Scientific Research Publishing

International Journal of Otolaryngology and Head & Neck Surgery, 2024, 13, 168-177
https://www.scirp.org/journal/ijohns
ISSN Online: 2168-5460
ISSN Print: 2168-5452

# Peripheral Facial Paralysis in People Living with Human Immunodeficiency Virus (HIV)

**Lekassa Pierrette[1,2*], Andjock Nkouo Yves Christian[3], Mouinga Abayi Alex Davy[2,4], Assoumou Ada Prudence[2,5], BiyeNgoghe Prudence[6], Ngoma Manfoumbi Albert Brice[1], Manfoumbi Manfoumbi Kévin Dimitri[1], Miloundja Jerome[1,2], Nzouba Léon[1,2]**

[1]ENT and CFS Department, Omar Bongo Ondimba Army Instruction Hospital, Libreville, Gabon
[2]Department of Surgery and Surgical Specialties, University of Health Sciences, Owendo, Gabon
[3]ENT and CFS Department, Yaoundé General Hospital, Yaoundé, Cameroon
[4]Ophthalmology Department, Omar Bongo Ondimba Army Instruction Hospital, Libreville, Gabon
[5]Ophthalmology Department, Owendo University Hospital Center, Libreville, Gabon
[6]Internal Medicine Department, Omar Bongo Ondimba Army Instruction Hospital, Libreville, Gabon
Email: *lekassapierrette@yahoo.fr

**How to cite this paper:** Pierrette, L., Christian, A.N.Y., Davy, M.A.A., Prudence, A.A., Prudence, B., Brice, N.M.A., Dimitri, M.M.K., Jerome, M. and Léon, N. (2024) Peripheral Facial Paralysis in People Living with Human Immunodeficiency Virus (HIV). *International Journal of Otolaryngology and Head & Neck Surgery*, **13**, 168-177.
https://doi.org/10.4236/ijohns.2024.133016

**Received:** March 20, 2024
**Accepted:** May 13, 2024
**Published:** May 16, 2024



## Abstract

**Introduction:** Peripheral facial palsy (PFP) is a frequent reason for ENT consultations. It is a common complication of human immunodeficiency virus (HIV) infection. The aim of this study was to describe the diagnostic and therapeutic aspects and to establish the correlation between PFP and HIV in our context. **Patients and Method:** This was a retrospective descriptive study conducted in the ENT and CFS department of **the HIAOBO**, covering the medical records of patients hospitalized for taking a PFP on HIV terrain from January 1, 2016 to December 31, 2020. **Results:** The study involved 17 patients, 10 men (59%) and 7 women (41%), a sex ratio of 1.4. The average age was 39 years with the extremes of 11 and 69 years. Shopkeepers reported 9 cases (53%). The reason for consultation was facial asymmetry in 11 cases (100%). The delay in consultation during the first week was 82.4%. Clinical signs were unilateral facial asymmetry, the opening of the palpebral fissure and lacrimation. All patients received medical treatment for PFP and HIV. Evolution was favorable, with complete recovery and no sequelae in 82.4% of cases. Surgery was performed in one case. **Conclusion:** PFPs are common in HIV infection. Diagnosis is clinical and management is multidisciplinary. Progression depends on the length of time taken to treat the disease.

## Keywords

Peripheral Facial Paralysis, HIV, HIAOBO

## 1. Introduction

Peripheral facial palsy (PFP) has been described as an early or late complication of the disease. late stage of human immunodeficiency virus (HIV) infection [1]. It is thought to be linked to seroconversion and/or a direct attack on the nerve by the virus [2].

Since the discovery of this infection, HIV has become a public health problem, with 39 million people affected worldwide in 2022 according to the World Health Organization (WHO), with Sub-Saharan Africa being the most affected region with 25.6 million [3]. In Gabon, WHO reported 28,569 people living with HIV in 2022 [3]. All these data show that HIV prevalence is falling slightly, with 5.2% in 2009, 4.1% in 2012 and 3.6% in 2022; and that more people have access to treatment than are newly infected each year [3].

