Case Report

Invasive disease caused by Haemophilus parainfluenzae III in a child with uropathy

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Urinary tract infections (UTIs) caused by Haemophilus parainfluenzae represent a very small percentage of this kind of pathology in children, and it has scarcely been described in the medical literature. According to previous studies of over 800 urine samples in children under 15 years old, a decrease of 50% (from 0.13% to 0.07%) is estimated in its occurrence over the last two decades. This can be explained by the early detection of UTIs and their early empirical treatment, because this micro-organism shows high sensitivity to antibiotics. Also, the culture media in which this bacterium grows are not included in most current protocols. Here we report a case of a UTI caused by H. parainfluenzae in a 4-year-old boy.

Introduction

We present the case of a child with bacteraemic pyelonephritis caused by Haemophilus parainfluenzae type III. To our knowledge, the only previous description in the medical literature of bacteraemia by this micro-organism in children was about 20 years ago (Jayabose et al., 1984).

Case report

A 4-year-old boy with a history of endoscopic resection of the posterior urethral valves and grade IV vesicoureteral reflux surgery during the neonatal period, awaiting a transplant due to kidney failure (left kidney not functioning and the right one functioning at 13%), had presented recurrent urinary tract infections (UTIs). He was not receiving prophylactic antibiotics at the time of admission.

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During the examination, he presented a painful abdomen upon touching the right iliac fossa and right renal fossa. Among additional tests, urine that looked cloudy stood out, with intense leukocyturia and positive nitrates. The blood tests showed neutrophilia and elevation of urea (79 mg dl⁻¹), creatinine (1.6 mg dl⁻¹) and the acute phase reactants (C-reactive protein 68 mg l⁻¹; procalcitonin 47 ng ml⁻¹). In the renal ultrasound we observed left kidney atrophy, hyperechogenic right kidney with an altered corticomedullary differentiation, dysplastic changes of the left kidney, left hydronephrosis, similar to previous studies. Group III H. parainfluenzae was isolated in conventional blood culture after negative Gram staining and positive urease test. Urine culture was negative. We started empirical treatment with intravenous amoxicillin–clavulanic acid, susceptibility to which was confirmed by diffusion antibiogram and Etest. Progress was satisfactory after 19 days of antibiotic treatment.

Discussion

H. parainfluenzae represents, according to studies, 0.13% (Leskovar et al., 2010) of UTI aetiology among the paediatric age group, predominantly in children under 3 years old of male sex and during cold months (Megraud et al., 1983). Within the H. parainfluenzae groups, the most frequent are groups I, II and III, which despite being more often isolated in the oropharynx, are also found in 12% of the genito-urinary area (Martel et al., 1989; Sturm, 1986). H. parainfluenzae cannot be isolated in standard culture media but instead requires an enriched medium such as chocolate agar (Galán et al., 1996; Sturm, 1986) in order to grow. This leads to a large amount of false negatives in urine cultures from patients with UTIs, as in this case.

In the literature found, all the UTI cases caused by H. parainfluenzae occurred in children with urinary tract malformations (Schuit, 1979; Galán et al., 1996; Megraud et al., 1983; Hansson et al., 2007; Maggs et al., 1994) as in the case presented here. Because of this, in the event of UTI in such patients, the use of cultures with enriched media can be justified in the absence of bacterial isolation.

References


