the jaw movement to within painless limits. Instructions were provided for physical therapy to be employed during the day. The treatment protocol consisted of a self-administered exercises: passive muscle stretching (patient was encouraged to open on a straight opening pathway by looking in the mirror), and assisted muscle stretching (patient was instructed to apply gen-
Naknadna skrb

Kontrolni pregledi obavljeni su nakon mjesec dana, te nakon tri i šest mjeseci nošenja udlage. Na kontrolnom pregladu nakon šestomjesečnog redovitog nošenja udlage, postignuto je poboljšanje. Neasistirano otvaranje usta iznosilo je 35 mm, a asistirano 41 mm (slika 7. a i b). Laterale krennje bile su simetrične (slika 8. a i b). Povremena bol još se pojavljivala samo tijekom žvakanja tvrde hrane (VAS = 2). Palpacija lateralnog pola kondila nije bila bolna. U studenome 2016. pacijentica je ponovno naručena na kontrolu. Iz anamneze se doznaje da se, uz redovito nošenje udlage noću, bolovi vrlo rijetko pojavljuju i to samo pri žvakajem guma za žvakanje. Ali ako neko vrijeme ne nosi udlagu, pojavljuje se glavobolje. Palpacija tvrde hrane (VAS = 2). Palpacija lateralnog pola kondila nije bila bolna. Kliničkim pregledom pronađena je blaga defleksija tijekom otvaranja, a u desnom zglobu još se mogu osjetiti krepitacije.

Rasprava

Osteoartritis temporomandibularnog zgloba obuhvaća različite varijacije u patofiziologiji, epidemiologiji, progresiji poremećaja, te znakovima i simptomima. Važno je spomenuti da od početka pojave simptoma i znakova, pa do kliničkih značajnih destrukcija zgloba mogu proći godine; a može se napredovati i vrlo brzo (2). Upravo zbog različitog spektra pojavnosti i očitovanja, OA ostaje stanje čiji su dijagnostički i terapijski predmet rasprava i istraživanja. Metode koje se često spominju, a obuhvaćaju aplikaciju kortikosteroida, hijaluronske kiseline ili PRGF-a u području TMZ-a, na prvi pogled nude brze rezultate u olakšavanju simptoma. Naranžje koje se nametne jest mogu li se invazivnim metodama postići bolji rezultati u odnosu na konzervativni terapijski pristup te koliko je primjena ovakvih terapijskih metoda potkrijepljena znanstvenim dokazima o stvarnoj učinkovitosti.

Pacijentica koja je opisana pripada mladoj populaciji za koju nisu očekivane izrazite osteoartritične simptome. Simptomati poput bolova i ograničenja krennje pojavili su se nakon prometne nezgode. Srna terapija bila je ponajprije uključenja simptoma boli i povećanje razine krennje. Pacijentica je liječena neinvazivnim metodama koje su obuhvaćale kombinaciju fizikalne terapije i stabilizacijske udlage. Šest mjeseci nakon početka liječenja bila je gotovo bez tegoba. Na kontroli 2016. godine (tri godine poslije) i dalje nema značajnih simptoma. Kliničkim nalazom utvrđeno je da krepitacija i obuhvaća simptome u području zgloba, evidentno je da da je učinkovačnosti predstavljena, tle force to the elevator muscles with the fingers, in order to increase the amount of mouth opening) (Figure 5). After 2 weeks patient reported significant relaxation of masticatory musculature. Stabilization splint is fabricated in the therapeutic centric relation position with increase of the vertical dimension of occlusion of 2 mm. Patient was instructed to wear a splint during night (Figure 6).

After-care

Follow up appointments were carried out at 1st, 3rd and 6th month of wearing the splint. At follow-up appointment after 6 months of regular wearing the splint the patient reported improvement of symptoms. Unassisted opening amounted to 35 mm while assisted opening amounted to 41 mm (Figure 7 a and b). Lateral movements were symmetrical (Figure 8 a and b). Occasional pain was still present only during chewing hard food (VAS = 2). Palpation of the lateral condyle pole was not painful.

At a 3-year recall appointment, in November 2016, the patient reported that by regular wearing a splint at night, pain occurs very rarely and only during chewing gum. However, if a splint is worn only occasionally, the headaches begin as well as difficulties while chewing hard food. Clinical examination showed mild uncorrected deviation during the opening, and the crepitus was still felt in the right joint.

