

Avaliação funcional da mímica na paralisia facial central por acidente cerebrovascular*****

Mime functional evaluation in facial paralysis following a stroke

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Abstract

Background: functional evaluation of the facial movements in patients with facial paralysis following a stroke. **Aim:** to evaluate the function of the facial muscles of patients after central facial paralysis following a stroke. **Method:** nine patients referred by the Neurology Service were evaluated. The evaluation focused on spontaneous, voluntary and reflex movements. **Results:** reflex and voluntary movement of the eyelid and forehead were preserved in all patients. However, spontaneous and voluntary movements of the lips and nose were limited according to the location and extension of lesion. **Conclusion:** the symptoms of central facial paralysis, in which paralysis only of voluntary movements of the lower two-thirds of the face is expected, occurred in the minority of the patients.

Key Words: Facial Paralysis; Cerebrovascular Accidente; Reflex; Facial Expression.

Resumo

Tema: avaliação funcional da mímica facial de pacientes com paralisia facial central por acidente cerebrovascular. **Objetivo:** avaliar os aspectos funcionais da musculatura facial em pacientes com paralisia facial central após acidente cerebrovascular. **Método:** foram avaliados nove pacientes do Serviço de Neurologia. A avaliação enfocou movimentos espontâneos, reflexos e voluntários. **Resultados:** todos os pacientes apresentaram movimentação voluntária e involuntária das pálpebras e testa, mas a movimentação dos lábios e de nariz estava prejudicada em ambos os movimentos, dependendo da localização e extensão da lesão. **Conclusão:** a sintomatologia da paralisia facial central, na qual se espera a paralisia da movimentação da parte inferior somente para os movimentos voluntários, ocorre na minoria dos pacientes.

Palavras-Chave: Paralisia Facial; Acidente Cerebrovascular; Reflexo; Expressão Facial.



Introduction

The facial paralysis is an impact situation, in which the person loses the possibility of non-verbal communication, that is, of the information given to the interlocutor that only the orally expressed words are not able to transmit. Socially, the esthetic relevance must also be considered, and those presenting an important alteration of this aspect may have an injured social life. Lazarini et al. (2002) stated that the privation of facial movements dramatically limits the human being integration with others and with the environment. VanSwearingen et al. (1999) performed a study with individuals with facial neuromuscular disorders affecting the ability of smiling, and verified that this impairment predisposed them for depression. Therefore, the comprehension of the facial paralysis origin and its recovering help to reestablish the psychic balance and the reintegration of the individual in his social environment.

Facing this new situation, the individual may be considered as incapable to perform activities that he could manage previously, and that have no direct relation to the facial paralysis. Excepting the jobs that depend almost exclusively on the esthetics, such as photographic models or television journalists, the majority of professional occupations can be performed normally in case of an isolated facial paralysis.

The facial nerve is the nerve with the largest diameter passing inside a bone conduct and is the one that more often suffers paralysis (Esborrat, 2000). It arises in the facial nucleus located in the pons, emerging from the lateral part of the bulbopontine sulcus. Afterwards, it penetrates the temporal bone through the internal acoustic meatus, emerge from the brain through the stylomastoid foramen; passes by the parotid gland and is distributed to the mimic muscles through ramifications (Machado, 1993). The intrapetrous course ran by the facial nerve is of approximately 35 mm and the diameter occupied by it is 50 to 70% of the bone canal (Bento et al., 1998).

Kobayashi et al. (2003) performed an experimental study on the facial nerve aiming at determining the essential percentage of neurons requested for the facial functionality. The facial nerve of rats were submitted to different lesions degrees and after the facial function evaluation, the number of preserved neurons was estimated. The results revealed that: around 56% of intact neurons, the facial function is preserved; below 47% of intact fibers, there is an incomplete paralysis;

and if the number of fibers is lower than 32%, the facial paralysis is complete, compared to the estimated number of the control group.

In ancient history, the known representations of head and neck disorders that rudimentarily describe a disease of the ancient people are rare. The Archeological Museum Rafael Larco Herrera and the National Museum of Archeology, Anthropology and Peruvian History present photography of the most important examples of facial paralysis of the Moche ceramic collection (culture present in the northeast cost of Peru during the first century of our age). The Moche people must be known as having established a reference point in the facial paralysis history, an ignored disease by the occident artists until the Bell's work and illustrations (Canalis & Cino, 2003).

