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Post-Influenza Peripheral Facial Paralysis: A Case Report and Literature Review at the National Reference General Hospital of N'Djamena (Chad)

Adoum Hamad Zenal Abidine[1], Boubacar Soumaila[2], Madjirabé Christian[1], Mht Alkher Ousmane[1], Guelngar Othon Carlos[1], Alhadj Mht Moustapha[1], Adoum Hamat Kaltam[1], Adoum Hamat Alfaris[1], Tahir Aiba[1], Abdel-Madjid Zakaria Zakaria[1], Toure Kamadore[3]

[1]Neurology Department, The National Reference University Hospital, N'Djamena, Chad
[2]Neurology Department, Amirou Boubacar Diallo National Hospital, Niamey, Niger
[3]Ibrahima Pierre Ndiaye Neuroscience Clinic, Dakar, Senegal
Email: zenalabidineadoumhamad353@gmail.com

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Abstract

Introduction: The facial nerve is the cranial nerve with the longest intra-canal bone path. This explains its great vulnerability during inflammatory processes affecting the petrous bone. The facial nerve is a mixed nerve with motor, sensitive, sensory and autonomic functions. The symptoms of its paralysis are therefore varied; they depend on the level of nerve damage. **Case presentation:** This is a 22-year-old patient who is a farmer. The patient presented four weeks later with fever, sore throat, cough, fatigue and myalgia. The proposed treatment was that of a simple malaria attack. The evolution was favorable. One week later, the patient presented facial asymmetry upon waking with the face deviated to the right side and incomplete closure of the left eye. There was no evidence of chronic rash, tick bites, or exposure to a toxin. The patient consulted an ophthalmologist who prescribed treatment of an unknown nature. One week after the onset of facial deviation, the course was unfavorable, marked by the inability to perform any facial expressions; the inability to close the right eyelid. Given these symptoms, the patient consulted our department for treatment. **Discussion:** Unilateral peripheral facial paralysis is a common anatomo-clinical entity in hospitals. A few cases have been described in the literature. The largest series include 4 to 7 cases. Bilateral peripheral facial paralysis represents 0.3% - 2% of peripheral facial paralysis. It affects all age groups; the most affected interval concerns the age group between 11 and 58 years, although our patient is 22 years old. Unilateral peripheral facial paralysis has sev-

eral etiologies. In most cases it is an idiopathic pathology. Other etiologies described are: infectious, mainly viral (Lyme disease; Herpes and HIV, etc.), hence the flu-like syndrome often described. Etiologies are also inflammatory (sarcoidosis), metabolic (diabetes), neoplastic and neurological. And post COVID-19 causes have been recently described. Stress and post-influenza infection are the most commonly found antecedents. In the clinical case described, the patient had a sore throat a few weeks before the onset of the first symptoms. The most objective way to assess the severity and recovery is electromyography. It assesses the intensity of the damage and recovery. Several electroneuromyograms must be performed. In sub-Saharan Africa, this examination remains difficult to access due to the sometimes limited technical facilities and its cost. Most authors agree that, in the face of idiopathic peripheral facial paralysis, treatment should be started with corticosteroids (prednisolone) and acyclovir. Physiotherapy also plays an important role. **Conclusion:** Bell's peripheral facial palsy represents a diagnostic and therapeutic challenge for the practitioner in our context. In most cases it remains idiopathic.

Subject Areas

Neurology

Keywords

Peripheral Facial Paralysis, Influenza, N'Djamena, HGRN

1. Introduction

The facial nerve is the cranial nerve with the longest intra-canal bone path. This explains its great vulnerability during inflammatory processes affecting the petrous bone.

The facial nerve is a mixed nerve that has motor, sensory, sensory, and autonomic functions. The symptoms of its paralysis are therefore varied; they depend on the level of nerve damage.

This observation highlights the rare case of a patient who presented with simultaneous idiopathic unilateral peripheral facial paralysis observed at the National Reference General Hospital of N'Djamena (Chad).

2. Clinical Observation

This is a 22-year-old patient who is a farmer.

The patient presented four weeks later with fever, sore throat, cough, fatigue and myalgia. The proposed treatment was that of a simple malaria attack.

The evolution was favorable. One week later, the patient presented on waking a facial asymmetry with the face deviated to the right side and incomplete closure of the right eye (**Figure 1**).

