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Facial pain and oral infection

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Overview

- Pain context
 - Generally
 - Older populations
- TMD
- BMS
- Orofacial infection (Behaviour/systemically)

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Pain: The facts

- 20% adults
- 10% new persistent pain Δ



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Pain: The facts

- 20% adults
- 10% new persistent pain Δ

OFP

- UK 20% acute odontogenic pain
- US 2.1 million ED visits/annum

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Pain: The facts

- 20% adults
- 10% new persistent pain Δ

OFP

- UK 20% acute odontogenic pain
- US 2.1 million ED visits/annum

- TMD 10-15%

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Pain: The facts

- 20% adults
- 10% new persistent pain Δ

OFP

- UK 20% acute odontogenic pain
- US 2.1 million ED visits/annum

- TMD 10-15%
- BMS 0.7-15%

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[illegible]

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TMD

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Aetiology

Multifactorial
Biopsychosocial

Biological	Psychological	Social
Muscular inflammation	Feeling unacknowledged	Negative relationship with dentist
Functional disturbance of TMJ	catastrophising	Relationship/family concerns
Pain in other areas of body	Worry	Avoidance of social situations
Concomitant pain conditions	Negative thinking	Poor sleep habits
COMT polymorphisms	Anxiety/depression	Time off work

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Acute Vs Persistent TMD

Acute	Persistent (10%)
<3 months	>3 months
Identifiable trigger	Increased intensity & Significant biopsychosocial consequences
Protective	No reparative function

(Durham 2011; Slide 1013)

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Presentation

Pain

- *Dull throbbing ache/pressure*
- *Intermittent exacerbations (sharp/stabbing)*
- *Cyclical 65%*
- *Constant 19%*

(Wright 2000)

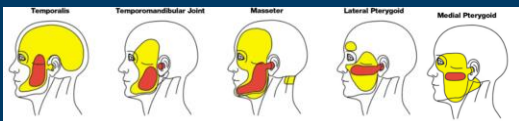
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- Restriction of movement (41%)
- Joint noises
- Functional limitation
- Headaches
- Otolgia [+/tinnitus]
- Toothache

(Stade 2013)

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Referral



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Clarity?

GIRFT
GETTING IT RIGHT FIRST TIME

Royal College of Surgeons

- National guideline (2024)
- Introduce NHS recommended TMD care pathway
 - Evidence based

Guideline

Care pathway

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1. DETECT
TMD & red flags

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Attending with signs & symptoms suspicious of TMD

Step 1
3Q/TMD screen, CPI, PHQ-4, examine, exclude red flags

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Red flags <1% in tracheal or oro/nasopharyngeal tumours

Previous or current malignancy
Lymphadenopathy, facial or neck mass/swelling
Unilateral weight loss
Parotitis (s/s swelling and trismus)
Neurological signs/symptoms
• Sudden change in smell, hearing, sight
• Neurosensory symptoms/changes
Pain with eating, coughing or sneezing (Suggests increased intracranial pressure)
Nasal symptoms (persistent epistaxis, bleeding or purulent discharge)
Autonomous puffing out, or worsening, trismus
Persistent changes of the voice (3 weeks)
Persistent mouth ulcer(s) (3 weeks)
Oral leukoplakias
New onset jaw pain in those taking bisphosphonates or related medication

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Screening

- 3Q/TMD (Lövgren, 2016)
- Characteristic pain intensity (CPI)
- PHQ-4

- Printable page
- Online calculator

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Screening

- 3Q/TMD (Lövgren, 2016)
- Characteristic pain intensity (CPI)
- PHQ-4
 - ??
 - Important
 - Has it been assessed by other care teams?

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3Q/TMD (Lövgren, 2016)

Do you have pain in your temple, face, jaw, or jaw joint once a week or more?	Score
1. No	0
2. Yes	1
Do you have pain once a week or more when you open your mouth or chew?	
1. No	0
2. Yes	1
Does your jaw lock or become stuck once a week or more?	
1. No	0
2. Yes	1
Total Score =	≥2 points = positive screen for TMD

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CPI (Von Korff 1992)

1. How would you rate your mouth and/or face pain on a 0 to 10 scale? (Circle one number), that is: 0 is "no pain" and 10 is "as bad as you can be".										
0	1	2	3	4	5	6	7	8	9	10
Normal										Pain is not at all bad
2. In the LAST MONTH, how intense was your WORST mouth and/or face pain? (Circle one number)										
0	1	2	3	4	5	6	7	8	9	10
Normal										Pain is not at all bad
3. In the LAST MONTH, on AVERAGE, how intense was your mouth and/or face pain? (That is, you are at all pains at times you were experiencing pain.) (Circle one number)										
0	1	2	3	4	5	6	7	8	9	10
Normal										Pain is not at all bad

Total Score: sum the values from Q1-3 multiplying by 10 and dividing the product by 3

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PHQ-4 (Kroenke 2009)

Over the last 2 weeks, how often have you been bothered by the following problems? Please place a check mark in the box to indicate your answer.

