BURNING MOUTH SYNDROME

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Definition

- Burning sensation of oral mucosa
- Absence of clinically apparent mucosal alterations
- Often organic & curable-Roy Rodgers

General Features

- Patients have mucosal pain (stomatodynia / glossodynia)
- 60% dysesthesia (abnormal taste)- metallic, bitter, coffee tastes funny
- Tongue most common site affected
- Other mucosal surfaces –burning stomatopyrosis

General Features

- Can also affect urogenital (vulvodynia) and intestinal mucosa
- 90% post- menopausal women
  - Estrogen or progesterone deficit ? but not established

General Features

- Strongly associated with depression and anxiety states - psychosomatic
- Well-controlled comparison studies lacking
- Affects 2-3% of adults (14% of post-menopausal women)

General Features

- Asians and Native Americans >> whites or blacks
- Increasing prevalence with advancing age, especially after 55 years (peri-menopausal)
- One of the most common problems in clinical oral pathology practice

Clinical Features

- More than 1 million affected in US
- 2.6% of dental patients
- Rare before 30 (40 for men)
- Onset usually within 3-12 yrs after menopause
- Onset usually spontaneous

Clinical Features

- Burning dorsum of tongue, strongest in anterior 1/3
- Irritated or raw feeling – "scalded with hot coffee"
- Altered taste and/or dysgeusia (bitter or metallic)
- Mucosal changes seldom visible !!

Tongue Features

- Diminished numbers of fungiform papillae
- Some focal traumatic erythema and edema often present
- If dorsum is significantly red and smooth – suspect systemic or local process, such as anemia or candida

Other Areas

- **Anterior** parts of mouth
  - Hard palate
  - Lip (mucosal)
  - Alveolar ridge (edentulous)
  - Buccal mucosa, oropharynx, FOM

Associated Complaints

- Dryness
- Altered taste
- Taste phantoms
- Abnormal sensations-strings between the teeth
- Often triggered by dental work or URT infections

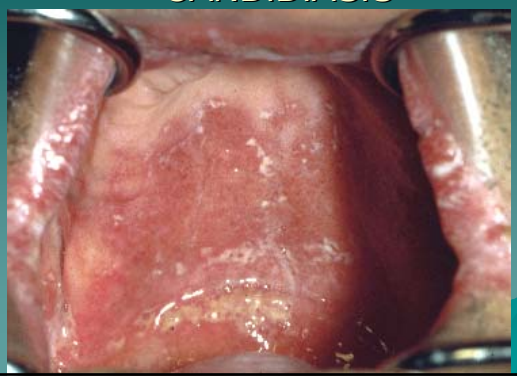
Duration

- 3 months to 12 years
- Average 3 years & 4 months

Nature of Pain

- Distribution inconsistent with neuroanatomic pathways
- Usually bilateral
- Continuous, with fluctuation
- Does not wake up patient
- Maybe associated with emotional factors

CANDIDIASIS



XEROSTOMIA

Parafunctional Habits

- Tongue thrusting
- Clenching
- Bruxism
- Lip sucking/ chewing
- Mouth breathing

Dental Correction

- Out of 31 patients with dentures/BMS **IMPROVEMENT**
  - 13/20: readaptation
  - 6/11: dental correction
  - Other studies show most **worsen** with dental manipulation

Hormonal Influences

- 43% peri or post menopausal
- 6% premenopausal
- Estrogen deficiency ? ?

Psychologic Factors

Personality disturbances
- Depression
- Anger
- Apprehensive and introverted

Psychological Factors

- Depression
  - Range 4%-50%-92%
  - Catastrophic event
  - Adverse to change
  - Receptive to reassurance

Psychological Factors

Cancerophobia
- Anxiety is common
- Family member death
- Hypochondria

BMS & Psychiatry

- 31/33 had mental disorders
- 18 neurosis
- 5 psychotic
- 6 personality disturbance

Super Tasters

- Can taste 6-n-propylthiouracil (PROP)
- 32% of Caucasian women,
- Asian females yield highest proportion of supertasters
- Supertaster and BMI can also be linked

Super Tasters

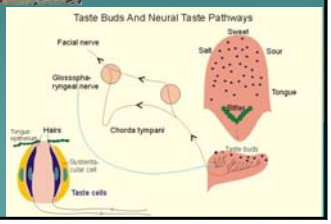
- Usually high perceivers of pain
- Perceive more oral burn from capsaicin
- Discriminate diff in fat content betwn 40% fat & 10% fat salad dressings but nontasters cannot
- Under genetic control
- Most super tasters are women