Several criteria can be adopted for the facial paralysis classification and one of them is based on the site of the lesion, which allows not only a correct diagnosis, but also to establish a better prognostic and treatment. The facial paralysis may be divided in two great groups: central facial paralysis (CFP) or supranuclear, and peripheral facial paralysis (PFP) or infranuclear. The supranuclear paralysis consists in the lesion of frontal cortex pyramidal motor neurons (responsible for the voluntary movements) that arise in the facial motor nucleus ipsi (upper part of the face) and contralaterally (upper and lower parts) (Lazarini et al., 2002). In this situation, the involuntary or emotional movements may be preserved. Usually the CFP are a consequence of vascular, tumor lesions, degenerative or inflammatory processes and are frequently accompanied by other neurological manifestations, such as hemiplegy and disartry (Bento et al., 1998; Esborrat, 2000; Testa & Antunes, 2000). The nuclear paralysis present similar etiologies to the supranuclear ones, although the lesion site is different affecting the facial motor nucleus (the lower 1/3 of the protuberance). The symptoms also differ; all muscles of the same side of the lesion hemiface are paralyzed for voluntary and involuntary movements (reflex and emotional). Because of the proximity between the facial motor nucleus and the VI cranial nerve motor nucleus (abducent), the associated affection of this cranial nerve is frequent (Esborrat, 2000). The infranuclear paralysis are those in which the lesion site is below the facial motor nucleus and they are manifested by complete facial paralysis (Lazarini et al., 2002; Valls-Solé & Montero, 2003).

There are studies that describe the different aspects of peripheral facial paralysis in the literature, presenting large samples (Valença et al., 2001; Peitersen, 2002). Furthermore, the Symposium on the facial nerve occurs every four years, and an average of 300 researches of different aspects of the facial nerve, such as anatomy, histology, physiology, pathology, immunology, diagnostic procedures, lesion topography and treatment are presented (Stennert, 1994; May, 2000). Nevertheless, concerning the central facial paralysis, there is a few number of published studies, as well as smaller samples.

Some researches (Marzo et al., 2002; Tuerlinckx et al., 2003; Özer et al., 2003; Koerbel et al., 2003; Selesnick & Burt, 2003) described the presence of peripheral facial paralysis associated to neurological causes with the central nervous system involvement and that shouldn't be confused with the central facial paralysis.

In 1992, Hopf et al. described the emotional central facial paralysis as being the loss of strength when facial movements are evoked spontaneously, like in a smile activated voluntarily. They reported 11 cases of patients with CFP, 7 belonging to the emotional facial paralysis group and 4 to the voluntary facial paralysis group. The lesion site in the emotional facial paralysis varied, involving the white substance of the frontal lobe, the striatum-capsular region, the anterolateral thalamus and insula, the posterior thalamus and opercula, the temporal-medial lobe and insula, and the posterior thalamus. The lesion site of the patients with voluntary control disorder involved the motor cortex of the hemisphere areas involving the pyramidal tract fibers.

Töpper et al. (1995) reported a case of a patient with sudden central paresis of left leg and arm. He presented facial paresis with partial function of the upper portion of the face, and symmetric involuntary smile and asymmetric voluntary smile. The computerized tomography did not evidence brain stem lesion, but the resonance, performed 14 days after, showed an extensive lesion above the pons on the right.

In 1996, Trepel et al. reported a case of a patient that was assisted three days after a progressive installation of neurological symptoms of instability, disartry and muscle weakness of the right side of the body and face. The neurological exam showed right CFP with an asymmetric smile under request, and symmetric voluntary smile. The magnetic nuclear resonance showed the affected area corresponding to the anteromedial and anterolateral

pontine arteries, that are ramifications of the basilar artery. The lesion site is compatible with an affection of the corticonuclear and corticospinal tracts, pontine nucleus and pontocerebellar fibers, as well as the medial lemniscus in the medial level of the pons.

Urban et al (1998) described a case of a patient with isolated voluntary left supranuclear facial paralysis, by a lacunar lesion of the mediodorsal portion of the right pons. The involuntary smile was symmetrical and the voluntary one, asymmetrical. In the trans-cranial magnetic stimulation, the detected activity of the left side of the buccinator muscle was delayed and the amplitude was reduced. The peripheral evoked response of the facial nerve was normal for both sides.

