Congenital cutaneous candidiasis associated with respiratory distress in a full-term newborn

Faten Tinsa*, Khadija Boussetta*, Dalel Ben Hassine*, Monia kharfi**, Souad Bousnina*.

** Department of Pediatrics B, Children's hospital of Tunis, Tunis, Tunisia*
*** Department of Dermatology, Charles Nicolle Hospital, Tunis, Tunisia*

F. Tinsa, K. Boussetta, D. Ben Hassine, M. kharfi, S. Bousnina.

Candidose cutanée congénitale associée à une détresse respiratoire chez un nouveau-né à terme.

LA TUNISIE MEDICALE - 2010 ; Vol 88 (n°11) : 844 - 846

F. Tinsa, K. Boussetta, D. Ben Hassine, M. kharfi, S. Bousnina.

Congenital cutaneous candidiasis associated with respiratory distress in a full-term newborn

LA TUNISIE MEDICALE - 2010 ; Vol 88 (n°11) : 844 - 846

RÉSUMÉ

Prérequis: la candidose congénitale est rare, survenant, dans la majorité des cas chez les prématurés et les faibles poids de naissance. Son tableau clinique est variable allant de l'atteinte cutanée à la forme systémique avec ou sans atteinte cutanée. L'amphotéricine B est le traitement de première intention des formes systémiques.

But : Rapporter une observation rare d'une candidose congénitale chez un nouveau-né à terme.

Observation : A la naissance, le nouveau-né avait une éruption papulo-vésiculeuse érythémateuse généralise évoquant une candidose. Il a été traité par un antifongique local, toutefois il a développé à J3 de vie une forme systémique avec fièvre et détresse respiratoire. Les prélèvements auriculaire, gastrique et cutané ont isolé un Candidat albicans. L'évolution était favorable sous fluconazole pendant 10 jours.

Conclusion : Le traitement précoce local ne prévient pas la dissémination de la candidose cutanée congénitale. Le traitement par fluconazole de première intention semble efficace et sans effets indésirables.

Mots-clés
Candidose cutanée congénitale

SUMMARY

Background: Congenital candidiasis is rare occurring in most cases in premature and low birth weight new born. It can produce a spectrum of disease ranging from a diffuse skin eruption to a severe systemic disease with or without skin involvement. Amphotericin B is the first-line agent for the treatment of systemic disease.

Aim: To describe a congenital candidiasis in a full-term new born.

Case report: At birth, the newborn had a generalized, erythematous, papulovesicular eruption. He was treated by topic antifungal therapy. However, on the third day, he developed a systemic disease with respiratory distress and fever. Ear, skin swab and gastric aspirate grew to Candida albicans. The new born was given fluconazole for 10 days with favourable outcome.

Conclusion: Early topic therapy did not prevent systemic spread of congenital cutaneous candidiasis in our case. Treatment with fluconazole, as the first- line agent, seems effective and safety.

Key-words
Congenital cutaneous candidiasis

داء المبيضات الجلدي الخلقي المتزامن مع صعوبة في التنفس عند رضيع حديث الولادة

الباحثون : فاتن تينسى - خديجة بوستة - دلال بن حسين - منية خرفي - سعاد بوسنينة

الهدف من هذه الدراسة هو استعراض حالة نادرة لداء المبيضات الخلقي عند وليد . عند الولادة كان يكسو الوليد طفح معمّم وقعت معالجته بواسطة المضّادات الفطرية الموضعيّة و لكن أمام ظهور الحمّى و صعوبة في التنفس في اليوم الثالث عشر للولادة و امام ثبوت وجود " الكنديدا البيكانس "فقد عولج الوليد بواسطة" الفلوكينازول "مدّة عشرة أيام و تجاوب مع هذا الدوّاء بايجابية.

