Fisiopatologia dell’emicrania

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What Type of Headache do I have?
Fig. (1). Ancient methods attempting to alleviate or cure headache: Egyptian papyrus (2500 BC) which describes bandaging a clay crocodile (with herbs stuffed into its mouth) to the head of the sufferer and praying.

Migraine: Pathophysiology, Pharmacology, Treatment and Future Trends
Carlos M. Villalén*, David Centurión, Luis Felipe Valdivia, Peter de Vries¹ and Pranod R. Saxena¹

Current Vascular Pharmacology, 2003, Vol. 1, No. 1

The Angel of Migraines
The Headache Dilemma...

Migraine

Tension

Sinus

Treatment
Headache in the Population

- 99% of women and 93% of men have had headache during their lifetime
- 25% of women and 8% of men in the United States have had migraine headache
- 18% of women and 6% of men have had migraine over the previous year
- Prevalence is highest between age 25 – 55 years
- An estimated 30 million have migraine and up to 10 million have chronic daily headache (> 15 headache days per month) in the U.S.
Headache History

- **Headache attacks**
  - How it begins
    - Precipitating event, illness, injury

- **Headache attack descriptions**
  - Frequency and patterns
    - Any significant changes
  - Location
  - Time to peak intensity
  - Duration
  - Quality and intensity
  - Warning symptoms and aura
  - Associated symptoms and level of disability
  - Triggers and aggravating or relieving factors
Migraine Aura

- Positive Neurological Symptoms
  - *Reversible* brain/neurological symptoms
    - Visual flashes, spots, or zig-zag lines
    - Traveling tingling sensations
  - *Gradual development* over >4 minutes
  - Resolves within 1 hour

- Negative Neurological Symptoms
  - *Reversible* brain/neurological symptoms
    - Visual blind spots
    - Numbness
    - Speech or word finding problems
    - Trouble thinking
  - Resolves within 1 hour
“Even My Hair Hurts”
(alldodynia)

- Cutaneous allodynia
  - “Hair hurts”
  - Painful when:
    - Shaving
    - Combing hair
    - Touching scalp
    - Resting head on pillow
    - Pulling hair back (wearing a ponytail)
    - Wearing eyeglasses or contact lenses
    - Wearing hat or head band

- Other painful events
  - Water hitting head or face while showering
  - Breathing through nose especially cold air
  - Cooking over a hot stove
  - Rubbing the neck or shoulders
  - Hanging head down or bending over
Fig. (2). Diagram showing putative changes in migraine and the therapeutic targets of acutely acting antimigraine drugs. These drugs are believed to owe their antimigraine efficacy to direct vasoconstriction of dilated cranial blood vessels (1), inhibition of trigeminally-induced cranial vasodilatation (2), plasma protein extravasation (3) and/or central neuronal activity (4). Only lipophilic, brain penetrant triptans (not sumatriptan) exert central trigeminal inhibitory effects. For details see text. Modified from [18] 1999a Eur.J.Pharmacol. 375: 61-74. TNC, trigeminal nucleus caudalis.
From prodromes to headache: proposed hypothesis for the initiation of headache by the hypothalamus and brainstem.
Activation and sensitization of the trigeminovascular pathway provide anatomical and physiological substrates for migraine headache and its associated symptoms.
Functional (MRI\text{Funct}) and morphometric (MRI\text{Morph}) changes in the migraine brain.

Allucinazioni visive
Classification of positive spontaneous visual phenomena.

- Phosphenes
- Photopsias
- Kinetopsias
- Palinopsias
- Polyopsias
- Visual allesthesias
- Visual distortions
  - Macropsias
  - Micropsias
  - Pelopsias
  - Teleopsias
- Metamorphopsias
- Visual hallucinations and/or Charles Bonnet syndrome

Alice stretched tall, an example of metamorphopsias.
• Dendropsia

• Tassellopsia

• Ipercromatopsia
### Phenomenology

<table>
<thead>
<tr>
<th>Phenomenon</th>
<th>Out-of-body experience</th>
<th>Hæmatoscopy</th>
<th>Autoscopic Hallucination</th>
<th>Feeling of presence</th>
<th>Illusion</th>
</tr>
</thead>
</table>

### Vestibular disturbance

|                    | +++ | ++ | - | + | +++ |

### Disintegration in personal space

|                    | +++ | +++ | +++ | +++ | - |

### Disintegration between personal and extrapersonal space

|                    | +++ | ++ | - | + | +++ |

### Disorder

<table>
<thead>
<tr>
<th>Disorder</th>
<th>Embodiment body ownership</th>
<th>Embodiment body ownership</th>
<th>Body ownership</th>
</tr>
</thead>
</table>