	Not at all	Several days	More than half the days	Nearly every day
	0	1	2	3
1. Feeling nervous, anxious or on edge	☐	☐	☐	☐
2. Not being able to stop or control worrying	☐	☐	☐	☐
3. Little interest or pleasure in doing things	☐	☐	☐	☐
4. Feeling down, depressed, or hopeless	☐	☐	☐	☐
TOTAL SCORE =				

Normal (0-2)
Mild (3-5)
Moderate (6-8)
Severe (9-12)

Total score ≥3 Q1 and 2 suggests anxiety
Total score ≥3 Q3 and 4 suggests depression
≥6 = predicts a negative outcome TMD cases

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EARLY URGENT REFERRAL

Red flag signs/symptoms → appropriate medical specialism

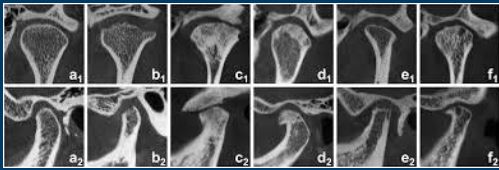
Evidence of severe arthrogenous TMD → OMFS

- CPI pain score >50
- Dietary restriction due to pain
- Mouth opening <25mm
- +/- skeletal and/or occlusal derangement (e.g., AOB, retrognathia, asymmetry)

(NICE depression in adults 2022; Zhang 2016; Enshoff 2005)

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Degenerative joint disease



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2. DIAGNOSE



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Diagnose early

1st point of contact

Clinician benefits:

- Treatment plan
- Relationship
- MDT integration

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Diagnosis patient/carer benefits

Psycho-socially very important

- Legitimacy to individuals experience
- Foundation for:
 - Improved self-perception
 - Increased understanding
 - Provision of coping strategies
 - Acceptance

Ownership
Engagement

(Durham, 2010)

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Myogenous TMD	Arthrogenous TMD
Myalgia	DDwR
Local myalgia	DDwR with intermittent locking
Myofascial pain	DDwR with limited opening
Myofascial pain with referral	DDwR without limited opening
Headache attributed to TMD	Degenerative Joint Disease
	Subluxation
	Arthralgia
Combination TMD Any combination of myogenous AND arthrogenous TMD	

- 12 most common subtypes outlined
- Broad TMD group

(Schiffman, 2014)

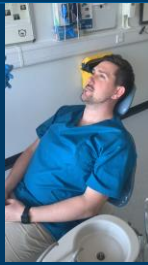
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Examination – as per DC/TMD

Myogenous	Arthrogenous
Pain at rest, with jaw movement or elicited by palpation	
Familiar pain when palpating MOM	Familiar pain when palpating or moving joint
*/- Restricted opening	*/- Joint noise (last 30 days)
	*/- Jaw lock
	*/- Deviation on opening
	*/- Restricted opening
Pain modified with jaw movement, function, or parafunction	

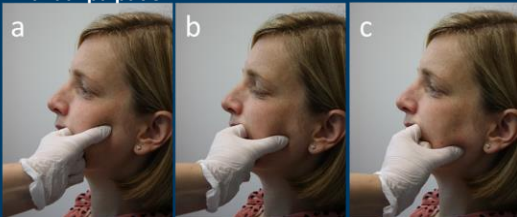
(Schiffman, 2014)

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Bimanual palpation



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3. DELIVER

Education and SSM

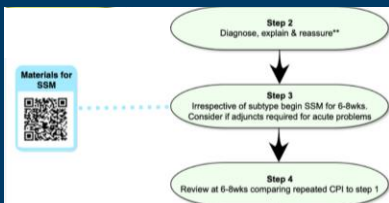
asap



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Management of TMD

Cure

Aim:

- Reduced impact
- Decrease functional limitation of the condition

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Supported self-management

1. Diagnosis alongside education about condition and appropriate analgesic use
2. Self-exercise therapy
3. Thermal modalities
4. Self-massage therapy
5. Diet and nutrition
6. Parafunctional behavior



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Modifications for population



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Capitalise on analgesics

Medication	Dose	Duration
Paracetamol	1g QDS	Not more than 14 days
Ibuprofen	600mg TDS	Not more than 14 days
Lansoprazole OR Gastro-resistant Omeprazole capsules	15mg OD 20mg OD	For duration of Ibuprofen course

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Importance of axis II

Psychosocial comorbidity has been shown to have an impact on:

- Pain severity
- QoL
- Persistency

Affects:

- Prognosis
- Treatment outcome

Identification → targeted, appropriate treatment.