الكلمات الأساسية : داء المبيضات الجلدي الخلقي

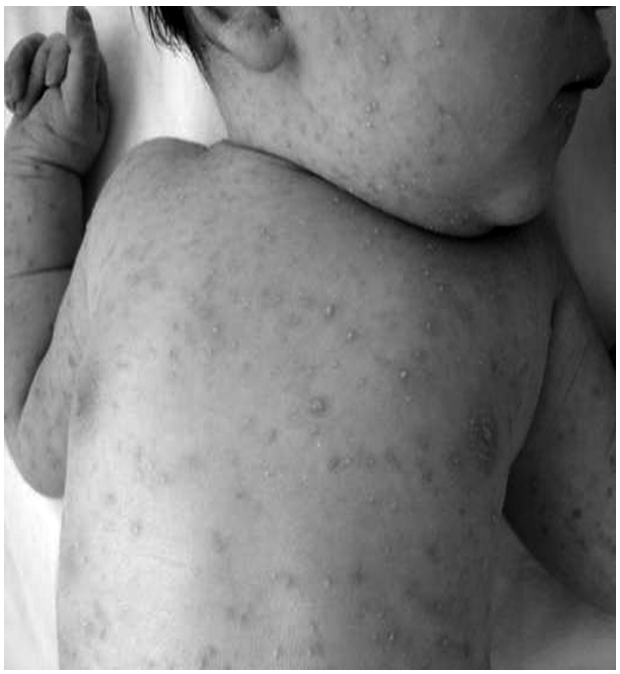
Congenital cutaneous candidiasis (CCC) presents within the first 6 days of life as a skin eruption caused by Candida spp. Although candidal infections are common in the neonatal period, 100 cases of CCC have been reported in the English literature since candidal chorioamnionitis was first described [1,2]. Prenatally acquired candidal infections can produce a spectrum of disease ranging from a diffuse skin eruption in the absence of systemic illness to severe systemic disease with or without cutaneous involvement and resulting in fetal demise or early neonatal death. We describe a full-term neonate with CCC accompanied by respiratory distress.

CASE REPORT

A full-term, 3950-g female was born by spontaneous vaginal delivery to a 30-year-old mother. Membranes were intact at the time of the delivery. There was no history of maternal infection, gestational diabetes, intra-uterine contraceptive device or cervical cerclage. Apgar scores were 9 and 10 at 1 and 5 minutes, respectively. The infant developed immediately after birth, a mild neonatal distress, rapidly resolved, that was most consistent with transient tachypnea of the newborn. She was admitted to our department 6 hours after birth to manage cutaneous eruptions.

Upon physical examination, a well-developed, vigorous, afebrile female was grunting. No respiratory distress was noted and her breath sounds were equal and clear bilaterally. Her skin showed multiple papules, vesicles, and pustules on an erythematous base, more prominent in abdomen, back, and face. Palms and soles were also affected (Figure 1).

Figure 1: Full-term healthy infant with congenital cutaneous candidiasis, presenting with generalized erythematous papules and pustules.



Mucous membranes, nails, and scalp were spared. The remainder of the physical examination was normal. Laboratory examination showed a total leukocyte count of 17600/mm3 with 59% polymorphonuclear leukocytes, C-reactive protein was negative. Ear, anus and gastric swabs and skin lesion sample were performed. The new born was treated with topical antifungal therapy (Econazole). This patient developed at 50 hours of life a secondary respiratory distress with tachypnea of 80 breaths per minute, sub-costal retractions and fever of 39°C. Chest X ray showed bilateral lungs infiltrates. C reactive protein rose to 68 mg/l and a total leukocyte count was of 7600/mm3. Lumbar punction was normal. Ampicillin, cefotaxim and amikacin were started. Blood culture was negative but gastric, ear swabs and skin lesion sample grew candida albicans. Post partum vaginal sample was negative. The initial antibiotic therapy was stopped and intravenous fluconazole was started at 72 hours of life for ten days (5mg/kg/day) with favourable outcome.