Diagnosis of PFP is clinical and straightforward, but there are many etiologies. Idiopathic facial paralysis, or "a frigore", or "Bell's palsy" is by far the most common, accounting for 50% - 70% of PFP [1] [4].

Among the otorhinolaryngological manifestations developed by HIV-infected patients, peripheral facial paralysis occurs 100 times more frequently than in HIV-infected patients. The HIV-uninfected population (4.1% vs. 0.04%) [5]. These manifestations can be observed at any stage of HIV/AIDS infection. They cause additional discomfort for patients, and may therefore be the primary reason for consultation [6] [7]. In endemic regions, this infection should be systematically investigated in the presence of any isolated PFP, for better management. Management is multidisciplinary, and must be carried out early to avoid functional and aesthetic sequelae. It is a diagnostic and therapeutic emergency, requiring resuscitative treatment of the facial nerve.

To our knowledge, in Gabon, no publication has been made on facial paralysis in the context of HIV, hence the interest in carrying out this study, the aim of which was to describe the diagnostic and therapeutic aspects and to establish the correlation between FFP and HIV in our context.

## 2. Materials and Method

This was a retrospective descriptive study conducted in the Otolaryngology and Cervicofacial Surgery Department of the Omar Bongo OndimbaArmy Instruction Hospital (HIAOBO). It focused on the medical records of patients of all ages, hospitalized for management of peripheral facial paralysis (PFP) on HIV terrain from January 01, 2016 to December 31, 2020.

All the medical records of patients who were known to be HIV-positive and who subsequently presented with facial paralysis were included, as well as those of patients who presented with facial paralysis but were unaware of their HIV status. In the case of the latter group, HIV was discovered during hospitalization, in the course of routine check-ups.

Medical records of patients hospitalized for facial paralysis with negative HIV serology were not included. Data were collected from hospitalization registers,

consultation records, and registers of medical procedures, using a standardized survey form.

The parameters studied were age, sex, history, mode of onset, time to consultation, functional signs, physical signs, severity of deficit according to the House and Brackmann classification, blood count, sedimentation rate, fasting blood glucose, HIV serology (Elisa, then Western Blot) and CD4 lymphocyte count. The paraclinical examination also included an audiogram, a tympanogram with stapedian reflex and a CT scan of the rocks. The results were announced after the patients had been counselled, and were then treated for HIV and AIDS by infectious diseases physicians.

Treatment for PFP combined methylprednisolone at a dose of 1 mg/kg/d for 10 days, vitamin B complex: 1 tablet 3x/d, artificial tears 1 drop at least 6 x/d, ocular protection with an obliterating compress, and facial physiotherapy until discomfort and asymmetry disappeared. This treatment lasted 6 to 12 months, depending on progress. An antiviral treatment such as valaciclovir was administered at a dose of 500 mg 2x/d for 10 days. HIV treatment was provided by infectious disease physicians.

Regular follow-up was carried out every 15 days for 2 months, then every month for 6 months, to analyze the patient's clinical evolution. This evolution was favorable in 14 cases (82.3%) after 6 months. Surgical treatment: "Lateral Tarsal Strip" (Anderson's lateral strip) was performed in 1 case by the ophthalmologist to reduce the opening of the cleft palpebral in order to avoid infections after 12 months without improvement.

With regard to ethical considerations, patient anonymity was respected, and we obtained the agreement of the parents of minor patients, the Director of the HIAOBO and the Head of the ENT and CFS departments.

Data analysis was carried out using Microsoft Word 2010. Data were analyzed using EPI info software version 3.5.4.1, and graphs were produced using Excel 2010.

The significance level was set at 5%. The degree of significance depended on the value of "p" found. The test was significant if $p < 0.05$. The "p" was not used because the variables were not compared.

## 3. Results

During the study period, 1,890 patients were hospitalized, 95 with facial paralysis, *i.e.* 19 cases of facial paralysis per year, giving an annual prevalence of 20%.

Of the 95 cases, 17 (17.9%) occurred in people living with HIV.

