Human cytomegalovirus (HCMV) laryngitis: atypical HCMV disease presentation in haematopoietic stem cell transplantation

Due to a severe impairment of cellular immunity, human cytomegalovirus (HCMV) infection is a common complication occurring after haematopoietic stem cell transplantation (HSCT) procedures (Castagnola et al., 2004).

Laryngitis is an atypical HCMV disease presentation that has been reported only five times previously. These cases were in cardiac transplant recipients or in AIDS patients (Marelli et al., 1992; Siegel et al., 1992; Tinelli et al., 1995; Le Gall et al., 1995; Lopez-Amado et al., 1996).

We report here the case of a 14-month-old boy who developed HCMV laryngitis after cord blood HSCT for myelodysplasia. The recipient’s serological status towards HCMV was positive whereas the cord blood was negative. Graft versus host disease prophylaxis included thymoglobulin during conditioning followed by corticosteroids and cyclosporin. The procedure for the prevention of HCMV disease consisted of aciclovir treatment and HCMV viral load monitoring.

At day +10, a positive HCMV viral load was detected in blood (Fig. 1). According to the recommendations of the Infectious Diseases Working Party of the European Group of Blood and Marrow Transplantation (Ljungman et al., 2004), a pre-emptive treatment was started using foscarnet at 180 mg kg\(^{-1}\) per day instead of ganciclovir in order to avoid a myelotoxicity.

At day +20, the patient presented severe laryngeal dyspnoea that led to intubation. Fibroscopy revealed laryngitis consisting of glottic inflammation and pseudomembranes with mucosal necrosis (Fig. 2). Foscarnet was switched to cidofovir at 3 mg kg\(^{-1}\) per week.

At day +27, no clinical improvement was observed. Moreover, HCMV viral load increased (15 500 copies ml\(^{-1}\)) while the virus was detected in fibroscopic samples. Cidofovir was thus replaced by ganciclovir at 10 mg kg\(^{-1}\) per day. This treatment led to the regression of laryngeal symptoms, and allowed extubation at day +31. Simultaneously, the HCMV viral load decreased to less than 500 copies ml\(^{-1}\) at day +45 and HCMV isolation from throat samples remained negative.

Ganciclovir was stopped at day +73 after maintenance therapy. Thirty months after transplantation, the patient is now healthy.

In healthy children, laryngitis is commonly due to viruses (parainfluenza, influenza A and B, adenovirus, respiratory syncytial virus) or to Mycoplasma pneumoniae. In addition to fungal (mainly Candida) or Staphylococcus infections, these agents are also responsible for severe laryngitis in the immunocompromised. The initial treatment should thus have a wide spectrum until identification of the aetiological agent. Our initial treatment consisted of four antibiotics (vancomycin, metronidazole, ciprofloxacin and cefotaxime), one antifungal (caspofungin) and also one antiviral (cidofovir) for therapy against adenoviruses (Muller et al., 2005).

HCMV laryngitis definition in transplant recipients (Ljungman et al., 2002) includes the combination of clinical symptoms and HCMV isolation from the site of infection. In our case, HCMV was not isolated but only detected by PCR probably due to the ongoing foscarnet treatment at the time of the laryngeal fibroscopy. However, high blood viral loads and the lack of other microbiological findings made the diagnosis of HCMV laryngitis the most probable.

In conclusion, to treat infection in the immunocompromised, we have to take into consideration the usual microbiological agents as well as the epidemiological specificities. No consensus is available concerning the management of localized severe HCMV infection in patients after HSCT. The treatment we proposed was based on epidemiological findings combined with general recommendations of scientific societies.

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Fig. 1. HCMV viral load evolution.
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Fig. 2. Pseudomembranes on the cords observed by laryngoscopy.