Discussion

Osteoarthritis of the temporomandibular joint entails different variations in the pathophysiology, epidemiology, and progression of the disorder as well as signs and symptoms. It is important to mention that progression from the onset of symptoms and signs to clinically significant joint destruction may take years, but it can also happen very quickly (2). Because of the diverse range of incidence and manifestations, OA remains a condition whose diagnosis and treatment are the subject of discussion and research. Some methods which include the application of corticosteroids, hyaluronic acid or the PRGF in the area of TMJ, at first glance offer rapid improvement of symptoms.

The question that arises is whether invasive methods can achieve better results than conservative therapeutic approaches (non-invasive methods) as well as how much are such therapeutic methods supported by scientific evidence of actual efficacy.

We presented young patient with severe osteoarthritic changes accompanied by pain and limited mouth opening that emerged after macrotrauma. The primary therapeutic goal was to resolve the pain and to increase the range of motion. Patient was treated with the combination of physical therapy and stabilization splint At 6 months follow up patient reported improvement of symptoms. At a 3-year recall appointment the patient still had no significant symptoms. Clinical examination revealed crepitus in the right TMJ and mild uncorrected deviation during the opening, however, such a finding is not a problem for normal functioning of the patient.

When thinking of other therapeutic methods such as the application of various therapeutic agents in the area of the joint, it can be seen that research presented e.g. application
Osteoartritis temporomandibularnog zgloba
Vrbanović i sur.

Primjerice, aplikacijom PRGF-a u zglobu nisu dala znatno drukčije rezultate od konzervativnih, neinvazivnih metoda. Giacomello i suradnici tijekom aplikacije PRGF-a dobili su nakon šet mjeseci povećanje raspona otvaranja usta od 9,38 mm (10), a kod pacijentice tretirane neinvazivnim metoda-

dama, predstavljene u ovome prikazu slučaja, povećanje raspona od 13 mm postignuto je nakon šest mjeseci. Bez obzira na uspješnost metoda koje obuhvaćaju aplikaciju PRGF-a u zglob, postavlja se pitanje bi li uopće, s obzirom na neja-

snu etiologiju i cikličku prirodu poremećaja, takva pobolj-

šanja bila trajna i ima li smisla koristiti se invazivnim me-

todama i penetrirati u područje zgloba ako se mirno stanje i

poboljšanje funkcije mogu postići manje invazivnim načini-

ma. Naime, vidljivo je iz slučaja mlade pacijentice da se pot-
puna bezbolnost uspješno postići i konzervativnim metodama, a raspon kretnji gotovo je potpuno vraćen na prijašnje stanje i više joj nije problem. Tomu u prilog ide i istraživanje Clarka i suradnika u kojem se navodi samo 8,6 posto potrebe za do-
datnim terapijskim metodama nakon ponovnog pregleda pa-

cijenta tretiranog neinvazivnim terapijskim metodama (18).

Također je važno istaknuti da je pacijentica u dobi od 21

godine pretrpjela makrotraumu koja je vjerojatno bila triger

ili okidac za razvoj simptoma. Kako je riječ o trzajnoj ozljedi,
simptome su mogli uzrokovati mišići u reaktivnom spazmu, a

osteoartritis je mogao biti slučajan nalaz koji pacijentica ne či

di tegebje osim puketanja (krepitus) koje se čuje pri naglom

otvaranju usta. Krepitus je jedini karakterističan kriterij kli-

ničke analize za dijagnostiku osteoartritisa, a rezultat je direk-
tnog trenja među koštanim površinama (3). Incidencija krepi-
tusa kod starijih adolescenata i mladih odraslih ljudi je, kako

navode Solberg i suradnici, 12,5 posto (19). S obzirom na to

da je postojalo ograničeno otvaranje usta, moglo se posumnja-
ti i na udruženost pomiha zglobne pločice (dislokacija zglob-

ne pločice bez redukcije) s OA-om (1), no za takvu dijagnozu

potreban je pozitivan nalaz magnetske rezonancije (17).
Abstract
This paper describes a case of a young patient who sought help because of pain in the right temporomandibular joint (TMJ). She also reported increasing of pain during chewing. Clinical examination revealed limited mouth opening with uncorrected deviation to the ipsilateral side. Palpation of the lateral pole of the right condyle discovered crepitus, and maximum assisted opening elicited a report of “familiar pain”. The diagnosis of osteoarthritis of the TMJ (RDC / TMD criteria, Axis I, Group III) was confirmed by CBCT of TMJ. There is no "gold standard" for the management of TMD, but the need for TMD treatment has to be based on precise indications related to the presence of pain, limitation in function of the lower jaw and signs of degenerative joint disease. Conservative, reversible therapeutic procedures are considered as the first choice for TMD treatment and their task is to improve the function of the entire masticatory system. In this case patient was treated with the combination of physical therapy and stabilization splint, in order to reduce the pain and restore the normal function of the lower jaw. At 6 months’ follow-up examination symptoms have almost completely disappeared, while 3 years later, the patient still has no significant subjective symptoms. In the present case non-invasive therapy was sufficient to bring, otherwise recurrent nature of osteoarthritis, in complete remission and keep it like that for years.