The median age was 39 years, with extremes of 11 and 69 years. The 31-40 age group accounted for 47.1%, followed by the [41-50] age group with 23.5% (Table 1).

There were 10 men (59%) and 7 women (41%), with a sex ratio of 1.4.

The professions were tradesmen with 9 cases (53%), followed by civil servants (Table 2).

**Table 1.** Age distribution of patients.

| Age range | Frequency | Percentage |
|---|---|---|
| 11 - 20 | 1 | 5.9 |
| 21 - 30 | 3 | 17.6 |
| 31 - 40 | 8 | 47 |
| 41 - 50 | 4 | 23.5 |
| +50 | 1 | 5.9 |
| **Total** | **17** | **100** |

**Table 2.** Breakdown by profession.

| Profession | Frequencies | Percentage |
|---|---|---|
| retailers | 9 | 53 |
| Civil servants | 4 | 23.5 |
| Other | 3 | 17.6 |
| Students | 1 | 5.9 |
| **Total** | **17** | **100** |

The reason for consultation was facial asymmetry and ocular inclusion in 100% of cases, followed by hyperacusis and tinnitus in 17.6% and 11.8% of cases respectively (Table 3).

The antecedents were otitis in 2 cases, arterial hypertension in 1 case, diabetes in 1 case, and a combination of arterial hypertension + diabetes in 1 case.

Time to consultation and management within the first week was 82.4%.

Facial paralysis was right-sided in 58.8% and left-sided in 41.2% of cases. The onset was abrupt in 14 cases and progressive in 3 cases (Table 3).

Clinical signs were unilateral facial asymmetry, palpebral cleft opening and lacrimation in all patients.

Oto-microscopic examination was normal in 14 cases (82.4%) and in 3 cases the eardrum was pathological.

Paraclinically, all patients had undergone a biological and serological examination including a complete blood count (CBC), sedimentation rate (ESR), fasting blood glucose and HIV serology.

Lymphocyte counts were performed in 10 cases (58.8%). This examination showed an elevated sedimentation rate in 100% of cases, diabetes in 2 cases, hyperleukocytosis with lymphocyte predominance in all 10 cases, and HIV1-positive serology in 14 cases (82.3%) who had not been informed of their serological status prior to the onset of facial paralysis. Three cases (17.7%) were known to be HIV1 positive.

**Table 3.** Clinical characteristics.

| Clinical characteristics | | Numbers | % |
|---|---|---|---|
| **Facial asymmetry** | Yes | 17 | 100 |
| | No | 0 | 0 |
| **palpebral inclusion** | Yes | 17 | 100 |
| | No | 0 | 0 |
| **Hyperacusis** | Yes | 3 | 17.5 |
| | No | 14 | 82.5 |
| **Tinnitus** | Yes | 2 | 11.8 |
| | No | 15 | 88,3 |
| **Paralyzed side** | Right | 9 | 58.8 |
| | Left | 8 | 41.2 |
| **Consultation delay** | <1 week | 14 | 82.4 |
| | >1 week | 3 | 17.6 |

HIV1 was the only type found in this study. CD4 lymphocyte counts ranged from 175 to 500/mm$^3$ in 4 cases, 2 of which were below 200/mm$^3$.

Audiometry and tympanogram in 15 patients (88.2%) showed mild conductive hearing loss in 5 cases, a flat curve in 2 cases and a depressed curve in 2 cases. The stapedial reflex was absent in 10 cases. CT scans of the rocks were performed in 9 cases (53%), and were unremarkable.

All patients received medical treatment for nerve reanimation (developed in the methodology).

HIV treatment was provided by infectious disease physicians.