In 2000, Hopf et al. reported a case of a patient who presented symmetrical voluntary smile and asymmetrical involuntary smile; ataxic march symptoms and disartry; and transitory vertigo, nausea and horizontal diplopia. In the exam, it was detected Central Horner Syndrome, facial sweating reduction, hemiataxia, right moderate tremor, facial paresy only for the emotional enervation, and altered pain and heat sensations of the left side. The magnetic resonance evidenced infarct of the upper cerebellar area, including the dorsolateral right segment of the pons.

Lazarini et al. (2002) presented a case of a patient with peripheral facial paralysis affecting all the right hemiface and with complaint of slow progressive loss of muscular strength of this side of the face, already noticed nine months before the appointment. There were no eliciting phenomenon, neurological background or anterior similar disease. The nuclear magnetic resonance evidenced expansive lesion of the brain stem, explaining the progressive character of the disease. However, it was discrepant with the neurological exam, restrict only to the facial movements deficit.

In 2003, Ghacibeh & Heilman presented a clinical study of a patient with speech alteration and depression progressive backgrounds. The exams evidenced predominant right atrophy of the frontal cortex that could be a result of a frontotemporal dementia. In this case, it was observed prosody and emotional facial expression ability loss with the preservation of the involuntary labial retraction draft movement.

Gómez-Gosálvez et al. (2003) reported a case of a three year-old boy who presented disartry, facial paralysis and right hemiparesis, and no other neurological symptoms associated. This case was

a result of a left ischemic cerebral vascular disease post-varicella, rare in the pediatric age. The clinical neurological exam was normalized in the fifth week of evolution.

De Bruecker et al. (2003) presented a case of a patient with central facial paralysis, hemiparesis, hemianopsia and the XII cranial nerve left paresy due to an intravascular lymphomatosis. The exams showed a lesion in the grey substance of both sides of the lentiform nucleus and in the right upper part of the caudate nucleus, in the frontoparietal cortex and anterior to the right frontal cortex.

Aiming at knowing the best course ran by the cortico-facial fibers in the brain stem, Urban et al. (2001) performed a study with 53 subjects, 28 with CFP due to focal ischemic lesion in different levels of the brain stem, and 25 with normal facial movements. They concluded that, in the majority of the patients these fibers have their pathway inside the ventromedial base of the pons and cross the medial line in the level of the facial nucleus.

All the studies reported above show the manifestations diversity that patients with CFP may present. The functional evaluation is little described and the presence or absence of some isolated movements is emphasized. For the adequate speech intervention, the knowledge of all segments involved in the facial region is necessary.

Bernardes et al. (2004) refer that the contribution of the myofunctional work has been pointed, in any phase of the disease, as an improvement source of the final functional result independently of the lesion's cause or degree.

Guedes (1994), Goffi-Gomez et al. (1999), Goffi-Gomez et al. (2000), Fouquet (2000) and Altmann (2002) emphasized the importance of the speech therapist participation in the multidisciplinary staff that assists the patient with PFP. This is due to the fact that this Professional participation is directly linked to the functional stimulation of the affected face, reducing the sequela provoked by the paralysis.

Therefore, this study aimed at characterizing the CFP of patients following a stroke and at discussing the difference between the CFP and the PFP.

Method

This study was approved by the Research Ethics Committee of the Clinics Hospital of the Medicine Faculty of University of São Paulo (HCFMUSP), according to the Health National Council under the protocol number 1081/02.

The participants were informed about the aim of the study, which had its start after the signing of the Informed Consent Term. All the ethical principals of the resolution 196/96 (Health National Council, 1996) regarding the ethics in researches with human beings and the Research Ethics Committee of HCFMUSP recommendations were respected.

For this study, patients without: comprehension aphasia, important cognitive sequela, maxillofacial syndromes, background of central or peripheral facial paralysis, scar marks altering the physiognomy, and previous orthognathic surgeries were selected.

Nine patients, male and female, aging between 42 and 72 years old were evaluated in a time interval of one to 15 days after the incident, in the period of June to October of 2002. They were referred by the Neurology Service of the Neurology Clinic Division of the HCFMUSP with a diagnosis of central facial paralysis associated with a stroke, and met the selection criteria. Once this is a descriptive study, the results were submitted to statistical analysis.

The evaluation were conducted in the Neurology Service of the hospital, where the patients were interned. During the evaluations, the patients sat facing the evaluator or lied down on the litter with an inclination of the upper part. The average time of each appointment was 15 minutes.

