



**MACMURRAY CENTRE**

# HICCUPS AND OTHER MISCELLANY

(or hiccups, bad breath and sore **mouths**)

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# Hiccups

- Singultus=the act of catching one's breath whilst sobbing
- Brief episodes common
- Bout= episode lasting more than a few minutes
- Persistent/protracted- >48 hours
- Intractable - >1 month
- Serve no purpose
- Often only one hemi diaphragm (left in 80%)
- Can occur at any age and in utero
- Females=males but intractable male (82%)

# Hiccups

- Transient burst of intense inspiratory activity
  - Excitation of diaphragm and intercostals with reciprocal inhibition of expiratory muscles
  - Inspiration is abruptly halted, in the presence of continued powerful inspiratory muscle contraction by glottal closure
  - 4-60x per minute- frequency relatively constant for given individual

# Hiccups

- Reflex
  - Afferent- phrenic nerve, vagus nerve, T6 to T12 sympathetic chain
  - Hiccup centre- non specific location C3 to C5
  - Connections to respiratory centre, phrenic nerve nuclei, MRF, hypothalamus
  - Efferents
    - Phrenic (C3-5)
    - Anterior scalene muscles (C5-7)
    - External intercostals (T1-11)
    - Glottis (recurrent laryngeal component of vagus)
    - Inhibitory autonomic processes
    - Decreased oesophageal contraction tone and LOS tone

# Hiccup

- Self limiting bouts usually caused by
  - Gastric distension
  - Emotion
  - Alcohol ingestion
  - Sudden change in temperature
  - Idiopathic

# Hiccup

- Intractable:
  - Supraspinal lesions
    - Medullary lesion- infarct, haematoma, tumour, abscess, syrinx, demyelination
    - CNS infections- meningitis, viral encephalitis, syphilis
  - Phrenic or vagus irritation
    - Afferent- oesophageal obstruction, achalasia, reflux, gastric distension, SBO, pancreatic/biliary disease, foreign body in external auditory meatus
    - Thoracic path- mediastinal lesions, pleural or pericardial effusions, MI, diaphragmatic irritation

# Hiccup

– “Metabolic”

- Uraemia
- Hyponatraemia
- Hypocalcaemia
- Addison’s disease
- GA
- Drugs- alcohol, steroids, methyl dopa

– Idiopathic

– ??psychogenic

**Table 3.2: Approach to intractable hiccups**

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**History:**

- Neurological enquiry (headache; brainstem symptoms such as vertigo, ataxia, diplopia, hoarseness, dysphagia, pain/temperature sensory loss)
- Cardiorespiratory (chest pain, cough, fever, dyspnoea)
- Gastrointestinal symptoms (heartburn, regurgitation, vomiting, chest pain, dysphagia, abdominal pain)
- Known metabolic diseases (renal, diabetes, calcium)
- Drugs (methyl dopa, barbiturates, alcohol, steroids)

**Physical examination:**

- Cranial nerve and cerebellar function, long tract signs, pain/temperature sensation
- Cognitive function
- Fever
- Cardiorespiratory signs of pleural or pericardial disease; postural hypotension
- Aural examination for foreign body
- Abdominal examination (gastric splash, signs of bowel obstruction, hepatomegaly).

**Investigations (priority & extent dictated by above findings):**

- Metabolic screen (urea, creatinine, electrolytes, calcium, glucose, liver function tests; synacthen stimulation test if Addison's disease suspected)
- Blood leucocyte count
- Chest X-ray
- Electrocardiograph
- CT thorax (if suspect a mediastinal lesion)
- CT abdomen (if suspect liver or subdiaphragmatic lesion)
- Gastroscopy (if suspect oesophageal or gastric pathology)
- Oesophageal motility studies

# Hiccup

## ***Treatment:***

Can be difficult  
Numerous "home remedies" over the centuries including

So how can you cure a hiccup? While a doctor might claim that all hiccup "cures" are really just old wives tales that have zero effect, other people claim that their favorite pet cure works every time. This is most likely due to a placebo effect and resignation to the universal yet underrated condition problem hiccups (singultus). Interestingly, some of these folk remedies are on the correct path by having at least some basis in the science of the hiccup and singultus. With home remedies, the methods that attempt to relax or stimulate the diaphragm tend to be the most effective. Whether the chosen "remedy" is a miracle cure or placebo effect is for you to decide. Here are some proposed methods that some people believe work. Your results may vary.