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Psychological component of SSM

Education

Link between psychological factors and pain

<https://my.livewellwithpain.co.uk>

Impact of pain management initiated early

- Enjoyment
- Exercise
- Breathing exercises/relaxation

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Supported self-management




<https://apps.apple.com/gb/app/jawspace-your-tmd-journey/id365850708>

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Formal review (6-8 weeks)

- Assess compliance with SSM
- Assess change to symptoms
- Pain levels
- MCID pain ↓ 30%

Second line (adjunctive management)

Pain improvement <30% Second line management

Myogenous TMDs	Arthrogenous TMDs
Splints	Topical NSAIDs
Acupuncture	Acupuncture
Physiotherapy	Physiotherapy

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Splints population negatives

- Dexterity
- Edentulous
- Maintenance

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Splints – controversial???

- Potential benefit short term use (<3M) 2
- Most likely to be beneficial for:
 - Myofascial TMD sub diagnoses
 - Headache attributed to TMD
 - TMD and concomitant primary headache (*↓headache intensity and frequency*)
- No evidence of benefit for long term use (>6M)
- Full coverage

(Kuzmanovic Pincer 2017; Manriquez SL, 2021)

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Acupuncture

- ↓ Pain intensity
- Short term benefit
- Myofascial > arthrogenous
- Low risk adverse events
- Easy to use in community setting

(Fernandes 2017; Reixto 2021; Machado 2018; Liu 2021)

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Physiotherapy

- Appropriate for myogenous and arthrogenous TMDs
- ↓ Pain
- ↑ Range of jaw movement
- Low levels adverse events
- U/G training involved geriatric population

(Armijo-Oliva 2016; Herrera-Valencia 2020; Alves 2013; Paço 2016)

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Myogenous TMD	Arthrogenous TMD
1 st line: Amitriptyline/Nortriptyline	Surgical management
2 nd Line: Gabapentin or Duloxetine	
LA trigger point injections	
Botox	

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Lidocaine's mechanisms

Sodium channel blocking amide local anesthetic

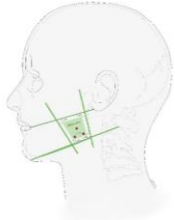
In M-TMD uncertain action:

- Any needle ⇒ analgesic effect via change in somatosensory thresholds [\(Al-Juburi 2016\)](#)
- Allows greater range of motion
- May break cycle of nociception (or pain) and helplessness by decreasing peripheral sensitization e.g. inhibit Substance P production [\(Al-Juburi 2016\)](#)

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Safe zone: Masseteric injection sites



Superior line: Mid point of ear lobe to commissure

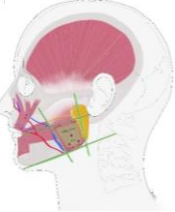
Inferior line: Mandibular angle to chin
(along inferior border of mandible)

Anterior Line: Anterior border of masseter

Posterior line: Posterior border of masseter

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Masseteric sites



Safe zone = 1cm from each of the lines (brown shading)

The three injection sites (red dots)

- Minimum of 1cm apart
- @ least 1cm from the edge of the parallelogram.

Superior site

- Penetrate perpendicular to muscle
- May **not touch bone** but ensure depth ~12mm
- Negative aspiration and administer

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Inferior masseteric sites



- Posterior site angle anterior-superiorly
i.e. away from parotid

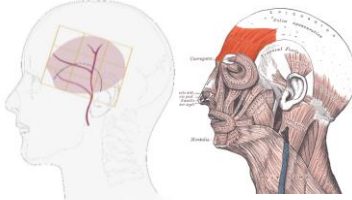
- Anterior site angle posterior-superiorly
i.e. away from facial vessels

- **Touch bone** then withdraw 2-3mm
- Negative aspiration and administer

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MiTIGate 

Key anatomy: Temporal injection sites

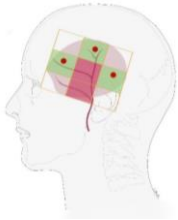


- Superficial temporal artery and vein
- Within hairline

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MiTIGate 

Safe zone: Temporal injection sites



Superior line: parallel to most superiorly palpable part of Temporalis

Inferior line: Lateral canthus to tragus

Anterior Line: Posterior border of the zygomatic-frontal process

Posterior line: Parallel to most posterior part of the convexity of the pinna

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MiTIGate 

Temporal sites

- Penetrate perpendicular to muscle
- Touch bone
- Withdraw 2-5mm
- Aspirate and deposit

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MiTiGate 

Dose: 2% Lidocaine (Plain)

Same sites as for Botox.

