



A Case Report on Omphalitis

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Abstract

Omphalitis is characterized by a bacterial infectious process that affects the umbilical scar and adjacent regions, it showed up through purulent drainage or with stinky odor at periumbilical region, local edema and erythema. In severe cases, the infection can spread through the abdominal wall, back, and perineum, and if not treated properly, it can progress to neonatal sepsis.

The authors present a case report of a 4-day-old, low-birth-weight male patient born at 38 weeks gestational age. At admission, the newborn was with significant jaundice, umbilical stump in mummification process, localized tumor hardened at the base and edematous, with periumbilical erythema, without signs of pain on palpation or signs of incarceration, possibly corresponding to omphalitis. The physical examination confirmed the diagnostic hypothesis, leading the patient to successful treatment with intravenous antibiotic therapy.

Keywords: Infant; Newborn; Infection; Umbilical Cord; Skin Care

Introduction

Omphalitis is a bacterial infection of the skin and soft umbilicus tissues and surrounding regions which occurs in underdeveloped countries. The onset usually happens between 5 and 9 days of life. The incidence of omphalitis in newborns (NBs) in developed countries is 0.7%, rising to 2.7% in developing countries, affecting both genders equally [1,2].

The diagnosis of omphalitis depends on the performance of a detailed physical examination with special attention to the severities or anatomical associations to it, as well as the complementary performance of ultrasonography [6].

Omphalitis is characterized by purulent drainage or with a stinky odor from the umbilical stump, associated with edema, erythema, and increased skin sensitivity in child's periumbilical

region, showing bleeding in some cases. If untreated, it may lead to neonatal sepsis, contributing to high mortality of newborns in Brazil and worldwide [3].

The following is a case report of a 4-day-old newborn.

Case Report

A 4-day-old, low-birthweight (2.308 kg), 38-week-old male patient was referred from another hospital for follow-up at Pediatric Surgery with suspected incarcerated umbilical hernia. Mother denies complications during pregnancy, fever or other complaints.

On physical examination, the newborn was icteric +++/4+ with umbilical stump in mummification process and hardened umbilical tumor at the base and edematous with periumbilical erythema, showing no signs of pain at palpation or signs of incarceration (Figure 1), compatible with omphalitis.



Figure 1: Physical examination of the newborn demonstrating umbilical stump in mummification process and hardened umbilical tumor at the base and edematous with periumbilical erythema).

With the physical examination evaluation, intravenous antibiotic therapy was given for 10 days as treatment choice - crystalline penicillin 5,000,000 IU intravenously every 12 hours and gentamicin sulfate 80 mg intravenously once a day, both for 10 days. At the end of the intravenous antibiotic treatment, the patient was discharged home cured.

Discussion

Omphalitis is a bacterial infection of the skin and soft umbilical tissues and surrounding regions which occurs in underdeveloped countries. The onset usually happens between 5 and 9 days of life. The incidence of omphalitis in newborns (NBs) in developed countries is 0.7%, rising to 2.7% in developing countries, affecting both genders equally [1,2].

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to neonatal sepsis, contributing to high mortality of newborns in Brazil and worldwide [4].

Some risk factors for the development of omphalitis are low birth weight, maternal infection, use of umbilical catheter, domestic delivery, preterm delivery, and lack of hygiene of the umbilical stump [5]. The diagnosis of the disease is made through a detailed physical examination with the aid of ultrasonography as a complementary investigation since this imaging exam evaluates the echogenicity, shape of the structures, observation of the lumen, presence of abscesses and especially the measurements of the diameter of the umbilical wall thicknesses [5]. However, a nodule can be observed in this case through this imaging exam in the umbilical topography which suggests umbilical hernia.

Some symptoms are abdominal distension, low activity, irritability, fever, feeding intolerance and refusal. Although, it may also be asymptomatic [5]. There is no research with sufficient evidence to allow recommendations on the most effective care of the umbilical cord stump to prevent omphalitis in newborns [6]. In Brazil, dry cleaning of the umbilical cord stump or using chlorhexidine is routinely recommended [6].

While the evolution of omphalitis is generally favorable, without major complications or sequelae, the disease may be associated with high mortality/morbidity if there are complications such as neonatal sepsis [1,2,4].

There is preference for treatment using intravenous antibiotics for at least 10 days, and there should be clinical improvement with visible reduction of inflammatory signs in the first 12-24 hours after starting antibiotic therapy with ceftriaxone [1,2,4]. Absence of response to therapy and persistence of fever may mean progression of the disease and the newborn may undergo abdominal wall surgery [1,2,4].

Complications associated with omphalitis include sepsis, necrotizing fasciitis, abscesses, hepatic complications, urachus remnant infections, peritoneal complications, and spontaneous intestinal eviscerations [7].

In general, the definitive treatment is always surgical, but depending on the presence of infection (severe or not), local drainage

and antibiotic therapy may be necessary, before the surgical act [3]. In the case of the presence of intestinal transit changes (obstruction) or anatomical anomalies such as Meckel's diverticulitis, it will become an emergency [3].

In the case report presented above, intravenous antibiotics were administered for 10 days, with a reduction of edema, disappearance of hyperemia, and purulent secretion coming out of the umbilical stump. Therefore, emergency surgery was not necessary and the patient was discharged after 15 days of hospitalization.

Conclusion

Omphalitis is a bacterial infection of the skin and soft umbilicus tissues which occurs in underdeveloped countries. It is diagnosed by physical examination without the necessity of complementary tests. The importance of this disease consists in the possible complications associated, indicating the need for accurate treatment.

Acknowledgment

Not applicable.

Conflict of Interest

The authors declare that there is no conflict of interest regarding the publication of this paper.

Bibliography

1. Karumbi J., *et al.* "Topical umbilical cord care for prevention of infection and neonatal mortality". *The Pediatric Infectious Disease Journal* 32.1 (2013): 78-83.
2. Mendoza MP and Hernández KB. "Clinical and epidemiological characterization of omphalitis in a neonatology service". *Medicentro* 19.3 (2015): 157-159.
3. Canale A., *et al.* "Onphalitis for persistence of onphalomesenteric conduct: a case report". *PECIBES* (2020): 25-29.
4. World Health Organization. *Children: reducing mortality* (2016).
5. López-Medina MD., *et al.* "Dry care versus chlorhexidine cord care for prevention of omphalitis. Systematic review with meta-analysis". *Revista Latino-Americana de Enfermagem* 27 (2019): e3106.

6. Pereira MDAA., *et al.* "Assistência à saúde da criança: uma análise multidimensional dos serviços de saúde". *Revista Ciência Plural* 4.3 (2018): 57-68.
7. Steer-Massaró C. "Neonatal Omphalitis After Lotus Birth". *Journal of Midwifery and Women's Health* 65.2 (2020): 271-275.