Arq Neuropsiquiatr 2008;66(3-B):765-769

PERIPHERAL FACIAL PALSY IN THE PAST

Contributions from Avicenna, Nicolaus Friedreich and Charles Bell

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Abstract – This study provides historical documents of peripheral facial palsy from Egypt, Greece and Rome, through the middle ages, and the renaissance, and into the last four centuries. We believe that the history of peripheral facial palsy parallels history of the human race itself. Emphasis is made on contributions by Avicenna and Nicolaus Friedreich. Controversies about the original clinical description by Charles Bell are also discussed.

KEY WORDS: peripheral facial palsy, history.

Paralisia facial periférica nos velhos tempos: as contribuições de Avicenna, Nicolaus Friedreich e Charles Bell

Resumo – Este estudo apresenta documentos de paralisia facial periférica nas artes plásticas no Egito antigo, Grécia e Roma, Idade Média, Renascimento e também dos últimos 4 séculos. Pensamos que a história da paralisia facial periférica acompanha a história da própria espécie humana. São apresentadas as contribuições de Avicenna e Nicolaus Friedreich, e são mostradas controvérsias sobre a descrição original de Charles Bell.

PALAVRAS-CHAVE: paralisia facial periférica, história.

Charles Bell wrote ..."*the human being's facial expression fascinates me, because it serves the most basic and bestial pleasure and participates in the strongest and most gentle emotion of spirit*"[1]. With this he defined the philosophical importance of peripheral facial paralysis, which eliminates facial symmetry, one of the attributes of beauty, thus creating an antiesthetic effect that minimizes man's pleasure or increases his suffering. Peripheral facial paralysis has been represented in arts since ancient Egypt.

Our objective in this work is to present different artistic documents of this clinical condition throughout history.

METHOD

Issues of Index Medicus from 1950 to 2005 were consulted to collect and select scientific papers on the history of peripheral facial paralysis. The most relevant data mainly from artistic representations were selected, and presented in chronological order.

RESULTS

The results are presented in chronological order as: Ancient times (Fig 1); The Middle Ages (Fig 2); Pre-Columbian America (Fig 3), The Renaissance (Fig 4); Facial paralysis in different regions of the world (Fig 5 and 6); The last centuries (Fig 7).

DISCUSSION

As be seen, peripheral facial palsy was known to the Egyptians, Greeks, Romans, Incas and other native cultures in Pre-Columbian America. The Egyptian peripheral facial paralysis presented in the Figure 1A is probably one of the first documents in the history of neurology. Recent works have indicated that the "Mask of Agamemnon", a gold-face mask from approximately 1550-1500 B.C.[10] and the face on a clay head mask found in Smyrne[11] probably show evidence of peripheral facial palsy. Figure 1B and 1C illustrate that peripheral facial paralysis was well documented in the Hellenistic period.

Roman doctor Aulus Cornelius Celsius, called "Cicero Medicorum", gave a summarized description of peripheral facial paralysis[12]. Incas in pre-Columbian America have supplied us with several artistic representations of pe-

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Received 8 April 2008, received in final form 9 June 2008. Accepted 1 July 2008.

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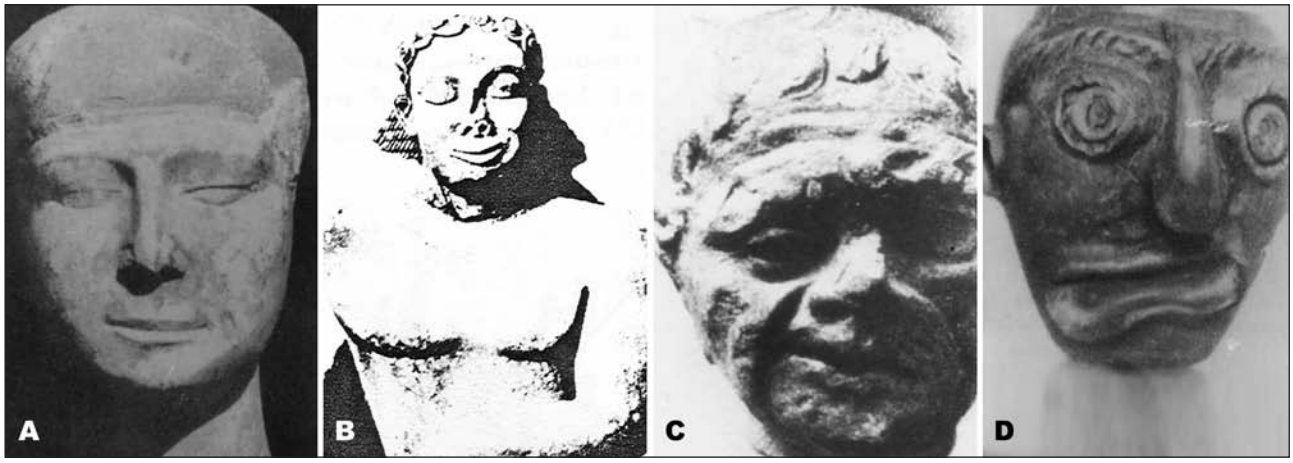