DISCUSSION:

CCC occurs in the setting of candidal vulvovaginitis, which is present in 20% to 25% of all pregnant women [3,4].Despite its frequent presence in the vagina, Candida can be shown on the fetal surface of < 1% of placentas[5].Extension of Candida to cause cutaneous and/or systemic congenital infection of the fetus is rare. A principal risk factor for early preterm birth with CCC appears to be the presence of a foreign body, specifically, an intrauterine device or cervical sutures [2]. Diagnostic amniocentesis has preceded, and may trigger the development of CCC [6]. Maternal age, parity, diabetes, urinary tract infection, or prolonged labor; prolonged rupture of fetal membranes; tocolytic therapy; or antibiotic or corticosteroid administration do not appear to be risk factors for CCC [7]. On the other hand, congenital candidiasis may precipitate preterm labor and premature rupture of membranes. In our case, there was no risk factor for CCC and the new born was full-term and there was no risk factor for CCC.

It is usually accepted that the disease is acquired in utero via ascending infection although the exact mechanism of how this may occur is currently unknown. It is noteworthy that most cases have occurred with clinically intact chorioamniotic membranes and our patient was not the exception to this previously reported clinical observation [2]. There is evidence that C. albicans may readily penetrate intact membranes [2,8]. It has been hypothesized that congenital infection may be facilitated by subclinical rupture of membranes before delivery. Once the membranes have been penetrated, the pattern of fetal pathology suggests that organisms spread from the amniotic fluid to the skin, and into the pulmonary and gastrointestinal tract after the infected fluid is aspirated or swallowed [9].

Skin lesions in CCC typically presented on the first day of life (81%)[2]. Occasionally onset was delayed for a few days, as late as day 6[10,11]. The typical rash consisted initially of a generalized eruption of 2- to 4-mm erythematous macules, papules, and/or pustules, often on a 5- to 10-mm erythematous

base. The back, extensor surfaces of the extremities, and skin folds had the greatest degree of involvement. The diaper area was relatively spared. Pustules were usually present on the palms and soles, but the oral mucosae only rarely had any thrush [12]. Onychia and paronychia occurred occasionally; rarely, CCC was limited to the nails [13]. Our patient had a typical skin lesion which appeared few hours after birth; The most common presentation in premature infants, particularly those of approximately 24 to 26 weeks gestational age (weighing ,1000 g), is diffuse erythematous macular patches, resembling a burn, which tends to desquamate and/or to become eroded (60%)[2,10,14]; these infants are at greater risk for systemic infection with Candida spp (67%) and death (40%) than those weighing >1000 g ([10%]; [8%], respectively). Congenital candidiasis in extremely preterm infants has been associated with: characteristic chorioamnionitis and funisitis, a leucocytosis , and infective alveolitis within the first 3 days of life [15,16,17,18]. Our patient was a full-term born, without history of chorioamnionitis or funisitis despite the fact that he presented a systemic infection. The differential diagnosis includes other neonatal vesiculopustular disorders, such as listeriosis, syphilis, staphylococcal and herpes simplex infections, as well as erythema toxicum neonatorum, transient neonatal pustular melanosis, miliaria rubra, drug eruption, and congenital icthyosiform erythroderma.

Definitive diagnosis of CCC is made by microscopic proof of spores and pseudohyphae of C albicans in skin scrapings, and culture of the organism from lesions. Because the organism is generally confined to epithelial surfaces (ie, skin, gastrointestinal tract), cultures of blood, urine and cerebrospinal fluid usually are negative. In our patient, the diagnosis was confirmed by the positive cultures from ear, and skin swabs and gastric aspirate; blood and cerebrospinal fluid cultures were negative. Cultures should be obtained from peripheral samples, whenever a systemic disease is suspected. Microscopic examination of the placenta and umbilical cord have been proved to be useful for a quick diagnosis: the finding of white microabscesses is highly suggestive of Candida placentitis [8,19]. So cooperation between obstetricians and neonatologists is very important for early diagnosis.