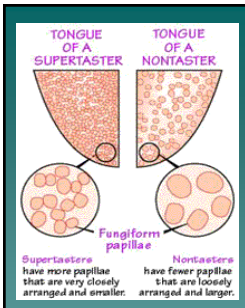
Super Tasters

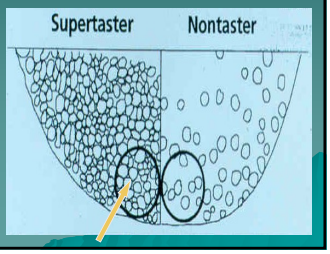
- Taste buds found on fungiform papillae
- Super tasters >/= 30 per 6.0 mm
- Non-tasters have 5 or less

BMS & Supertasters

- Taste buds surrounded by basket of pain neurons
- Normal taste input inhibits area of brain receiving sensory input from trigeminal nerve
- Decreased or altered taste input perceived by brain as nerve injury







BMS & Supertasters

- Increase in perceived burning in super tasters
- Post-menopausal women affected due to taste diminution at menopause
- Less taste input=>>pain
- Burning correlates directly with the density of the fungiform papillae

BMS,TASTE & HYPOTHYROIDISM

- 50 BMS patients
- 50 age/sex matched normal controls
  - Taste sensation normal in all controls
  - Thyroid function normal in all controls

- Felice et al;Med Oral Patol Oral Cir Bucal 2006;11:E22-5

BMS, TASTE & HYPOTHYROIDISM

- **BMS Patients**
  - 30/50 AGUESIA BITTER TASTE
  - 12/50 HYPOGUESIA BITTER TASTE
  - 5/50<<FreeT3,FreeT4 >>TSH
  - 4/50 >>ANTITHYROID ANTIBODY
  - 34/50 ECHORADIOGRAPHIC EVIDENCE OF NODULARITY (GOITER)
    - Felice et al;Med Oral Patol Oral Cir Bucal 2006;11:E22-5

BMS, TASTE & HYPOTHYROIDISM

- Thyroid hormones help maturation and specialization of taste buds
- Pts on thyroxine 3x more likely **BMS** 2x more likely **dysguesia** (bitter)
- Hypothyroid patients total aguesia or partial (bitter) hypo or aguesia
- Changes **reverse** with hormones

BMS, STRESS & HYPOTHYROIDISM

- Constant stress >>>Cortisol
- Cortisol inhibits T4 conversion to T3
- Instead favors T4 conversion to **r**T3
- rT3 binds receptors and blocks action of T3
- Prolonged stress= **rT3 Dominance** which persists after stress stops

BMS, STRESS & HYPOTHYROIDISM

- All 3 of our patients T3,T4 decreased (T3>>T4) also TSH increased
- Patients underweight since only **incipient** hypothyroid

Management

- Complete medical history
- Full work up
  - Salivary flow
  - Candidiasis
  - Blood studies
  - Free T3,4 TSH Levels
- Psychiatric

Dyclonine HCl

- Topical anesthetic (dyclone)
- 33 patients
  - 12 patients burning increased
  - 14 patients burning did not change
  - 7 patients burning decreased

Medical Management

- ANTIOXIDANTS
  Alpha lipoic acid
- Counter irritation-capsacian
- Benzodiazepines
- Tricyclic antidepressants
- Armour thyroid2x/day-mixture of all thyroid hormones

Alpha Lipoic Acid

- Potent antioxidant mitochondrial coenzyme
- Shown in clinical studies as neuroprotective
- Increases intracellular glutathione and eliminates free radicals
- Used in diabetic neuropathy

Alpha Lipoic Acid

- 600mg/day for 30 days
- 74% improved with ALA vs 14% placebo
- 67% improved in placebo group when switched to ALA
- Maintained in 70% patients after 1 year

Counter-irritation

- Capsaicin ointment/ lozenges
  - 0.025% Zostrix ointment
  - Tabasco sauce in water (1:2)or higher
  - Increase strength as tolerated maximum 1:1

Medical Management

Low dose

Benzodiazepine
- Clonazepam

- Tricyclic antidepressant
  - Desipramine
  - Amitryptiline

Clonazepam

- 27% helpful but stopped
- 30% no relief
- 43% partially helpful and still on medication
- 70% showed improvement

Clonazepam

- Start with 5mg ½ hs, if needed
- Add lowest dose of TCA,if needed
- Add Neurontin 100 mg t.i.d. then 200 mg t.i.d. after 2wks and 300 mg t.i.d. after 2 more weeks
- Always consult with physician before & during treatment

TCA – analgesic effect

- Largely independent of antidepressant activity
- Very low doses required
- More drying than benzodiazepines
- Examples: amitryptiline, doxepin, desipramine

Treatment Of Psychologic Factors

- Referral to specialist
- Physical exercise
- Reassurance

Remission

Spontaneous remission

- 1/2 to 2/3rd cases
- 6 to 7 years

Conclusions

- Show concern
- Build good rapport
- Support, do not dismiss
- Refer – when in doubt
- Medication – start with OTC