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# Hiccup

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# Hiccup

- No established guidelines
- Suggested sequential approach
  - Identification and treatment of cause (if possible)
  - Vagal afferent stimulation
    - Pressure in both auditory canals
    - NG tube, coarse grained sugar
  - Parasympathetic stimulation (rectal massage)
  - Pharmacotherapy
    - Chlorpromazine 20-50mg IV ?add metoclopramide
    - Baclofen 5-15mg tds orally, ?add nifedipine 5-10mg tds
  - Phrenic nerve modulation

# Hiccup

**Table 3.3: Treatment of intractable hiccup**

## **1. Physical modalities**

### *Modification of vagal afferent stimulation:*

- External auditory canal pressure
- Pharyngeal stimulation by nasogastric tube

### *Modification of phrenic efferent traffic:*

- Transcutaneous electrical stimulation of cervical phrenic nerve
- Phrenic nerve crush

## **2. Pharmacological modalities**

- Baclofen
- Chlorpromazine
- Haloperidol
- Metoclopramide

### *Miscellaneous:*

- H<sub>2</sub>-receptor antagonists
- Anticholinergics
- Dopamine agonists (eg amantadine)
- Apomorphine (dopamine antagonist)
- Cisapride
- Nifedipine
- Clonazepam
- Amitriptyline
- Anti-convulsants

# Hiccups

- Charles Osborne- hiccups for 68 years
- 2007- Florida teenager Jennifer Mee 5 weeks
- Briton Christopher Sands –almost 3 years, removal of tumour

# Halitosis

- Noticeably unpleasant odours exhaled
- Can be common in healthy individuals after sleep or consumption of certain foods
- Odour in oral cavity varies throughout the day as a function of
  - Age, gender, hunger state, ?menstruation
- Hydrolysis of sulphur containing proteins and peptides by gram negative bacteria in mouth
- Hydrogen sulphide, methyl mercaptan

# Halitosis

- Odour affected by
  - Oral flora
  - Salivary flow
  - pH
  - Oral musculature
  - Presence of appropriate substrates
- Conditions for putrid odours include
  - Low oxygen concentrations
  - Shift from gram positive to negative bacteria
  - Reduced carbohydrates
  - Alkaline pH
  - Reduced salivary flow

# Halitosis

- Taste and olfaction subject to adaptation
- Chemical senses can be affected by
  - Normal ageing
  - Poor oral hygiene
  - Xerostomia
  - Craniofacial abnormalities
  - Psychiatric disorders
  - Neoplasm

**Table 3.6: Causes of halitosis**

**Oral and dental**

- Poor oral hygiene/failure to clean dentures
- Dental decay
- Periodontal disease
- Gingivitis
- Oral ulceration (aphthous, infective, traumatic)
- Oral candidiasis
- Xerostomia (dry mouth)
- Oral neoplasm

**Nasal and nasopharynx**

- Neoplasm
- Rhinitis (atrophic, rhinitis medicamentosa)
- Tonsillitis
- Nasal foreign body
- Sinusitis

**Laryngo-pharyngeal**

- Pharyngeal pouch
- Neoplasm

**Oesophagogastric**

- Achalasia
- Oesophageal/gastric cancer

**Respiratory**

- Bronchiectasis
- Bronchitis
- Tuberculosis
- Lung abscess
- Necrotic neoplasm

**Systemic and metabolic**

- Starvation
- Uraemia
- Hepatic failure
- Diabetic ketoacidosis
- Inborn errors of metabolism (aminoacidurias eg trimethylaminuria)
- Drugs (eg alcohol, nitrates, chloral hydrate, iodine-containing drugs)

**Psychogenic**

- Delusional halitosis
- Hallucinatory feature of schizophrenia or temporal lobe epilepsy

**Idiopathic**

# Halitosis

- Approach to patient
  - Establish presence
    - NB can be intermittent
  - Mouth versus nose
- Rarely caused by GI tract
- Portable sulphide monitor (halimeter)
- Gas chromatography

# Halitosis

**Table 3.7: Approach to the patient with halitosis**

**History:**

- Onset, constant or intermittent, relationship to time of day, diet
- Dental history: oral habits/hygiene,
- Symptoms: dysphagia, regurgitation or coughing; symptoms of systemic disease
- Associated taste disorders that might suggest a central cause (7th, 9th , 10th cranial nerves, medulla, pons, thalamus, cortical taste centres)
- Drugs: corticosteroids; drugs causing xerostomia or halitosis

**Examination:**

- Confirm presence of halitosis. (If neither detectable nor supported by close contacts, suspect disordered chemoreception<sup>1</sup> or psychogenic)
- Odour predominantly during oral expiration = oral disease in majority (oropharyngeal, or oesophagogastric):
  - Oral/dental inspection, oral candidiasis
  - Upper gastrointestinal evaluation (barium swallow, endoscopy)
- Odour predominantly during nasal expiration = respiratory tract disease
  - Otorhinolaryngological evaluation (nasopharynx, nose, sinuses)
  - Chest X-ray, sputum examination, bronchoscopy
- Expired air equally offensive via nose and mouth = metabolic disorder
  - Blood sugar, electrolytes, urea, creatinine, liver function tests

<sup>1</sup>Test olfactory function (eg soaps, wintergreen, cloves).

