

ARAŞTIRMALAR

Vesicobullous Disorders of Newborn Infants

YENİDOĞANDA VESİKOBULLOZ BOZUKLUKLAR

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SUMMARY

This study was performed on 22 newborn infants with vesicobullous skin disorders who were treated in Pediatrics and Dermatology clinics of Atatürk University in a period of five years. Of these 22 infants, 11 were diagnosed as miliaria crystallina and treated as outpatient, seven were diagnosed as staphylococcal scalded skin syndrome and four were diagnosed as epidermolysis bullosa and were hospitalized. Diagnosis was made on the basis of clinical data and microbiological laboratory. Infants with Ritter's disease were discharged with health and except the case with epidermolysis bullosa dystrophica, other infants with epidermolysis bullosa simplex were discharged without any complication.

Key Words: Vesicobullous disorders, Newborn

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Many diseases are characterized by vesicobullous lesions; they vary considerably in etiology, age of occurrence and the pattern of the lesions. The morphology of the blister often provides a visual clue to the location of the lesion within the skin. Blisters localized to the epidermal layers are thin-walled and relatively flaccid and tend to rupture easily. Subepidermal blisters are thick-walled, and more durable (1).

In the newborn period, presence of vesicular or pustular lesions evokes justifiable concern in clinicians, because life-threatening bacterial viral infections may present in this fashion.

Because the pediatricians are usually the first admitted clinicians and because of difficult differential

ÖZET

Bu çalışma vesikülobüllöz cilt hastalığı olan ve Atatürk Üniversitesi Dermatoloji ve Pediatri Kliniklerinde 15 yıllık süreyle tedavi edilmiş olan 22 yenidoğan üzerinde yapıldı. Bu 22 infantın 11'i miliaria crystallina tanısıyla ayaktan tedavi edilir. Yedi hastada stafilokoksik haşlanmış deri sendromu tanısı kondu, 4 hastada epidermolizis bülloza tanısı kondu ve hastaneye yatırıldılar. Tanı klinik veriler ve mikrobiyolojik bulgularla konuldu. Ritter hastalığı olan infantlardan epidermolizis bülloza distrofikali bir hasta dışındakiler şifa ile taburcu edildi. Epidermolizis bülloza simplex tanılı diğer hastalar herhangi bir komplikasyon olmadan taburcu edildiler.

Anahtar Kelimeler: Vesicobulloz hastalıklar, Yenidoğan

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diagnosis of vesicobullous disorders by pediatricians, we reviewed 22 newborn infant with vesicobullous skin disorders in order to emphasize differential diagnosis.

MATERIAL AND METHOD

Twentytwo newborn infants with vesicobullous skin disorders who admitted to Atatürk University Pediatrics and Dermatology clinics in a period of five years were included in this study. These infants were examined systematically and dermatologically both by a pediatrician and a dermatologist. They were all in first two weeks of their lives. Diagnosis was made on the basis of clinical data. For all infants anthropometric measurements were taken and for hospitalized infants hemoglobin, VVBC, peripheral smear, BUN, kreatinine, glucose, serum electrolytes and hepatic enzyme levels were measured and skin cultures were obtained.

RESULTS

Our study included 22 newborn infants aged one to 16 day-old. Mean age was 5.045 days. Of

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these, 11 were treated as outpatients, others were hospitalized. They were all term infants with normal development with exception of a case being small for gestational age (SGA). All of the 11 outpatients were diagnosed as miliaria crystallina, seven inpatients as staphylococcal scalded skin disease (SSS-Ritter's disease) and other inpatients as epidermolysis bullosa (EB).

Patients with EB presented at birth, six cases of SSS and patients with miliaria crystallina developed signs in the neonatal period. In patients with miliaria crystallina, there was neither other systemic complaints nor signs. All of them had vesicobullous lesions (miliaria crystallina) with fine desquamation with relative accentuation around the neck and the intertriginous regions.