Fig 1. (A) Clay head from upper Egypt, modeled approximately 4,000 years ago,showing right facial paralysis[2]. It is one of the oldest documents in the history of neurology. (B) Chrysaor, the son of Gorgo, with right facial paralysis, Temple of Artemis on the Island of Corfu, from VI to Vth century B.C. (photography taken by the Doctor of the King Wilhelm II, when traveling to Corfu and visiting the Temple of Artemis)[2]. Fig A and B are among the oldest documents of the history of neurology. (C) Marble sculpture found in a tomb from Ancient Greece, probably indicating the disease of the pearson buried there. Left facial paralysis is well represented[3]. (D) Roman vase found in a tomb from Ancient Greece[2].

*Fig 2. (A) Frontispiece from the 1593 Roman edition of the Avicenna Canon. **Avicenna (Abu-Ali-Al Husayn ibn Abdalla ibn Sina, 979-1037 A.D.)** studied the etiology, treatment and prognosis of peripheral facial paralysis, which he distinguished from central facial paralysis[4]. (B) Written in Arabic, differential diagnosis between central and peripheral facial paralysis. (C) Grimaces from Ancient Switzerland with facial paralysis[3].*

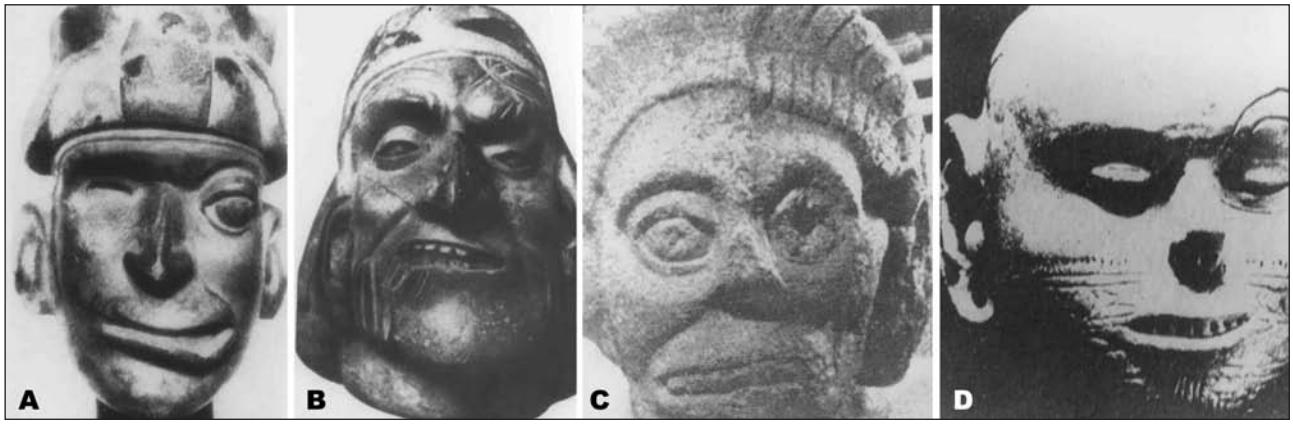

Fig 3. (A) Peruvian jar from the "Chimu" period[3]. (B) Clay head from the "Mochica" period[3]. (C and D) Sculptures from Pre-Columbian America found in Arkansas [5]. In A, B C and D facial paralysis is well represented.