### Brain Mechanism

- [Diagram of brain mechanisms]
Autoscopic phenomena: case report and review of literature

Francesca Anzellotti¹*, Valeria Onofri², Valerio Maruotti¹, Leopoldo Ricciardi³, Raffaella Franciotti¹, Laura Bonanni¹, Astrid Thomas¹, Marco Onofri¹

**Figure 1** Proton MR spectra from left and right temporo-parietal junction. The major metabolite peaks correspond to choline (Cho) at 3.22 ppm, creatines (Cr) at 3.02 ppm, N-acetylaspartate (NAA) at 2.02 ppm. Axial T2 weighted MR image showing the voxel position at temporo-parietal junctions used for proton MR spectroscopy. Note that the splenium of corpus callosum is normal.

**Figure 2** Interictal brain SPECT with 99mTc-ECD showed a cerebral hypometabolism in both right and left parietal and occipital lobes.

**Figure 3** Autoscopic seizures: A slow (0.4 Hz) right temporo-parietal activity. Patient reported an unclear change in the awareness of her body, a feeling of strangeness & abrupt discharge constituted by polyspikes and sharpwaves of 100–200 μV in amplitude and in inverse phase at 1.4 Hz. Patient reported a sudden appearance of her entire body exactly in front of her, in upright position. The double was at the same level of her real body: i.e. the real body was not felt separately to her double. Unlike in out-of-body experience, she reported a disorientation. After few seconds the discharge involved right fronto-temporal channels and then left parieto-occipital channel. The discharge lasted about 30 seconds. We noted an improvement of consciousness. B: the final ictal activity was constituted by right temporo-parietal spike and slow wave complexes (0.3–4 Hz). Patient reported again an unclear perception of her body, but the double had vanished. F: slow generalized interictal activity recorded by a previous EEG (0.5–5 Hz).
Visual Hallucinations Induced by Deep Brain Stimulation in Parkinson's Disease. Diedeich NJ, Alesch F, Goetz CG.
Allucinazioni visive: in Psichitria

- Post Traumatic Stress Disorder
- Psicosi maniacale
- Schizofrenia

MACDONALD CRITCHLEY Idea of presence

Fig. 4 Prosopometamorphopsia in a schizophrenic patient’s drawing of her visual hallucinations (Guttmann and Maclay, 1937).
Perché
Sindrome di Charles-Bonnet:
Spreading Depression
CLASSIFICAZIONE DELL’EMICRANIA
Criteri IHS 1988

1. Emicrania
   1.1. Emicrania senza aura
   1.2. Emicrania con aura
      1.2.1. Emicrania con aura tipica
      1.2.2. Emicrania con aura prolungata
         1.2.3. Emicrania emiplegica familiare
      1.2.4. Emicrania basilare
      1.2.5. Aura emicranica senza cefalea
      1.2.6. Emicrania con aura ad esordio acuto
   1.3. Emicrania oftalmoplegica
   1.4. Emicrania retinica
   1.5. Sindrome periodiche dell’infanzia possibili precursori dell’emicrania o che possono essere 
      associate all’emicrania
      1.5.1. Vertigine parossistica benigna dell’infanzia
      1.5.2. Emiplegia alternante dell’infanzia
   1.6. Complicanze dell’emicrania
      1.6.1. Stato emicranico
      1.6.2 Infarto emicranico
   1.7. Disordini emicranici che non soddisfano i precedenti criteri
Emicrania Classificazione ICHD-II, 2004

1. Emicrania
   1.1 Emicrania senza aura
   1.2 Emicrania con aura
      - 1.2.1 Aura tipica con cefalea emicranica
      - 1.2.2 Aura tipica con cefalea NON emicranica
      - 1.2.3 Aura tipica senza cefalea
      - 1.2.4 Emicrania emiplegica familiare
      - 1.2.5 Emicrania emiplegica sporadica
      - 1.2.6 Emicrania di tipo basilare
   1.3 Sindromi periodiche dell’infanzia *
      - 1.3.1 Vomito ciclico
      - 1.3.2 Emicrania addominale
      - 1.3.3 Vertigine parossistica benigna dell’infanzia
   1.4 Emicrania retinica
   1.5 Complicanze dell’emicrania
      - 1.5.1 Emicrania cronica
      - 1.5.2 Stato emicranico
      - 1.5.3 Aura prolungata senza infarto
      - 1.5.4 Infarto emicranico
      - 1.5.5 Crisi epilettica indotta da emicrania
   1.6 Emicrania probabile
      - 1.6.1 Probabile emicrania senza aura
      - 1.6.2 Probabile emicrania con aura
      - 1.6.3 Probabile emicrania cronica