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Case Report

Peripheral facial paralysis as the only symptom revealing sars cov 2 infection: Case report

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ABSTRACT

The SARS cov 2 infection was initially marked by its respiratory symptomatology. Nevertheless, other non-respiratory manifestations have been raised as atypical revealing symptoms, namely cardiac and neurological attacks.

Several neurological manifestations have been described during this pandemic.

We describe in this case report the clinical, biological and radiological characteristics of two patients presenting to the emergency department with facial paralysis revealing a Sars cov 2 viral infections after investigation.

1. Introduction

SARS cov 2 viral infection, a new worldwide infection, spread rapidly through the world becoming a global pandemic declared a global pandemic by the World Health Organization since March 2020 [1].

The most frequent revealing symptoms are fever, cough, asthenia, headache, and myalgia, with a revealing respiratory picture in the majority of the cases, however other atypical symptoms can occur and be the only picture revealing the infection to sars cov 2 as the cardiac and neurological attack(1,2).

We report in this paper the case of a young patient presenting to the emergency room for facial paralysis whose diagnostic investigation revealed a sars cov 2 infection.

2. Case report

2.1. First case report

A 39-year-old male patient with a medical history of diabetes and chronic myeloid leukemia treated with chemotherapy presented to the emergency room with facial asymmetry, slurred speech, and difficulty chewing without any other signs.

The initial clinical examination was as follow: the temperature was 36.9 °C, blood pressure at 130/70mmhg, heart rate at 130 beats/min, breath rate at 25 breaths/min with pulsed oximetry at 85% on room air, The neurological examination: Glasgow coma scale at 15/15, and a right peripheral facial paralysis, the Ear Nose Throat examination (ENT) showed no abnormalities.

Given the epidemiological context A polymerase chain reaction (PCR) for sars cov2 was carried out coming back positive and a thoracic scanner was carried out coming back in favor of a pneumopathy with sars cov 2 with lung damage between 50 and 75% (Fig. 1).

A biological check-up showedat the complet blood countwhite blood cells at 10.200/µl, C-reactive protein at 250 mg/l (normal between 0.00 and 5.00 mg/l), ferritin at 7960 µg/l (normal for adults 20–200µg/l), Procalcitonin at 0.40 ng/ml (normal <0.5), The patient was admitted to the intensive care unit for therapeutic management, put on a high concentration mask with an improvement of 90% saturation under 8l of oxygen.

Looking for another cause of facial paralysis, Serologies of the Herpes simplex virus (HSV) and Herpes zoster virus (HZV), HIV, TPHA (*Treponema pallidum* haemagglutination assay) were performed and came back negative.

An encephalic magnetic resonance imaging (MRI) was performed coming back without any abnormalities (Fig. 2).

The diagnosis of peripheral facial paralysis secondary to an infectious origin probably related to sars cov 2 was retained.

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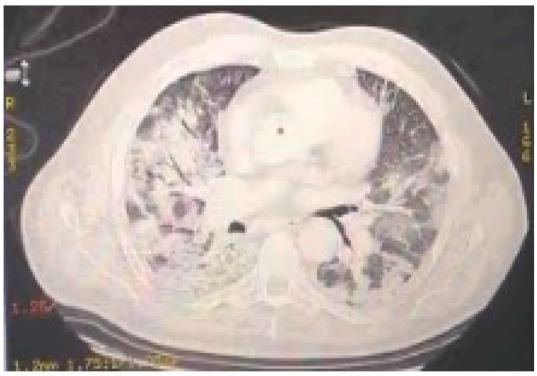

Fig. 1. Bilateral alveolar-interstitial syndrome in connection with sars cov 2 infection.

SARS cov2 protocol was initiated and the patient was put under azithromycin 500mg the first day then 250mg per day for 5 days, zinc 90mg per day, vitamin C 2g/12h, dexamethasone 6mg/day, preventive anticoagulation 6000ui/day.

The evolution was favorable on both clinical and biological level improvement, with a significant disappearance of the facial paralysis after 3 weeks and he was discharged 30 days after admission with a pulsed O2 saturation at 92% on ambient air.

2.2. Second case report

A 57-year-old male patient with a medical history of diabetes treated by insulin and hypertension treated with a calcium channel blocker presented to the emergency room with facial paralysis and swallowing disorder.

The initial clinical examination was as follow: the temperature was 37.2 °C, blood pressure at 140/80mmhg, heart rate at 90 beats/min, breath rate at 20 breaths/min with pulsed oximetry at 89% on room air, The neurological examination: Glasgow coma scale at 13/15, and a right peripheral facial paralysis, fall off the labial commissure with deviation to the left, dysarthria with no sensory-motor deficit.

the Ear Nose Throat examination (ENT) showed a fall of the labial commissure with a negative Charles bell sign without any other sign at the clinical examination(Fig. 3).