There was no evidence of chronic rash, tick bites, or exposure to a toxin. The

patient consulted an ophthalmologist who prescribed treatment of an unknown nature. One week after the onset of facial deviation, the progression was unfavorable, marked by the inability to perform any facial expressions; the inability to close the right eyelid (**Figure 1**). Faced with these symptoms, the patient consulted our department for treatment.

2.1. The Clinical Examination Carried Out Revealed

The patient had a frozen face; unilateral tearing; dyspepsia and dry mouth. He did not present any cochleovestibular complaints.

The general examination showed satisfactory hemodynamic parameters; a normal temperature. The ENT examination carried out at rest found a symmetrical face.

The facial expression examination revealed a total absence of facial expression; a Charles Bell sign (**Figure 1**); difficulty in speaking; and an inability to puff out the cheeks.

The remainder of the ENT and body examination was unremarkable.

The clinical symptoms suggested the diagnosis of unilateral peripheral facial paralysis, also called Bell's facial paralysis; the etiological diagnosis of this paralysis remained to be investigated.

2.2. The Requested Paraclinical Examinations Found

Hearing thresholds for the threshold tonal audiogram and tympanometry were not performed due to the absence of technical platforms in our context.

Stapedial reflexes were all present in both ears.

The Electroneuromyogram was not performed because the device had broken down.

The complete blood count; CRP, and sedimentation rate were elevated; ASLO was elevated.

A blood test for specific antibodies (IgM and IgG) against the flu virus was negative; these antibodies indicate a recent or past infection.

The Rapid Diagnostic Orientation Test (TROD) revealed bacterial sore throat of group A streptococcus origin. The virological assessment aims to identify possible viral causes, in particular herpes viruses (Herpes Simplex Virus or HSV, and Varicella-Zoster Virus or VZV) which are often involved.

Certain viral infections, such as influenza and shingles, may be associated with an increased risk of developing PFP. PCR confirmation of lesions (smear) is more relevant than blood serology. However, in Chad, we do not have viral PCR to detect viral infections (HSV, VZV, Lyme, CMV) or saliva PCR to confirm the shingles virus.

We requested the E L I SA Test followed by a Western blot to confirm the presence of antibodies specific to the bacterium Borrelia burgdorferi in favor of Lyme disease which was negative.

Angiotensin converting enzyme (ACE) assay; Imaging (chest X-ray, chest CT

scan, etc.) and tissue biopsy to rule out sarcoidosis were not performed due to unavailability in our country.

To rule out Diabetes; Fasting blood sugar and Glycated Hemoglobin were performed without any particularity.

HIV serology and lumbar puncture were unremarkable.

Associated acute Guillain-Barré polyradiculoneuropathy was ruled out in the absence of bilateral, symmetrical, ascending sensorimotor deficits in our patient.

The diagnosis of unilateral peripheral facial paralysis following influenza was retained in view of epidemiological arguments such as seasonal distribution among farmers; promiscuity and biological assessments looking for ASLO, CBC, VS, CRP with the rapid diagnostic orientation test were positive.

The initial treatment was based on corticosteroid therapy prednisolone 1 mg/kg/day 3 tablets as a single dose for 10 days then a progressive reduction over 1 week followed by Amoxiclav (amoxicillin associated with clavulanic acid) 1 g 2 tablets × 2/day for 10 days and vitamin B1 and B6 1amp × 2 days for 1 week then orally for 2 weeks and eye protection measures with Dacryoserum 2 drops/day in the right eye. A physiotherapy protocol often involves massages to prevent contractures and practical exercises to improve muscle mobility and coordination accompanied by regular monitoring and self-rehabilitation exercises are prescribed to the patient to optimize recovery.

We assessed the severity of the motor deficit according to the House and Brackmann classification Stage 5 with severe dysfunction.

The House-Brackmann scale [1] is a rating system used to assess the severity of peripheral facial paralysis. It is divided into six grades, ranging from normal function (Grade I) to complete paralysis (Grade VI). This system serves as a reference for determining treatment and monitoring the progression of facial paralysis.