The functional condition of the facial nerve was evaluated at rest, during voluntary and involuntary movements. At rest the symmetry of the forehead lines, of the inferior eyelid, of the nasal wings and filter, of the nasolabial fold and of the labial comissure were observed. The movements observed were: the contraction and elevation of the eyebrow (supercilium), the elevation of the nasal wings, the protrusion and retraction of lips, closing and natural blinking of the eyes under voluntary request. The eyes closing/blinking and labial retraction were also observed in involuntary activity triggered by happy stimuli. The patient was requested, during spontaneous conversation, to talk about some event in his life, that was of great satisfaction, or to comment about some television show of the comedy kind, or to tell a joke to the researcher.

Deviations regarding the medial line or drop regarding the horizontal plan of the segments were considered asymmetry at rest. Concerning the forehead or nasolabial fold lines, an asymmetry was considered when an interruption or disappearance of these lines occurred. The criteria of presence, absence or decrease of the affected side movement were used, as well as the symmetry of it, compared to the amplitude of the healthy side.

To proceed with the clinic evaluation data collecting, the chart of the patients, after the hospital release, were studied in order to obtain information about the associated neurological symptoms and about the image exams regarding the lesion site.

Results

The data were analyzed descriptively and categorized according to the responses presented during the facial muscles functional evaluation. Table 1 presents the demographic data of the patients, as well as their symptoms. In this sample, six patients were male and three female, with mean age of 54,2 years. The average of days passed by between the stroke and the evaluation was 2,6 days. Among the associated symptoms, the most

common one was the hemiparesis, presented by five patients.

Table 2 presents the facial muscles evaluation, at rest, in all segments, regarding the symmetry or asymmetry.

Table 3 concerns the voluntary movement of the affected side of all face segments compared to the healthy side, regarding symmetry or asymmetry.

Table 4 allows us to visualize the involuntary movements during eyes closing (blink) and during labial retraction (smile) of the paralyzed side.

Table 5 shows the voluntary and involuntary lips movements on the affected side.

Table 6 shows the etiology of each patient's facial paralysis as well as its association with voluntary and involuntary movement in the smile.

TABLE 1. Demographic data of the patients and associated neurological symptoms.

Paciente	Idade (anos)	Sexo	Número de Dias (após o AVC)	Sintomas Neurológicos Associados
1	42	F	2	hemiparesia à esquerda e crise epilética sintomática
2	61	M	2	paresia à esquerda e diminuição da função do XI par craniano
3	60	M	4	afasia mista com predomínio de expressão. Presença de fosfenos e escotoma
4	45	F	4	hemiplegia e paresia do III, IV e XII nervos cranianos. Hemihipoestesia completa à esquerda. Desvio da língua à esquerda. Presença de hiperlipidemia e Síndrome de Horner. Paciente confusa, desorientada
5	62	M	4	hemiparesia completa e parestesia à direita, disfagia e afasia motora. Epilepsia de lobo temporal à esquerda
6	72	M	1	hemiparesia á direita. Pupila miótica e discreta ptose à esquerda
7	42	M	1	hemiparesia completa à esquerda
8	42	F	5	afasia importante de expressão
9	62	M	1	sem sintomas associados

TABLE 2. Facial muscles evaluation at rest.

Segmento Facial	Simétrico N (%)	Assimétrico N (%)
linhas da testa	9 (100%)	0 (0%)
pálpebra inferior dos olhos	9 (100%)	0 (0%)
asa nasal	1 (11%)	8 (89%)
filtro nasal	1 (11%)	8 (89%)
rima naso-labial	3 (33%)	6 (67%)
comissura labial	2 (22%)	7 (78%)

TABLE 3. Voluntary movement of the paralyzed side.

Movimento Facial	Simétrico N (%)	Assimétrico N (%)
elevação de testa	8 (89%)	1 (11%)
contração de testa	8 (89%)	1 (11%)
fechamento dos olhos	9 (100%)	0 (0%)
elevação do nariz	5 (56%)	4 (44%)
protrusão labial	1 (11%)	8 (89%)
retração labial	0 (0%)	9 (100%)

TABLE 4. Involuntary movement of the paralyzed side.

Movimento	Simétrico N (%)	Simetria Duvidosa N (%)	Assimétrico N (%)
fechamento dos olhos (piscada)	9 (100%)	0 (0%)	0 (0%)
retração labial (sorriso)	2 (22%)	2 (22%)	5 (56%)

TABLE 5. Spontaneous/involuntary X Voluntary lips contraction movement.

