

Several Dengue: About 2 Cases with Pulmonary Disease

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Abstract

The most widespread arbovirus in the world, dengue fever has been rampant since the 18th century. Since then, several epidemics have been documented in Asia, the Caribbean, South America and Africa. The authors report two cases of dengue fever in children aged six (6) and twelve (12) years respectively. The diagnosis of several dengue pulmonary was retained in these children, clinico-radiological and biological arguments. In addition to the hemorrhagic syndrome, the pulmonary symptomatology associated cough, dyspnea. Chest X-ray revealed bilateral and extensive alveolar interstitial radiological lesions. From a biological point of view, the positivity of dengue-specific IgM has confirmed arboviruses. From the diagnostic peculiarities of the cases observed, the authors suggest the search for factors associated with a primary dengue infection from several onsets to pulmonary manifestation in children. Indeed, this fringe of the population is no longer concerned with acute respiratory infections. In addition, the socio-cultural context of poverty, of pre-hospital therapeutic itinerary favoring traditional medicine, delays hospital care.

Keywords

Dengue, Lungs, Pediatrics, Ivory Coast

1. Introduction

Arbovirus, transmitted by mosquitoes of the genus *Aedes*, dengue or “tropical flu” is very widespread in the world. It is more often benign but can reveal itself by severe forms, involving the vital prognosis of the patients. It rages under the endemic mode with sometimes epidemics responsible for many deaths.

On May 6, 2017, WHO declared a new dengue epidemic in Ivory Coast [1]. The National Institute of Public Health has reported more than one hundred confirmed cases in Abidjan Cocody, the epicenter of the epidemic. We expose two cases of several dengue, pulmonary manifestation, “a priori”, primary infection.

The patients were hospitalized in the medical pediatric ward at Yopougon University Hospital in Abidjan for treatment.

2. Observations

Case No. 1: This is the six-year-old T K child, male, Ivorian, from a low socioeconomic background, living in Abobo, a dormitory neighborhood, located north of the city of Abidjan. He was hospitalized with dyspnea and epistaxis.

Regarding antecedents, he had a posterior urethral valve previously unresected, complicated by acute renal failure, cystocele with vesico ureteral reflux and hydronephrosis, justifying followed by pediatric surgeons and nephrologists. In addition, the notions of vaccination against dengue, episode of anterior dengue fever, sickle cell disease and tuberculous contagion were not found.

The interview reveals a febrile pseudo-influenza syndrome and a haemorrhagic syndrome (epistaxis) of acute evolution, 5 days before admission.

On examination, he had an alteration of the general condition and was febrile. In addition, there was an epistaxis, cutaneomucous pallor, signs of respiratory control, namely a flutter of the wings of the nose, an inter-costal draw, bilateral crackling rales. Examination of the digestive, cardiac, neurological apparatus proved unremarkable.

Biological explorations have eliminated HIV infection, pulmonary tuberculosis, a several form of malaria, and hepatic cytolysis. In fact, the rapid diagnostic test for HIV, the search for Bacillus Khor in the gastric fluid and the Xpert test, the thick drop coupled to the smear were negative. The serum activity of ASAT and AST was within normal limits. On the other hand, a severe anemia with 4.7 g/dl of hemoglobin, a leukocyte count/leukocytosis with a predominance of neutrophils (78%) and a severe thrombocytopenia with 36,000 platelets/ml. C-reactive protein at 192 mg/l. The serology of the dengue carried out revealed specific anti-dengue antibodies of immunoglobulin M (IgM) type thus confirming the diagnosis of acute flavivirus infection.

The frontal chest X-ray showed extensive diffuse bilateral diffuse alveolar-interstitial lesions (**Figure 1**), suggesting intra-alveolar haemorrhage in the context of a dengue epidemic. The CT scan performed without injection revealed diffuse lesions of bilateral alveolar hemorrhage.

The care was collegiate with the resuscitation and ENT department. He received 4 blood transfusions (packed red blood cells and platelet concentrate), haemostatics and antipyretics. The evolution was favorable, he came out alive 21 days of hospitalization.

Case No. 2: This is the 12-year-old, female, Ivorian, low socio-economic child

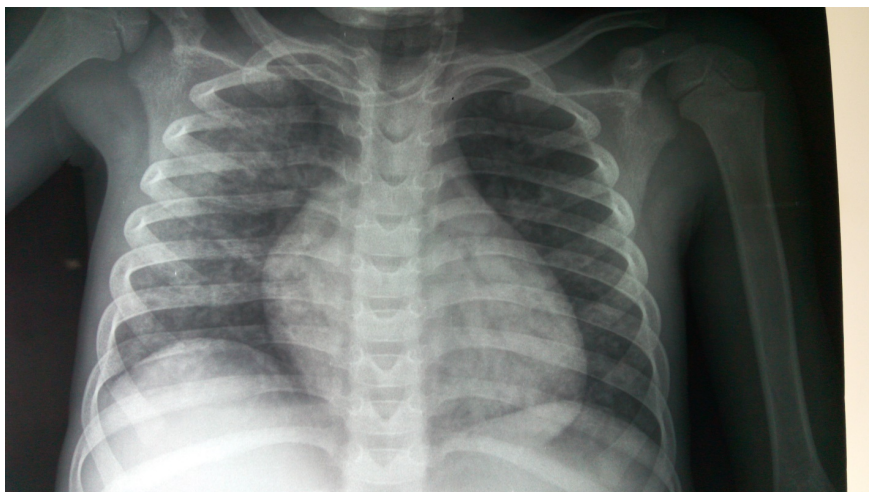


Figure 1. Frontal chest radiograph of case No. 1, bilateral lesions predominantly on the right.

residing in Yopougon, a working-class neighborhood, located in the north-west of the city. Abidjan. He was hospitalized dyspnea and hematemesis.