Given the epidemiological context A polymerase chain reaction (PCR) for Sars cov2 was carried out coming back negative, we complete with serology SARS cov 2 coming back positive: IGM + IGG + positive serology, and a thoracic scanner was carried out coming back in favor of a pneumopathy with sars cov 2 with lung damage between 10 and 25%

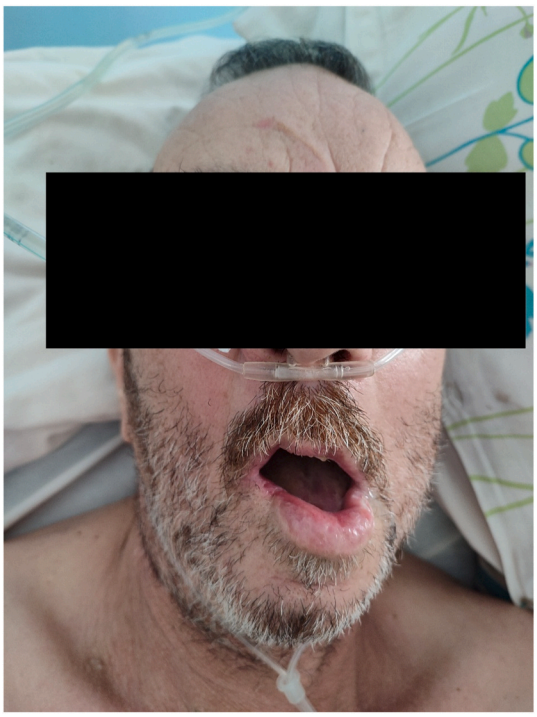

Fig. 3. Lateral deviation of the labial commissure with a negative Charles bell sign.

(Fig. 4).

A biological check-up showed at the complete blood count white blood cells at 11.070/µl, C-reactive protein at 70 mg/l, ferritin at 7960 µg/l, Procalcitonin at 0.40 ng/ml (normal <0.5), The patient was admitted to the intensive care unit for therapeutic management, put on a nasal cannula with an improvement of 93% saturation under 3l of oxygen.

Looking for another cause of facial paralysis, Serologies of the Herpes simplex virus (HSV) and Herpes zoster virus (HZV), HIV, TPHA (*Treponema pallidum* haemagglutination assay) were performed and came back negative.

An encephalic magnetic resonance imaging (MRI) was performed coming back without any abnormalities (Fig. 5).

The diagnosis of peripheral facial paralysis secondary to an infectious origin probably related to sars cov 2 was retained.

SARS cov2 protocol was initiated and the patient was put under azithromycin 500mg the first day then 250mg per day for 5 days, zinc

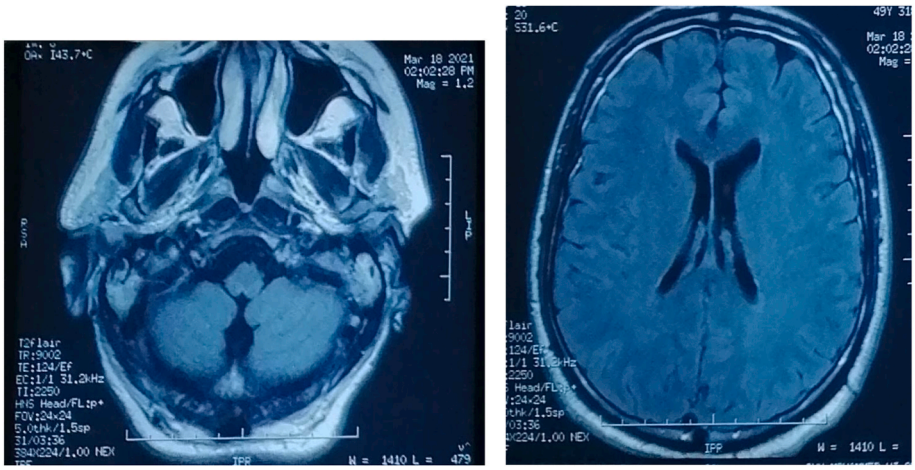

Fig. 2. An encephalic magnetic resonance imaging (MRI) showing no abnormalities (FLAIR sequence).

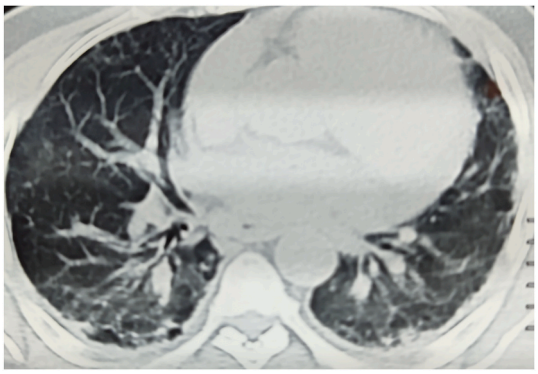

Fig. 4. Thoracic CT scaning favor of a pneumopathy with sars cov 2 with lung damage between 10 and 25%.