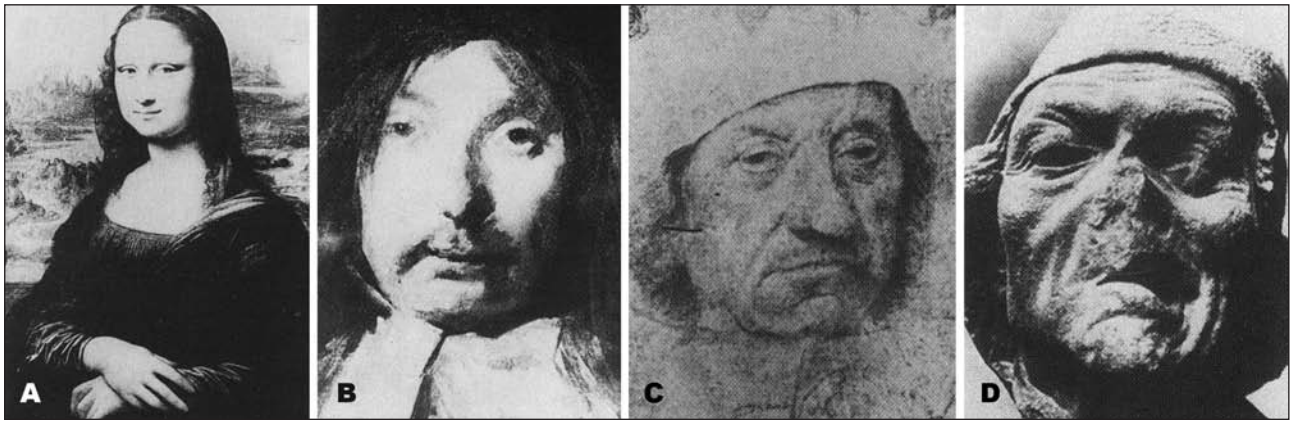

Fig 4. (A) "Mona Lisa" by Leonardo da Vinci. At a meeting of the facial nerve in Zurich, Adour and Jongkees concluded that the "Gioconda" had right peripheral facial paralysis (Adour and Jongkees personal communication, 1987). This is published elsewhere[6,7]. (B) "The Laughing Knight", an anonymous character by Frans Hals, with probable left peripheral facial paralysis[8]. (C) Painting by Hans Holbein the Younger, with left facial paralysis[9]. (D) Sculpture by Lucas van Leyden showing probable parotitis and right peripheral facial paralysis[3,8].