The surgical treatment was the reduction of the cleft palpebral by the "Lateral tarsal strip" technique performed by an ophthalmologist. The aim of this surgery was to reduce or even stop lacrimation and protection of the eye, and it was carried out after 12 months of follow-up. The evolution was favorable in 14 cases (82.3%) after 6 to 12 months of follow-up under medical treatment and in one case after surgical treatment performed after 12 months. However, persistent facial asymmetry and cleft palate were noted in 2 cases

## 4. Discussion

During this 5-year study period, 17 out of a total of 95 PFP cases presented with HIV. This result is clearly inferior to that of Diallo *et al.* [8] in Mali, who reported 24 cases of PFP in patients living with HIV out of a total of 56 cases in 12 months. Komolafe *et al.* [2] in Nigeria reported 86 cases of FPP in 13 years, of which 26 were associated with HIV. This rate of FPP in general, and in particular that of patients living with HIV, is certainly well underestimated, as all pa-

tients presenting with facial paralysis consult not only the ENT department but also emergency, medical and neurology services.

The median age in this study was 39.07 years, with the [31 - 40] and [41 - 50] age groups accounting for 47.1% and 23.5% of cases respectively. In African studies, the series by Diallo *et al.* [8] in Mali showed a mean age of 34.5 ± 9.7 years, with extremes of 17 and 59 years. The series by Komolafe *et al.* [2] in Nigeria shows a mean age of 29.15 ± 8.12 years. The series by Keita *et al.* [9] found a mean age of 42.21 years, with extremes of 16 and 64 years, and the 35 - 44 age group was the most represented at 33.1%. On the other hand, European series such as that of Uldry *et al.* [10], in Switzerland, reported 71.1% in the [50 - 69] age bracket, and that of Sathirapanya *et al.* [11] in Thailand, noted a mean age of 46 years, with extremes of 38 and 49.7 years.

These differences may be explained by the fact that hospital facilities are not always available in our regions, and unfortunately, where they are, HIV screening is neglected. ENT diseases among HIV-positive people are generally indicative of this virus, which targets young people regardless of socio-professional strata. But it's also a fact that young people are more at risk because they have unprotected sex.

Male sex accounted for 58.8% of this series. This predominance is also reported by Komolafe *et al.* [2], who reported 16 males and 10 females out of 26 HIV patients, Diallo *et al.* [12] in Mali in 2014, also noted 25 male patients out of 36 in total. However, studies by Diallo [8] in Mali and Sathirapanya [11] in Thailand found a female predominance, with 60.2% and 55.9% respectively.

The gender predominance is assessed differently in different studies. The male tendency could be explained by the freedoms and responsibilities that certain African traditions give young men, exposing them to dangerous sexual activities, that is to say, unprotected sex. It's in these conditions that HIV contamination occurs, and what's more, most of the time they have no contact with health centers for check-ups. As a result, their HIV status remains unknown until the first complications arise, forcing them to go to hospital, or sometimes under family pressure.

Traders (or resellers) accounted for 53% in the present study. This is also reported by other authors such as Diallo *et al.* [8], in Mali report shopkeepers and housewives with 29.17% and 25% of cases respectively. This occupation is recognized as a risk factor for HIV infection, as they are regularly on the move.

In this study, facial asymmetry and ocular inclusion were the reasons for consultation in all cases. These results are in agreement with those of other authors such as Diallo *et al.* [8] with 100% and 83.33%. Sathirapanya al [11] reported facial asymmetry in 100% of cases.

This can be justified by the fact that facial asymmetry is above all unsightly and highly embarrassing. The face is our identity as individuals.

The consultation time in this series was less than 4 days in 53% of cases. The study by Diallo *et al.* [8] in Mali reported 70.83% between the first and 3rd week.

Milogo *et al.* [13] in Burkina-Faso reported 80% of first consultations within 15 days. In our context, this may be explained on the one hand by the lack of information on the pathology, and on the other by the lack of resources and specialized medical training.

Onset was abrupt in 82.4% of cases in this study. Diallo *et al.* [12] in Mali reported a sudden onset in all cases in their series. Generally, the condition is discovered on awakening by the patient in the shower, looking in the mirror, or by those around him.