The antecedents, were without particularity.

The examination reveals a fat cough with muco-purulent sputum, epigastric pain, night sweats and vomiting tinged with blood of acute evolution, 6 days before admission.

On examination, a febrile bi-basal pulmonary condensation syndrome and an alteration of the general state were reported. There was no cutaneomucous pallor or signs of respiratory control. Examination of the digestive, cardiac, neurological apparatus proved unremarkable.

Biological investigations included blood count, moderate anemia at 9.4 g/dl hemoglobin, no leukocytosis and thrombocytopenia. The C-reactive protein was 12.2 mg/l. The serology of the dengue carried out revealed specific anti-dengue antibodies of immunoglobulin M (IgM) type thus confirming the diagnosis of acute flavivirus infection. In addition, the rapid diagnostic test of malaria returned positive, thus diagnosing malaria access.

The frontal chest X-ray also showed extensive diffuse bilateral alveolar-interstitial lesions predominating on the right (**Figure 2**), causing suspicion of intra-alveolar haemorrhage in the context of a dengue epidemic.

Other investigations by clinics could not be carried out, because the child died the day after hospitalization hypovolemic shock following a hematemesis of great abundance.

3. Discussion

We thus retained a diagnosis of severe dengue in both cases, based on epidemiological, clinical, radiological, evolutionary and biological criteria. From the epidemiological point of view, the context is that of a declared dengue epidemic [1] and in the 2 cases observed, these are children under 12 years of age. They belong



Figure 2. Frontal chest radiograph of case No. 2, bilateral lesions predominantly on the right.

to the so-called extreme age categories, presented in the literature, as a fertile ground for severe dengue attacks [2] [3] [4]. Furthermore, the onset of severe symptoms, occurring on days 5 and 6 of a flu-like illness at the time of the thermal defervescence phase, is consistent with the delay and the circumstances described by several other authors [2] [4] [5]. Clinically, dyspneumatic lung involvement and hemorrhagic syndrome were suggestive of severe dengue fever. Indeed, the presence of visceral involvement, whether pulmonary, hepatic, neurological or other, defines the severe form of dengue fever [2] [4] [6] [7] [8] [9]. Radiographically, exploration of these severe pulmonary symptoms allowed us to observe maximal bilateral alveolar-interstitial lesions in the right pulmonary field (**Figure 1** and **Figure 2**). However, we believe that, in the absence of autopsy in case 2 and bronchial fibroscopy in case 1, and in view of the hemorrhagic syndrome in case 2, these pulmonary lesions could be the consequence of alveolar haemorrhage, also described by PÓVOA and collaborators [10]. On the evolutionary level, the arguments in favor of a severe dengue were the management which required a hospitalization of several days and the fatal outcome in one of the cases. Indeed, all cases of dengue whose management requires hospitalization or whose outcome is fatal, can be considered as a case of severe dengue [4] [8] [9] [11]. From a biological point of view, the positivity of specific IgM-type antibodies in both cases was sufficient to confirm the diagnosis of acute flavivirus infection. The detection of viral RNA by PCR representing the direct technique is not performed in both cases. In practice, since biological tests for direct diagnosis (by detection of viral RNA) are only recommended in the early phase of the disease (corresponding to the first five days) [2] [4] [12], only the tests Biological studies that allow indirect diagnosis (by assaying IgM-specific antibodies) were carried out in the cases observed, because of the respective sampling times on D10 and D12 of symptom progression.

In both cases, it was certainly, in view of the antecedents, cases of primary

dengue infection. However, for some authors, the occurrence of a severe form of the disease would be more frequently observed during re-infestation with a different serotype, because of a higher viremia [13] [14].

The diagnosis of severe dengue, well codified, does not pose a problem in our practice; the cases listed in a particular period of declared epidemic, meet the epidemiological, clinical, evolutionary and biological criteria of dengue, widely described in the literature. The peculiarity of the 2 cases that we observe, lies in pulmonary visceral involvement that is rarely reported [3] [15] by the authors and the severity of these cases, a priori primary infection [13] [14].

4. Conclusion

The children presented a severe form of primary dengue infection. It would be wise, through a cohort study, to identify factors associated with the occurrence of this clinical form in children who were naive to previous infestation. Any pediatrician should be alert to a febrile hemorrhagic syndrome in this segment of the population more prone to acute respiratory infections, all the more so as the health environment dominated by infectious bacterial and parasitic diseases.

Conflicts of Interest

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

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