References
1. Manfredini D. Current Concepts on Temporomandibular Disorders. London: Quintessence publishing Co, Inc; 2010.
2. Tanaka E, Detamore MS, Mercuri LG. Degenerative disorders of the temporomandibular joint: etiology, diagnosis, and treatment. J Dent Res. 2008 Apr;87(4):296-307.
3. Poveda-Roda R, Diaz-Fernandez JM, Hernandez-Bazan S, Jimenez-Soriano Y, Margaix M, Sarrion G. A review of temporomandibular joint disease (TMJd). Part II: Clinical and Radiological semiology. Morbidity processes. Med Oral Patol Oral Cir Bucal. 2008 Feb 1;13(2):E102-9.
4. Schiffman E, Ohrbach R, Truelove E, Look J, Anderson G, Goulet JP, et al. Diagnostic Criteria for Temporomandibular Disorders (DC/TMD) for Clinical Research Applications: Recommendations of the International RDC/TMD Consortium Network and Orofacial pain Special Interest Group. J Oral Facial Pain Headache. 2014 Winter;28(1):6-27.
5. Ahmad M, Schiffman EL. Temporomandibular Joint Disorders and Orofacial pain. Dent Clin North Am. 2016 Jan;60(1):105-24.
6. Plesh O, Adams SH, Gansky SA. Temporomandibular joint and muscle disorder-type pain and comorbid pains in national US sample. J Orofac Pain. 2011 Summer;25(3):190-8.
7. Zarb G, and Carlsson G. TMD Disorders: Osteoarthritis. J Orofac Pain. 1999 Fall;13(4):295-306.
8. Badel T, Alajbeg I, Maroti M, Kocjan Lovko S. Temporomandibular Joint disorder therapy by occlusal splint: A case report. Acta Stomatol Croat. 2008;42:283-91.
9. Hansson, TL; Christensen, CA; Taylor, DL – editors. Physical therapy in craniofacial disorders. Chicago: Quintessence Publishing Co; 1992.
10. Giacomello M, Giacomello A, Mortellaro C, Gallesio G, Mozzati M. Temporomandibular Joint Disorders Treated With Articular Injection: The Effectiveness of Plasma Rich in Growth Factors-Endoret. J Craniofac Surg. 2015 May;26(3):709-13.
11. Swigchowicz S, Ostawalska A, Kasperczyk A, Nowak D, Birkner E, Kasperczyk S. Evaluation of hyaluronic acid intraarticular injections in the treatment of primary and secondary osteoarthritis of the knee. Pol Orthop Traumatol. 2012 Oct 22;7:105-9.
12. Kalladka M, Quek S, Heir G, Ellav E, Mupparapu M, Viswanath A. Temporomandibular Joint Osteoarthritis: Diagnosis and Long-Term Conservative Management: A Topic Review. J Indian Prosthodont Soc. 2014 Mar;14(1):6-15.
13. Holmes MW, Bayliss MT, Muir H. Hyaluronic acid in human articular cartilage. Age-related changes in content and size. Biochem J. 1988 Mar 1;250(2):435-41.
14. Yun PY, KimYK. The role of facial traumaas a possible etiologic factor in temporomandibular joint disorder. J Oral Maxillofac Surg. 2005 Nov;63(11):1576-83.
15. Bucholtz MR. TMJ and whiplash. J Am Dent Assoc. 2007 Nov;138(11):1422; author reply 1422.
16. Milam SB. Pathogenesis of degenerative temporomandibular joint arthritides. Odontology. 2005 Sep;93(1):7-15.
17. Yura S, Harada S, Kobayashi K. Diagnostic Accuracy on Magnetic Resonance Imaging for the Diagnosis of Osteoarthritis of the Temporomandibular Joint. J Clin Diagn Res. 2015 Jul;9(7):ZC95-7.
18. Clark GT, Baba K, McCreary CP. Predicting the outcome of a Physical medicine treatment fot temporomandibular disorder patients. J Orofac Pain. 2009 Summer;23:221-9.
19. Solberg WK, Woo MW, Houtson JB (1979) Prevalence of mandibular dysfunction in young adults. J Am Dent Assoc. 1979 Jan;98(1):25-34.

Key words
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