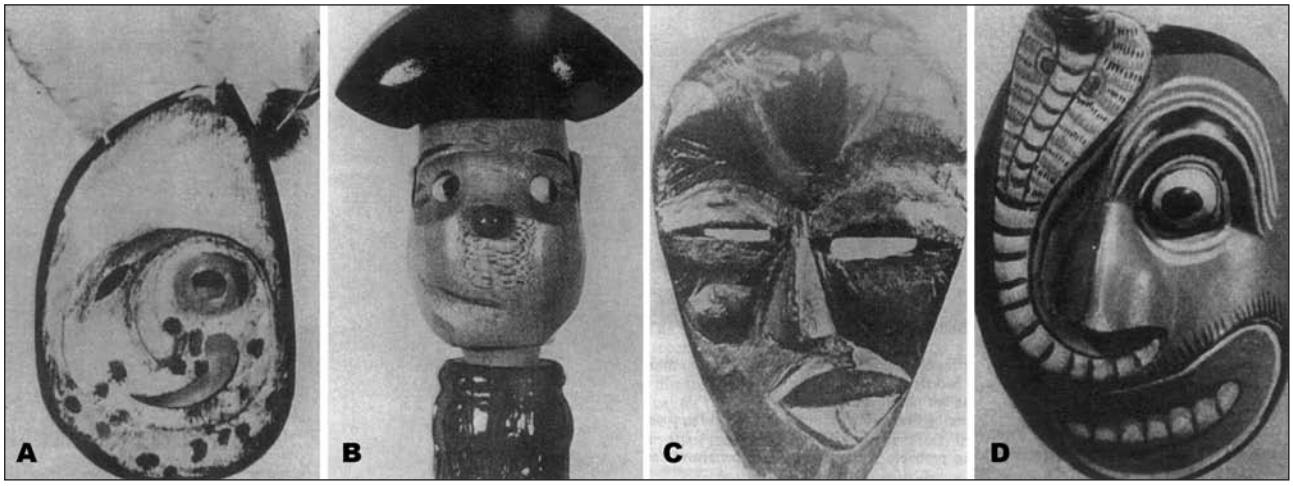

Fig 5. (A) Eskimo dance mask from Alaska[9]. (B) Napoleonic style carved bottle stopper from southern France[9]. (C) Wood mask from Liberia[9]. (D) Mask from Ceylon representing the "God of Deafness", with a snake coming out of the nose[3]. Peripheral facial paralysis is well represented in all four images.

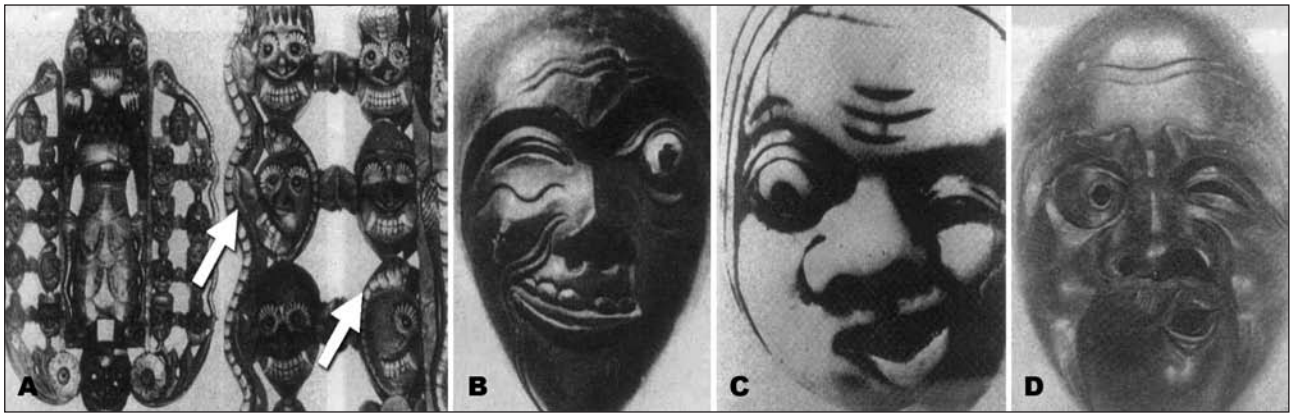

Fig 6. (A) The God of Sickness "Naha-Kola-Sanaya" from Ceylon. The "God of Sickness" is accompanied by 18 devils, two of them with facial paralysis (arrows)[3]. (B) Mask from Java, with left facial paralysis[3]. (C) Japanese ivory mask from the 17th Century[5]. (D) Japanese mask carved in wood from the 19th Century[5].