Movimento	Simétrico N (%)	Simetria Duvidosa N (%)	Assimétrico N (%)
retração labial voluntária	0 (0%)	0 (0%)	9 (100%)
retração labial involuntária	2 (22%)	2 (22%)	5 (56%)

TABLE 6. Lesion site and functional conditions of the paralyzed side during voluntary and involuntary lips movement in the smile.

Paciente	Localização da Lesão	Movimentação Voluntária (Sorriso)	Movimentação Involuntária (Sorriso)
1	cápsula interna à direita e núcleos da base à direita	A	A
2	putâmen à direita	PD	PS
3	região cortical fronto-têmporo-parietal à esquerda	PD	PS?
4	núcleo lentiforme, ínsula, entendendo-se até a região temporal e frontal à direita	A	A
5	amígdala, núcleo da base e região extensa cortico-subcortical fronto-têmporo-parieto-insular à esquerda	PD	PD
6	lobo parietal à direita e globo pálido	PD	PS?
7	cápsula interna à direita (lacunar)	A	PS
8	região cortical à esquerda	A	A?
9	cápsula interna à direita	PD	PD

Legenda: PS = presença de movimento simétrico; PS? = presença duvidosa de movimento; PD = presença de movimento diminuído; A? = ausência duvidosa de movimento; A = ausência de movimento.

Discussion

Classically what is expected from a central facial paralysis (CFP) is the preservation of the forehead movement and paralysis of the lower facial muscle movements contralateral to the lesion during voluntary movement, and preservation of the lower part movements during involuntary or emotional action (Töpper et al., 1995; Trepel et al., 1996; Urban et al., 1998). However, the dissociation between the voluntary and involuntary movement has been observed by some authors differently than postulated above (Esbarrat, 2000; Hopf et al. 2000; Urban et al, 2001).

In our sample, only two patients (number 2 and 7) presented the classical symptoms with clear preservation of the involuntary movement, despite the different lesion sites (internal capsule and putamen) Nevertheless, the other patients presented asymmetric smile also under emotional condition (1, 4, 5 and 9), although in some of them the symmetry or asymmetry was doubted (3, 6 and 8).

The doubt regarding the spontaneous/involuntary smile symmetry or asymmetry may have happened due to the patient's emotional condition during the evaluation; all patients appeared to be upset with the disease and the internation, specially number 6 and 8, hindering the spontaneous smile elicitation. It may be stressed that patients 3 and 8 presented aphasia with the involvement of expression that, despite allowing the conduction of the evaluation (they were capable of executing the orders), may have interfered in the results. Furthermore, it's difficult to really elicit a pleasurable or comic moment for each patient in order to evoke a spontaneous smile.

Concerning the voluntary movements, the majority of the patients presented preservation of the forehead and eyes movements and asymmetry of lips movements. Nevertheless, the nose elevation presented symmetry in a little more than half of the patients, becoming non significant for a differential diagnosis between the central and peripheral facial paralysis; yet, it was observed a nasal wings drop at rest in the patients who presented symmetry in the movement.

An important fact to be stressed is that all patients of this study presented the affected side of the face contralateral to the central lesion, and none of them presented only emotional facial paralysis (all presented voluntary labial retraction asymmetry).

Several researches in the literature studied the

different courses of the pyramidal and extra-pyramidal motor pathway that reach the VII cranial nerve nucleus (facial). In the reported cases, different manifestations regarding the symmetric or asymmetric spontaneous smile, and different hypothesis regarding these courses are presented (Hopf et al., 1992; Töpper et al., 1995, Ghacibeh & Heilman, 2003).

Urban et al. (2001) were the authors who presented the largest sample of central facial paralysis (Urban et al., 1997; Urban et al., 1998; Urban et al., 2001), showing great preoccupation to understand and to describe the central connections of the facial motor pathway.

In the beginning of the 90s, Hopf et al. (1992) stated that the voluntary CFP was associated to the basal ganglia, thalamus, temporal lobe, frontal white substance and supplemental motor cortex lesions. They didn't believe that the CFP involving the voluntary and involuntary movements were due to brain stem lesions. They also referred that in other 17 non published CFP cases of brain stem region lesion and in two published ones, the authors described the facial paralysis with the involvement of the voluntary and involuntary movements.