The majority of term newborns with CCC have disease limited to the skin. Topical and oral therapy have been recommended by some authors to lower the number of viable organisms on the skin and in the gastrointestinal tract and, presumably, to reduce the risk of systemic spread [20]. In our patient, early topic therapy did not prevent systemic spread. The current recommendation is to start antifungal therapy when the disease has systemic involvement or extensive burn-like dermatitis. Amphotericin B is the first-line agent for treatment for 21 days and the use of fluconazole may be considered when toxicity to amphotericin B is prohibitive and the organism is susceptible, although data to support its use for treatment of systemic candidal infection in preterm infants are lacking [2,18,21]. In our case, we have chosen fluconazole as the first line treatment thanks to its safety and ease of handling during ten days. Besides, the outcome was favourable.

Références

1. Benirschke K, Raphael SI. Candida albicans infection of amniotic sac. Am J Obstet Gynecol 1958;75:200–20
2. Darmstadt GL, Dinulos JG, Miller Z. Congenital Cutaneous Candidiasis: Clinical Presentation, Pathogenesis, and Management Guidelines. Pediatrics 2000;105;438-44
3. Kozinn PJ, Taschdjian CL, Dragutsy D, Minsky A. Cutaneous candidiasis in early infancy and childhood. Pediatrics 1957;20:827–34
4. Oriel JD, Petridge BM, Denny MJ, Coleman JC. Genital yeast infections. Br Med J 1972;4:761–4
5. Maudsley RF, Brix GA, Hinton NA, et al. Placental inflammation and infection. A prospective bacteriologic and histologic study. Am J Obstet Gynecol 1966;95:648–59
6. Delaplane D, Wiringa KS, Shulman ST, Yogev R. Congenital mucocutaneous candidiasis following diagnostic amniocentesis. Am J Obstet Gynecol 1983;147:342–3
7. Whyte R, Hussain Z, DeSa D. Antenatal infections with Candida species. Arch Dis Child 1982;57:528–35
8. Diana A, Epiney M, Ecoffey M, Pfister RE. White dots on the placenta and red dots on the baby: Congenital cutaneous candidiasis- a rare disease of the neonate. Acta Paediatr 2004;93:996–1001.
9. Benirschke K. Routes and types of infection of the fetus and the newborn. Am J Dis Child 1960;99:714–21
10. Melville C, Kempley S, Graham J, Berry CL. Early onset systemic Candida infection in extremely preterm neonates. Eur J Pediatr 1996;155: 904–6
11. Schirar A, Rendu C, Vielh JP, Gautray JP. Congenital mycosis. Biol Neonate 1974;24:273–78
12. Lopez-Linares M, Perez Iglesias F, Lillo Lillo M, Gonzolez Fernandez P, Serrano Gonzolez B. Early neonatal cutaneous candidiasis. Helv Paediatr Acta 1984;39:265–8
13. Arbegast KD, Lamberty LF, Koh JK. Congenital candidiasis limited to the nail plates. Pediatr Dermatol. 1990;7:310–12
14. Baley JE, Silverman RA. Systemic candidiasis: cutaneous manifestations in low birth weight infants. Pediatrics 1998;2:211–15
15. Wolach B, Bogger-Goren S, Whyte R. Perinatal hematological profile of newborn infants with Candida antenatal infections. Biol Neonate 1991; 59:5–12
16. Pradeepkumar VK, Rajaurai VS, Tan KW. Congential candidiasis: varied presentations. J Perinatol 1998;18:311–6
17. Whyte R, Hussain Z, DeSa D. Antenatal infections with Candida species. Arch Dis Child 1982;57:528–35
18. Aldana-Valenzuela C, Morales-Marquec M, Castellanos-Martinez J, DeAnda-Gomez M. Congenital Candidiasis: A Rare and Unpredictable Disease. J Perinatol 2005; 25: 680–2
19. Schwartz DA, Ref S. Candida albicans placentitis and funisitis: early diagnosis of congenital candidemia by histopathological examination of umbilical cord vessels. Pediatr Infec Dis J 1990;9:661–5.
20. Johnson DE, Thompson TR, Ferrieri P. Congenital candidiasis. Am J Dis Child 1981;135:273–5
21. Baud O, Boithias C, Lacaze-Masmonteil T. Infection maternofoetale disséminée à candida albicans et grande prématurité. Arch Pediatr 1997;4 :331-34