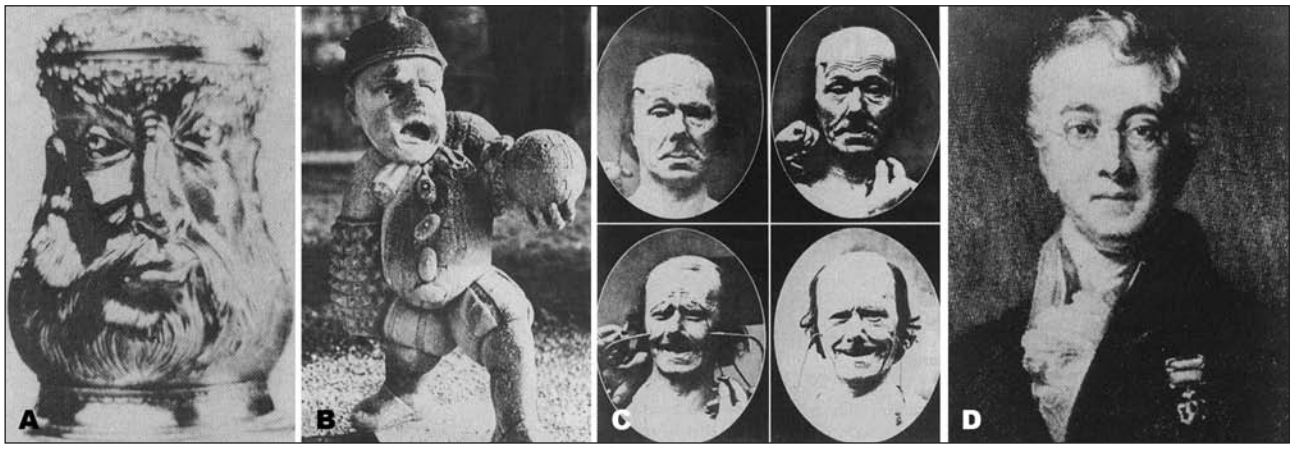

Fig 7. (A) 17th Century: "Jar of Barbed Man", presented at the baroque art exhibition in Augsburg[2]. (B) 18th Century: "Facial Gnome" from the "Dwarf Garden" of the Mirabell Palace, Salzburg (Austria). The sculptor Bernard Mandl by order of Count Harrach[9]. (C) 19th Century photographs taken by Duchenne. The bald and apprehensive patient is suffering[8]. In A, B and C facial paralysis is presented. (D) Charles Bell, First Professor of Anatomy and Surgery at the Royal College of Surgeons, London. He himself had right peripheral facial paralysis[8].

ripheral facial palsy[5]. Artistic representation of peripheral facial palsy has become more extensive since the Renaissance. Dutch painters portrayed people with peripheral facial paralysis during and after this period[5]. Old African masks could have be made for "moral education", to teach the young not to laugh at human deformity[13].

The first medical study of the disease is attributed to Avicenna (Abu-Ali al Husayn ibn Abdalla Ibn Sina, 979-1037 A.D.). He was the first to record differences between central and peripheral facial paralysis: ... *"If the disease that produces paralysis comes from the middle of the brain, half of the body is paralyzed. If the disease is not in the brain but in the nerve, only that depending on this nerve is paralyzed"*[4]. Avicenna counted among the causes of peripheral facial paralysis, compression due to injury, tumor, or nerve sectioning. For treatment, he prescribed medicinal plants for topical application, all of them having a vasodilator effect. In some cases he recommended cauterization behind the ear in the region of the stylomastoid foramen, a procedure that also has a vasodilator effect. He also prescribed face and neck massage. He emphasized that *"If sectioning of the nerve occurs, the only alternative is stump-to-stump suture"*[4,8]. As to prognosis, he stated that *"no recovery should be expected from any facial paralysis that lasts more than six months"*[4]. We can consider that Avicenna had very advanced knowledge on peripheral facial palsy for his time (979–1037 A.D.).

In 1798, Nicolaus A. Friedreich of Würzburg, grandfather of Nicolaus Friedreich of Heildelberg who described the ataxia as having been named after him, published a detailed study on the onset, clinical picture, evolution and treatment of peripheral facial paralysis in three patients[14]. Exposure to cold drafts had occurred in all three cases before paralysis onset. Thus Friedreich postulated that paralysis may occur when local causes act on the facial nerve[14]. He published his study in Germany in 1798 as ...*"De paralysis musculorum faciei rheumatica".* An English review of his paper was published in the journal *Annals of Medicine* in 1800 in Edinburgh, where Charles Bell was a medical student at the time. According to Bird (1979), it is possible that Charles Bell may have read this paper[14]. His first case of peripheral facial palsy was published in 1821, and his most important paper was published in 1828[14]. However Charles Bell made other contributions to the history of neurology and anatomy. He recognized the differences between the anterior and posterior division of the spinal nerves; he identified the thoracic long nerve; singled out the VIIth cranial nerve, separating it from Vth and VIIIth, described the Bell sign and was the first to described hyperacousis and dysgeusia as symptoms of peripheral facial paralysis after self observation and observations by Professor Roux from Paris[8,14]. In conclusion, we think that the pioneers in the medical study of peripheral facial paralysis were: Avicenna, Nicolaus Friedreich and Charles Bell.

ACKNOWLEDGEMENTS – Figures in this work were kindly provided by Kugler & Ghedini, Kugler publications, P.O. box 20538, 1001 NM Amstelveen, The Netherlands and by George-Thieme Verlag, Sutt-gart, Germany.

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