SCIREA Journal of Clinical Medicine
ISSN: 2706-8870
http://www.scirea.org/journal/CM
January 16, 2024
Volume 9, Issue 1, February 2024
https://doi.org/10.54647/cm321239

Otitis media revealing a congenital tuberculosisis in preterm neonate: a case report

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Abstract

Congenital tuberculosis is rare and fatal. The delay in diagnosis is very common in most cases. We report a premature infant born after 30 weeks of gestation; the diagnosis was suspected in front of otorrhea at 5 weeks of life with the announcement of the death of the mother following multifocal tuberculosis. The *mycobacterium tuberculosis* was isolated in direct examination of needle biopsy (cytopunction) of cervical lymphadenopathy; the infant had received antibacillary treatment for 12 months according to the national protocol; no index case in the family was objectified. The infant was treated, and he is recovering with good clinical evolution. This case raises the difficulty of diagnosing tuberculosis in the neonatal period as well as the interest of establishing in our context a strategy for screening nosocomial infections of tuberculosis in an inpatient setting.

Keywords: Congenital tuberculosisis, preterm, otitis media, diagnosis, case report

Introduction:

Tuberculosis represents a global health problem and especially a public health problem in Morocco since it is an endemic developing country. Congenital tuberculosis is a rare form of tuberculosis that remains rare for many reasons, including the absence of clear differentiation between congenital and acquired cases as well as ignorance of maternal involvement [**1-3**]. Despite the fact that its incidence remains rare, its mortality is high [**4**]. We report a case of congenital tuberculosis revealed by purulent otitis media in a premature newborn.

Case raport:

We report the case of a female newborn, 30 years premature, born from a non-consanguineous marriage, a 32-year-old mother, 4th pares; there was no pregnancy follow-up; a vaginal birth; an unexplained prematurity; a birth weight of 1700g; hospitalization for transient respiratory distress that quickly resolved; a normal initial chest X-ray; no hyaline membrane disease; discharge made at H72 of home life. Readmitted to the department at the age of 3 weeks for a picture of bronchioalveolitis, on standard radiography, the presence of several pulmonary foci in diffuse bilateral, negative COVID PCR, and positive respiratory sampling with RSV and rhinovirus improved after a hospitalization of 10 days, requiring ventilation support by oxygen therapy. At 05 weeks of life, the baby was readmitted by the father for a fever of 40 C, a right purulent otorrhea associated with multiple peri-atrial and submandibular lymphadenopathy, a poor weight gain of 1800 g, and hypotonia. A swab sampling of the right atrial discharge revealed an infection with E. coli and Proteus mirabilis, treated with ceftriaxone and gentamicin. During the interrogation, we found out that the mother had just died because of disseminated tuberculosis with pulmonary, genital, digestive, and peritoneal lesions. The cerebro-thoracoabdominal computed tomography revealed in the baby multiple right latero-cervical lymphadenopathies and under-chin straps extending to the peri-auricular region, necroses measuring the largest 10x13 mm in diameter, fluid filling of the middle ear, the external auditory canal, as well as right mastoid cells with bone lysis opposite (**figure 1**). Multiple branched pulmonary parenchymal micronodules, upper right lobar, realizing the appearance of a bud tree, focus of lower left lobar pulmonary parenchymal condensation, liver and spleen of normal size, regular contours, seat of multiple scattered hypodense millimetric nodules (**figures 2, 3**). A needle biopsy (cytopunction)of cervical lymphadenopathy revealed on direct examination the presence of acid-alcohol resistant bacilli.

The diagnosis of congenital disseminated tuberculosis with pulmonary, lymph node, and digestive involvement was retained. The HIV serology was negative in the mother and the baby, and the biological balance was normal apart from a CRP of 109 mg/l. The cytobacteriological study of CSF was also normal. Antibacillary treatment with four types of antibiotic therapy: isoniazid (H): 10 mg/kg per day orally, rifampicin (R): 15 mg/kg per day orally, pyrazinamide (Z): 35 mg/kg per day orally, and ethambutol (E): 20 mg/kg per day orally, for two months, then relay only with isoniazid (H) and rifampicin (R) for 10 months, as well as corticosteroid therapy at a dose of 02mg /kg per day orally for one month, with gradual cessation. A screening, including a standard chest X-ray from the front and a cutaneous intradermal reaction with tuberculin, was carried out in the father and the siblings, as well as the index cases, which all returned negative. The patient was put in the isolation ward as soon as she was admitted. Nevertheless, no screening has been carried out among medical or paramedical nursing staff. The evolution was marked by a good weight gain without side effects of the anti-bacillary treatment, allowing the patient to be discharged at home after 17 days of hospitalization. The discharge was followed up closely at the hospital on the day of the service, with a complete clinical examination with a liver assessment and monitoring of the weight curve, as well as simultaneous follow-up at the local tuberculosis and respiratory diseases diagnostic center (CDTMR). At 19 months of life and 7 months after discontinuation of treatment, the infant showed normal psychomotor and staturoponderal development.