# Halitosis

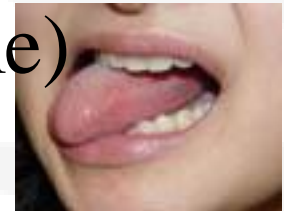
- Treatment
  - Dental and gingival causes dominate – dental referral
  - Oral care (NB use non alcohol based fluoridated washes)
  - Dietary changes
  - Treat xerostomia (incl chewing gum)

# Halitosis

- Further information
  - ISBOR- International Society for Breath Odour Research
  - 2007 Chicago
  - 2009 Dortmund
  - 2011 Bahia
  - 2013 yet to be announced

# Mouth sores and sore mouth

- Wide variation in terms used to describe oral sensations
- Glossodynia, glossopyrosis, stomatodynia, oral dysaesthesia
- Can be due to objective mucosal inflammation or ulceration
- Can be variable , without evidence of pathology (burning mouth syndrome)



# Mouth sores and sore mouth

- Oral ulceration


- Aphthous ulceration

- Multiple small painful punched out ulcers
- Can affect lips, buccal mucosa and tongue
- Can be large
- Little controlled trial evidence for topical treatment nonetheless topical steroid preparations often used with apparent effect

If recurrent, think of IBD, coeliac disease



# Mouth sores and sore mouth

- Herpes simplex
  - Primarily hard palate, gingival and alveolar ridges
- Other causes
  - Poorly fitting dentures
  - Pemphigus and pemphigoid
  - Behcets 
  - Vincent's angina
  - Neoplasia
  - Acute leukaemia
  - Drugs- aspirin, barbiturates, gold, chemotherapy, gold, phenytoin





# Mouth sores and sore mouth

- Burning mouth syndrome
  - Prolonged and unexplained pain or burning inside oral cavity
  - Other symptoms
    - Dryness
    - Paraesthesia
    - Altered sense of taste

# Mouth sores and sore mouth

- Aetiology
  - Ill fitting dentures
  - Deficiency states
    - Folate, B2, B6, B12
  - Diabetes
  - Xerostomia
    - Drugs, Sjogrens, anaemia, DM, mechanical blockage, HIV, malignancy, irradiation
  - Neurogenic
    - Trauma to lingual nerve, glossopharyngeal neuralgia
  - Idiopathic
  - Little evidence that GO reflux involved
  - vascular insufficiency

# Mouth sores and sore mouth

**Table 3.5: Approach to the patient with sore mouth**

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**History**

- Psychological factors, stress
- Symptoms of systemic disease

**Examination**

- Mouth, tongue, teeth
- Full examination for signs of endocrine, neurological or haema
- Otolaryngological assessment

**Investigations**

*Haematology:*

- Blood count
- Serum iron, vitamin B12, folate
- Blood glucose
- Thyroid function tests
- Serum zinc
- Erythrocyte glutathione reductase activity (riboflavine status)<sup>1</sup>
- Erythrocyte aminotransferase activity (pyridoxine status)<sup>1</sup>

*Bacteriology:*

- Swabs from tongue for microscopy and culture

*Radiology:*

- Orthopantomogram (for dental pathology)

*Dental opinion*

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<sup>1</sup>Not widely available.

# Mouth sores and sore mouth

- Treatment
  - Poor prognosis
  - Cochrane review 2004
    - Alpha lipoic acid
    - Clonazepam
    - CBT
  - ??gabapentin and other drugs used for neuropathic pain

# Hiccups and other miscellany

- THE END

# Hiccup

## 1. Supraspinal lesions

### *Medullary lesions:*

- Infarction (eg posterior inferior cerebellar artery occlusion)
- Haematoma
- Tumour
- Haemangioma
- Demyelination
- Abscess
- Syrxinx

### *Central nervous system infections:*

- Viral encephalitis
- Meningitis
- HIV encephalopathy
- Encephalitis lethargica
- Syphilis

## 2. Phrenic or vagus nerve irritation

### *Visceral vagal afferent stimulation:*

- Oesophageal obstruction (tumour, stricture, ring, pill-induced)
- Achalasia
- Gastroesophageal reflux
- Gastric distension
- Small bowel obstruction
- Pancreatic/biliary disease
- Foreign body in external auditory meatus (auricular branch of the vagus)

### *Irritation of thoracic path of phrenic or vagal nerves:*

- Mediastinal lesions (tumour, aortic aneurism)
- Pleural/pericardial effusion
- Pneumonia
- Myocardial infarction
- Diaphragmatic irritation (tumour, subphrenic and hepatic lesions)

## 3. Metabolic

- Uraemia
- Hyponatraemia
- Hypocalcaemia
- Addison's disease
- General anaesthesia
- Drugs (alcohol, short-acting barbiturates, methyl dopa, steroids)

## 4. Idiopathic

## 5. Psychogenic?