Urban et al. (1998) described a case in which the CFP was not accompanied by other neurological signs in a lacunar lesion of the cortical-nuclear tract. This would demonstrate that fibers that converge to the voluntary orofacial activation descend medial-dorsally to the middle level of the pons and that the fibers that converge to the emotional activation may be below this level. They also referred that CFP with isolated symptom is rare. Indeed, in our sample only one patient presented CFP without any other associated neurological symptom.

Urban et al. (2001) reported that the postulated classic site is that: ventral lesions of the brain stem rostral to the lower pons result in CFP contralateral to the lesion; while facial weakness of the peripheral type results from the dorsal-lateral lower portion of the pons. In this study, the patients with central facial paresy presented a more pronounced weakness in the perioral region, with relative movements of the upper part of the face muscles, however the trans-cranial resonance indicated a lesion extending to the infranuclear facial nerve axons. This can only be explained by the extension of the lesion towards the inferior part of the lower pons, involving the infranuclear intra-axial fibers of the nerve or affecting the nerve nucleus

correspondent region. A nuclear lesion extending from caudal to rostral would cause mainly a perioral weakness imitating a CFP, considering that the perioral muscles are represented in the lower lateral pole of the facial nerve nucleus.

Facing this situation, Lazarini et al (2002) stressed the necessity of a more accurate diagnostic research in order to avoid failures in the clinic investigation of the patient with complete facial paralysis classified as idiopathic, that may present its origin in the central nervous system. For the authors, a facial paralysis manifested completely does not mean that it can be classified a peripheral, once it may have its origin in regions of the facial motor nucleus.

Cook (2004) stresses the importance of knowing the central nervous system disease's signs to establish precise diagnosis and prognostic. The comprehension of the anatomy of the ear and its associations with cerebral regions is crucial for the interpretation of the neurological exam.

It's important to stress that the clinical condition of the facial muscles of patients with CFP differs significantly from the patients with peripheral facial paralysis (PFP). Usually, after the paralysis installation, the patients with PFP present total or partial damage of all segments of the affected side of the face, ipsilateral to the nerve lesion, at rest and in voluntary or involuntary movements. The similarity occurs regarding the nasal filter deviation, that also directs to the non affected side.

In all cases presented by the literature, the functional evaluation is limited to the description of forehead and smile movements, not concerning the other segments of the face, as well as the rehabilitation implications regarding the patient's lesion type.

Despite the rehabilitation be directed to the presented symptoms, it is extremely important for the speech therapist to know the lesion sites responsible for the facial paralysis. This will allow the use of therapeutic strategies according to the case, as well as the knowledge of the expected prognostic. Thus, the speech therapist participation in the multidisciplinary staff will contribute to the most adequate treatment to be offered to the patient, resulting in a better quality of life.

The role of facial characteristics in the audiovisual speech perception has been considered more important than the role of other facial analysis, such as identity recognition and

the emotion. The first researches on face aspects focused the role of the eyes, nose, lips and hair line. Nowadays it is observed that in the characteristics hierarchy, the eyes and the forehead have a similar importance to the mouth in the audiovisual speech perception (Thomas & Jordan, 2004).

It is relevant to mention the necessity of further research studies with patients with CFP related to different etiologies. The functional evaluation should gather all aspects of the face in order to offer a higher number of information. The follow up of these patients is also necessary to add information about their evolution.

Conclusion

According to the results of this research, it is concluded that the classic symptoms of the central facial paralysis, in which it is expected the preservation of the inferior part movement during involuntary or emotional action, occurred in a few patients.

The functional evaluation of the facial muscles of patients with central facial paralysis reveals, in the majority of the cases:

- preservation of the voluntary movements of the forehead;
- preservation of the reflex and voluntary movements of the eyes;
- functional disorder of the nasal region movement and tonus;
- disorder of the involuntary movement for the smile;
- functional disorder of the voluntary movement of the lips region in all cases.

Some aspects may be used as a differential diagnosis between the central and peripheral facial paralysis:

- presence of other neurological symptoms;
- affected side of the face contralateral to the central lesion;
- symmetry of the forehead and inferior eyelid lines and asymmetry of the nasal filter with a deviation to the non-affected side, at rest;
- preservation of the forehead movements (elevation and tightening) and eyes movements in voluntary action with asymmetry of the labial retraction of the affected side.

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