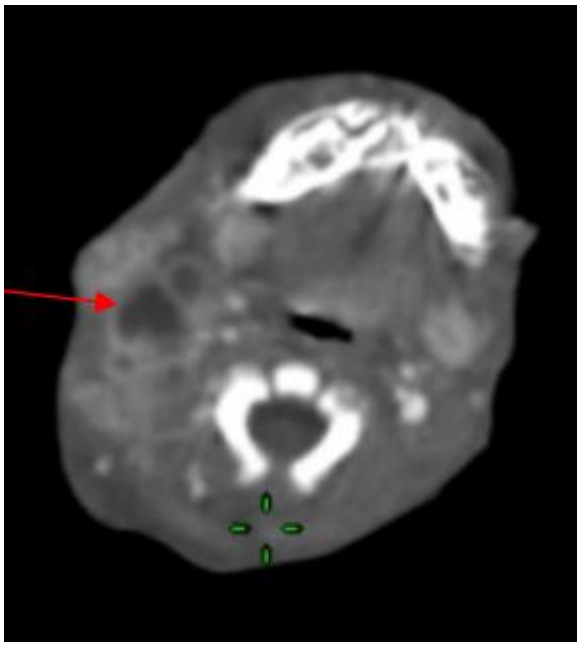

Figure 1: Multiple right latero-cervical lymphadenopathies

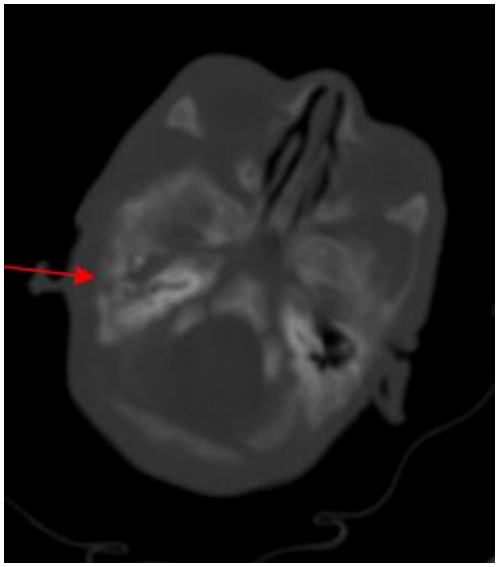

Figure 2: bone lysis of right mastoid cells

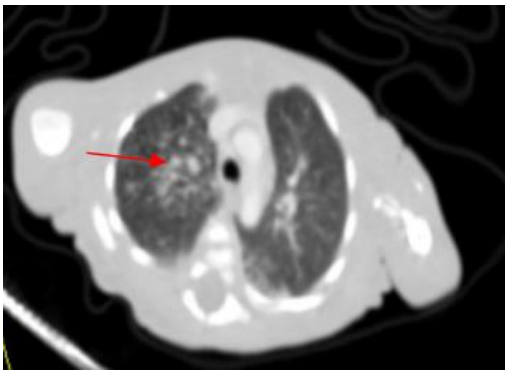

Figure 3: Multiple branched pulmonary parenchymal micronodules

Perspectives of the patient: before starting the treatment, the father of the patient benefited from an explanation on the interest of the treatment with all the risks as well as the continuation of the medical care.

Discussion:

Tuberculosis is an infectious disease that poses a significant health problem in Morocco, as well as globally. According to the World Health Organization (WHO), tuberculosis continues to claim the lives of 1.6 million people annually while affecting millions more. These consequences have far-reaching impacts on families and communities [**5**]. Congenital tuberculosis, a rare form of the disease, often goes unnoticed by nursing staff due to non-

specific clinical signs or a lack of awareness regarding maternal involvement [**2, 6**]. The exact incidence of this form, as well as the neonatal form, remains unknown; however, the WHO estimated an incidence of approximately 530,000 children aged between 0 and 4 years in 2017 [**7**]. It is essential to differentiate between two forms: congenital tuberculosis and the neonatal form, both of which exhibit atypical and nonspecific damage. In general, neonatal involvement with tuberculosis typically occurs between birth and 4 months of age. According to Cantwell et al.'s criteria, a newborn must exhibit tuberculosis lesions along with at least one of the following: 1) involvement during the first week of life; 2) liver involvement or intrahepatic granulomas; 3) genital tuberculosis in the mother or placental involvement; or 4) exclusion of postnatal contamination [**8, 9**]. The diagnosis of neonatal tuberculosis is made when these diagnostic criteria are not met and there is certainty of postnatal contamination.

In our case, the delay in diagnosis can be attributed to the prematurity context and the lack of knowledge regarding the mother's health condition. Additionally, the presence of concurrent respiratory infections in the early clinical history of the baby contributed to the delay in managing the patient. The clinical manifestations of neonatal tuberculosis are diverse and nonspecific, often presenting with a combination of symptoms, as reported in the literature and observed in our case. These symptoms range from non-specific signs such as fever, pallor, and jaundice to respiratory problems such as respiratory distress, cough, and apnea; neurological damage including irritability and meningitis; digestive issues such as poor weight gain and abdominal distension; as well as other manifestations like ENT problems (otorrhea, mastoiditis) and bone damage [**10**].

Upon admission to the ward, the patient was isolated due to her symptoms and otitis at such a young age. As soon as the diagnosis of congenital tuberculosis was confirmed, the nursing staff was notified to take the necessary precautions, although a specific screening strategy was not implemented. The patient was discharged under close supervision by the hospital and the CDTMR once the anti-bacillary treatment was initiated and the absence of treatment side effects was ensured.

Conclusion:

Tuberculosis continues to be a significant health concern in Morocco. While the congenital form of the disease is rare, it is essential for healthcare professionals in neonatology and pediatrics to be aware of its existence and remain vigilant. Collaboration with the

occupational medicine service is also crucial to prevent nosocomial tuberculosis infections and potential epidemics in nursing services. By raising awareness and implementing proper measures, the impact of tuberculosis can be mitigated within healthcare settings.

Conflicts of interest:

The authors declare no conflict of interest.

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