Peripheral facial paralysis was the initial manifestation of HIV infection and led to its discovery in 82.4% of cases. Three cases were known to be HIV-positive before facial paralysis and were on anti-retroviral therapy. Köhler *et al.* [14] reported facial paralysis as the initial manifestation of HIV in 5 of the 7 cases in their study. This demonstrates that facial paralysis is related to HIV status, and that idiopathic facial paralysis does not occur incidentally in HIV-positive subjects.

The literature reports that PFP can be the revealing mode of HIV infection at all stages [1] [8] [11] [12]. The results obtained in this study are in line with this literature. This demonstrates that PF is related to HIV seropositivity and that idiopathic PF does not occur incidentally in HIV-positive subjects.

All cases were unilateral, with 58.8% on the right. Studies by Danielidis et al [4] found unilateral involvement predominantly on the right. These results are superimposed on those of Boko *et al.* [15], who found unilateral involvement in 100% of cases, with 61.9% of PF on the right. However, in the study by Sathirapanya *et al.* [11] of 16 PF cases, 14 were unilateral and 2 were bilateral. Unilateral involvement is one of the characteristics of facial paralysis, without prejudging the side [8].

In this study, hyperleukocytosis with lymphocyte predominance was noted in 10 cases, and the sedimentation rate (SV) was accelerated in all cases. Diallo *et al.* [8] in Mali, noted the acceleration of these parameters in 100% of cases.

CD4 lymphocyte counts in this study ranged from 175 to 500/mm$^3$ in 4 cases, with 2 below 200/mm$^3$. Diallo *et al.* [12] report CD4 lymphocyte counts below 200/mm$^3$ in 5 patients, between 200 mm$^3$ and 250 in 4 patients, between 250 and 300/mm$^3$ in 6 patients, and above 350 in 21 patients. HIV typing showed 100% HIV1 in this series. The study by Diallo *et al.* [8] in Mali reported 75% HIV1, 8% HIV2 and HIV1-VIH2 co-infection in 17% of cases. This predominance of HIV1 is also reported by Keita *et al.* in Guinea Conakry (99.5%) and by Vignikin-Yehouessi *et al.* in Benin [16] (88.5%).

These results are consistent with the literature [17], which shows that HIV1 is widespread throughout the world, and HIV2 is less prevalent in the Central African region than in West Africa.

Treatment was medical (detailed in Patients and Methods), inpatient in 100% of cases for 10 days, and included parenteral corticosteroids, vitamins (vitamin B tablets and vitamin A ointments), vasodilators, antibiotics and antivirals. Eye

care and facial physiotherapy were combined in 100% of cases. In the study by Diallo *et al.* [12] in Mali, medical treatment consisted of corticoids, vitamin B and antibiotics in 87.69% of cases. Eye care and facial physiotherapy were combined in 83.07% of cases. Vignikin-Yehouessi *et al.* [16] report the administration of corticosteroids in 71.43% of cases, eye care in 60.71% and physiotherapy in 52.38%.

Inpatient treatment with a short course of corticosteroid therapy combined with valaciclovir in this study is in line with the literature [18].

Antibiotic therapy was administered in the 2 cases in which the CD4 count was below 200/mm$^3$. This was also reported by Diallo *et al.* [12].

The eye care and facial physiotherapy described by other authors [1] [12] were also carried out in this study.

Surgical treatment was performed by an ophthalmologist in 1 case: the "Lateral tarsal strip" performed by an ophthalmologist. The aim of this surgery is to reduce or even stop tearing and protect the eye. Mouinga *et al.* [19] report the reduction of the palpebral slit opening to limit tear flow and protect the eye.

The majority of authors [8] [12] agree that facial paralysis evolves favourably under treatment. This is in line with the results of the present study. An early start to treatment is a factor favoring faster recovery.

Progression was favourable in this study, with 82.4% of cases. Our results are similar to those of Boko al [15], who reported 71.4% improvement and one case of recurrence. This may be explained by the early start of treatment.

## 5. Conclusion

PFPs are common in HIV infection. They are frequently the first sign of HIV infection. Their management is multidisciplinary and their evolution is favorable. If care is taken early.

The limitations of this study were the small sample size, the lack of comparability and the paucity of publications in the literature.

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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