Masseter
0.2mls (4mg) per injection site
Total 0.6ml per muscle

Temporals
0.1mls (2mg) per injection site
Total 0.3ml per muscle

Total dose per patient = 36mg (1.8mls).

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(Stomatodynia/glossodynia/stomatopyrosis) 

Burning mouth Syndrome



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BMS

Intraoral burning/dysaesthesia
No visible signs of mucosal pathology
Presents > 2 hours on at least 50% of the days for >3 months

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Presenting features

Bilateral, symmetrical

Anterior 2/3rds of tongue

Dorsum, lateral borders, anterior hard palate, mucosa of lower lip

Diurnal variation

Taste disturbance

Emotional distress

Functional disturbance

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Aggravating and relieving factors

Aggravating	Relieving
Mechanical allodynia	Oral intake
Thermal Allodynia	Stimulation
Stress	Distraction
Fatigue	
Taste allodynia	

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Prevalence and Onset

Prevalence

- 0.7-1.5%
- F>M
- 50-69-year-old

Onset of symptoms

- 50% spontaneous
- 17-33% report symptoms present following **URTI, dental procedure, medication usage**
- Traumatic life stressor can precede presentation

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Prognosis

3% within 5 years

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Primary or Secondary BMS

Primary BMS - no known cause

Secondary BMS - Has a local or systemic cause

"Oral mucosal pain attributed to....."

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Local causes

- **Infection**
 - Bacterial, viral, fungal
- **Dehydration**/mouth breathing/nasal obstruction
- **Xerostomia**
- Mechanical trauma
- **Parafunctional habits**
- **Prosthetic**
- Allergy
- Alcohol based mouthwash
- Radiation induced stomatitis
- Oral mucosal conditions
- **Neoplasia**

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Systemic causes

- Endocrine
- **Nutritional neuropathy**: B₁, B₂, B₆, Folate, Ferritin, Zinc
- Helicobacteria Pylori
- Autoimmune conditions
- **Medications**
- Conditions which cause peripheral neuropathy
- Allergy
- Supertasters
- GORD
- Other neuropathies

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First consultation

Medical History

Potential systemic cause

Medications

Clinical Examination

IOST

Prosthesis

Dental

Erosive tooth wear

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What next

Concerning features - **MaxFax**

Indications of non urgent systemic issues - **GMP**

Indications of psychosocial – **family/carers/GMP**

Eliminate potential dental causative factors

Treat infection

Diagnosis/education and reassurance (manage expectations)

Psychosocial

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Additional investigations

Candida swab

Bloods

MRI

FBC
U and E
Thyroid profile
HbA1C
B12
Folate
Ferritin
Auto antibodies
CRP
ANAs
Zinc
<i>H Pylori antibody – if history/indicated gastrointestinal disease</i>
Vit B ₁₂ , Vit B ₆ and Vit B

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Sensible conservative management strategies

Reassurance/Education

Psychosocial

- Stress relief/anxiety management/positive sleep habits

Hydration

LSS

Zinc supplements

- check interactions

Alpha lipoic acid supplements

- Caution if concurrent liver disease, diabetes, thyroid disorder, thiamine deficiency, alcohol excess/dependence

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Management options

Psychological	Pharmacological	Other
Routine CBT	Topical - LA - Capsaicin - Clonazepam	Zinc
Stress reduction	Systemic - Antidepressant - Anticonvulsant - BDZ Clonazepam	Alpha lipoic acid

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Orofacial infection

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Orofacial infection: risk factors elderly

- Poor oral hygiene
 - Dexterity
 - Cognitive impairment
- Xerostomia
- Age related dental change
 - Tooth wear
 - Recession
- Comorbid medical conditions
- Immunocompromise
- Nutritional deficiencies

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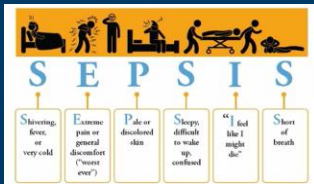
OFP presentation (Pain/infection)

- Verbal
- Vocalisations
- Behavioural change
- Facial expressions
- Body language

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Systemic changes

- Hypertension
- Hypotension
- Tachycardia
- Tachypnoea
- Pyrexia



- >65 y/o 13 X increased risk
- 2 X mortality

Sepsis 6

3 Out	3 In
Blood cultures	Oxygen to keep sats >92%
Blood tests (inc. lactate)	IV fluids
Urine output	IV antibiotics

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Thank you

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