The six grades of the House-Brackmann scale [1]:

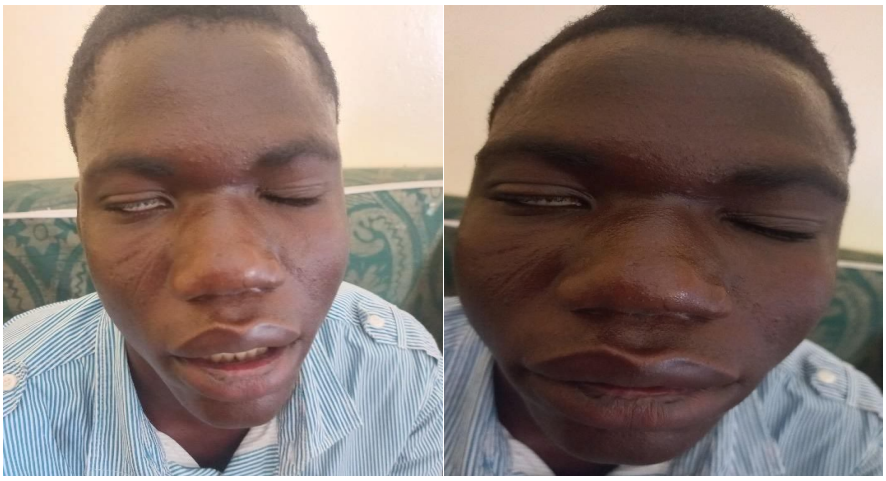
- Grade I (Normal): Normal facial function, at rest and in movement, without apparent deformity.
- Grade II (Mild): Slight weakness or synkinesis (associated involuntary movements) on examination, but no visible deformity at rest.
- Grade III (Moderate): Obvious difference from the healthy side, synkinesis and contractures, but without deformity at rest.
- Grade IV (Moderately severe): Disfiguring asymmetry, but without deformity at rest.
- Grade V (Marked): Some visible residual movement, marked asymmetry at rest (e.g., ptosis of the labial commissure, effaced nasolabial fold).
- Grade VI (Complete): Absence of movement, atonia at rest, no voluntary movement.

Use in follow-up:

- The House-Brackmann scale [1] is used to assess improvement or deterioration of facial paralysis over time, particularly during patient follow-up.
- A decrease in grade (e.g., from Grade IV to Grade III) indicates an improve-

ment in facial function.

- The scale also makes it possible to compare the results of different treatments and to adapt the care according to the evolution.
- To evaluate the effectiveness of treatments and to inform patients about their prognosis and recovery prospects. Recovery was slow and the patient showed marked improvement on the 38th day of treatment. There was improved speech and eyelid occlusion.



(a) (b)

Figure 1. Unilateral Charles bell sign + inability to puff out the cheeks and slurred speech.

We have obtained written patient consent and local ethics approval for the Publication of identifiable clinical information.

3. Discussion

Unilateral peripheral facial paralysis is a common anatomoclinical entity in hospitals [2]. A few cases have been described in the literature [2]. The largest series include 4 to 7 cases [3]. Bilateral peripheral facial paralysis represents 0.3% - 2% of peripheral facial paralysis [4].

They affect all age groups; the most affected interval concerns the age group between 11 and 58 years [3] [5] our patient was 22 years old.

The distribution between the two sexes seems balanced [3].

Unilateral peripheral facial paralysis has several etiologies. In most cases it is an idiopathic pathology [6]-[8]. The other etiologies described are: infectious mainly viral (Lyme disease; Herpes and HIV…) hence the flu syndrome often described [9]. The etiologies are also inflammatory (sarcoidosis) metabolic (diabetes) neoplastic and neurological [9]. Most authors agree in the face of idiopathic peripheral facial paralysis to start a treatment including corticosteroids (prednisolone) and acyclovir [10]. And post COVID-19 causes have been recently described [11]. Stress and post influenza infection are the most frequently found antecedents. In the clinical case described the patient had a sore throat a few weeks before the

onset of the first symptoms. The initial clinical presentation can unfold for the practitioner unlike unilateral lesions there is no obvious facial asymmetry. The facial appearance is fixed. The sensory signs; sensory and vegetative are those found in unilateral lesions except that here both sides are affected. Indeed this classification is made difficult here due to the absence of facial asymmetry. This makes clinical monitoring of recovery difficult. The most objective means to assess severity and recovery is Electromyography [12]. It assesses the intensity of the lesion and recovery. Several Electroneuromyograms must be performed. One of the originalities of this condition is the difficulty of using the House and Brackman scale [1] to classify the level of severity. In sub-Saharan Africa this examination remains difficult to access due to the sometimes limited technical platforms and its cost. Physiotherapy also holds an important place.

4. Conclusion

Bell's peripheral facial palsy represents a diagnostic and therapeutic challenge for the practitioner in our context. In most cases it remains idiopathic.

Conflicts of Interest

The authors declare no conflicts of interest.

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