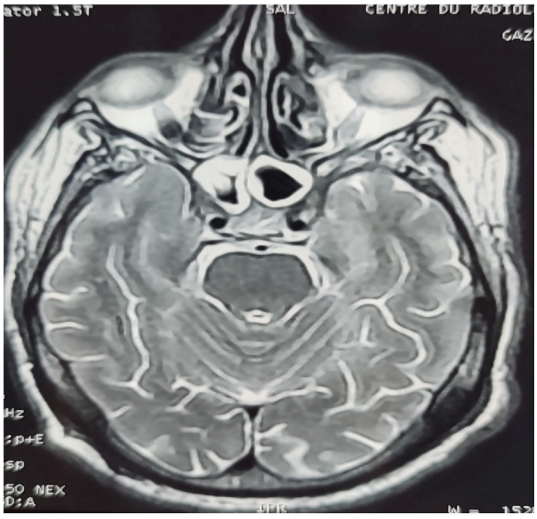

Fig. 5. An encephalic magnetic resonance imaging without any abnormalities.

90mg per day, vitamin C 2g/12h, dexamethasone 6mg/day, and preventive anticoagulation.

The evolution was favorable and the patient was discharged after 10 days.

3. Discussion

SARS-CoV 2 infection primarily affects the respiratory system resulting in respiratory failure, but extrapulmonary involvement exists and has been described in the literature including cardiac and neurological involvement [1,2].

Entry of SARS-CoV into human host cells is primarily mediated by a cellular receptor, angiotensin-converting enzyme 2 (ACE2), which is expressed in human airway epithelia, lung parenchyma, vascular endothelia, kidney cells, and small intestine cells [2].

Infection with Severe acute respiratory syndrome coronavirus (SARS-CoV) or Middle East respiratory syndrome coronavirus (MERS-CoV) has also been reported in the CNS, where the expression level of CEA2 30 is very low under normal conditions [3].

The pathway of virus penetration to the central nervous system remains poorly elucidated [3].

Experimental studies using transgenic mice have further revealed that SARS-CoV 34 or MERS-COV 13, when administered intranasally, can enter the brain, possibly via the olfactory nerves, and then rapidly spread to specific areas of the brain, including the thalamus and brainstem [4].

A study by Mao et al. found that 88% of patients with sars cov 2 showed neurological signs [5].

In a review of the literature, a few cases of facial paralysis secondary to SARS-CoV infection were reported [6–8].

In a prospective study conducted by Y.islamglu, 24.3% of patients with facial paralysis had a SARS cov2 positive serology (igg and IgM positive) [8].

In addition, several causes can lead to facial paralysis, namely infectious causes that represent 6.5% [9] of causes such as herpes zoster virus and Lyme disease, which were ruled out in the absence of skin and ear lesions, and in the absence of antecedent tick bites in our case [9].

HIV has been ruled out in the face of negative serology.

Tumor causes that represent 3.1% [9] was ruled out by the normal clinical and radiological examination (MRI [9].

Autoimmune diseases such as vasculitis, sarcoidosis were ruled out due to the low clinical probability.

Given the clinical, radiological, and biological data, the diagnosis of facial paralysis secondary to sars cov 2 infections was retained.

Thus, neurological symptoms may be the first symptoms suggestive of this infection.

4. Conclusion

Sars cov 2 viral infection can be revealed by atypical non-respiratory manifestations that must be taken into account by the practitioners given the epidemiological context even though it remains rare.

These two clinical cases highlight the neurological atypical manifestation as the first and only revealing symptom.

The work has been reported in line with **the CARE 2018 criteria** [10].

Consent

Written informed consent was obtained from the patient. **A copy of the written consent is available for review by the Editor-in-Chief of this journal on request**.

Ethical approval

The ethical committee approval was not required given the article type (case report).

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Author contribution

TAOUIHAR Salma: study concept, Data collection; data analysis; writing review & editing. **BOUABDALLAOUI Amine:** Study conception, data analysis. **AABDI Mohammed:** Study conception, data analysis. **EL KAOUINI Abderrahim:** contributor. **ELAIDOUNI Ghizlane:** contributor. **MANAL Merbouh:** contributor. **ZAID Ikram**:contributor **BKIYAR Houssam:** supervision and data validation. **HOUSNI Brahim:** supervision and data validation.

Guarantor

Taouihar Salma; Bouabdallaoui Amine.

Declaration of competing interest

The authors state that they have no conflicts of interest for this report.

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