All patients with SSS were in exfoliative stage of the disease. Skin was widely involved with bullous lesions and Nikolsky phenomena was positive in the lesions. In two infants considerable peeling was observed. Four of the patients with SSS presented large fragments of peroral crusts which became separated by time. In five cases with SSS staphylococcus aureus, in one case pseudomonas was isolated from skin.

Of newborn infants with EB, three were diagnosed as EB simplex, and the other as EB dystrophica. Cases with EB simplex showed neither extracutaneous involvement nor nail dystrophy. In these cases milia were not detected either and the blisters were localized in the areas exposed to trauma. In infant with EB dystrophica absence of nails, presence of milia, blisters in nasal mucosa and tendency to scarring were observed.

Among these cases patient with EB dystrophica died because of septicemia of enterobacter aureogenes.

DISCUSSION

Vesicobullous disorders of neonate and infancy can be categorized into two major groups: congenital and acquired. Both forms may be either infectious or noninfectious. These can be summarized as follows (2).

Congenital	Acquired
Noninfectious	Noninfectious
"Epidermolysis bullosa	•Miliaria (crystallina or rubra)
'Urticaria pigmentosa	•Benign chronic dermatosis of childhood
Infectious	Infectious
•Congenital herpes-varicella	"Impetigo neonatorum
•Congenital syphilis	•Putter's disease (SSS)

Miliaria is a manifestation of sweat retention often seen during the first week of life. Because of relative immaturity of eccrine ducts, partial closure and sweat

retention results in disruption of the duct and escape of the eccrine sweat into the epidermis. There are two forms being miliaria crystallina and rubra (2). Miliaria crystallina is a common disorder of newborn period. Few number of admitted cases of crystallina miliaria may be due to its transient character and to familiarity of parents. Infants with miliaria crystallina were all in the first week of their lives. Vesicles were generalized with intertriginous accentuation. They were all treated as outpatients. Recommended cooling baths provided benefit.

Impetigo neonatorum is a term used to describe staphylococcal bullous impetigo appearing as early as the second or third day of life. It consists of vesicles, bullae or pustules set on erythematous base. It is most commonly seen in the diaper area, the axillae and the neck (2). Among our cases, no patients had the diagnosis of impetigo neonatorum. This may be due to its low incidence, of <1%. The same agent may cause SSS. In the United States, the majority of toxin producing strains belong to phage group II staphylococci, usually phage types 3A, 3B, 3C, 55, or 71; In Japan, strains of other phage groups such as group I type 57 appear to be more prevalent. And some staphylococci belonging to group III have also been shown to produce epidermolysin (3,4,5).

Our seven cases of SSS were recognized during the exfoliative stage of the disease, in which erythema starts around the mouth and eyes, and exudation begins, and large fragments of crusts around the mouth become separated. This phenomenon gives SSS characteristic and diagnostic appearance. This phenomenon was detected in four of our patients with SSS. In a severely affected infant there was a considerable peeling, especially in the hand and the feet. In none of our patients there was mucous membrane involvement. It is known that the average patients, other than mild cheilostomatitis and mild conjunctivitis, exhibits no recognizable involvement of mucous membrane (6).

While TEN may occur in children, it is generally considered an adult disease. The SSS most commonly occurs in children and only rare in adults, most of whom are immunosuppressed. Histologically, the cleavage of SSS occurs in the upper malpighian and granular layers of the epidermis, while that of TEN occurs at the dermoepidermal junction (3,5,7). We did not make histological investigation but the diagnosis was made on the basis of clinical data including the phenomenon mentioned above, and isolation of causative agent from the skin. Although it is known that the staphylococci are rarely isolated from the skin, but rather from the nasopharynx, nose, and conjunctivitis, staphylococcus aureus is isolated from skin cultures in our five cases with SSS. Only in one of our patients pseudomonas auregnosa was isolated with the causative agent and it was attributed to nasocomial infection.

Pemphigus neonatorum may be confused with rare case of TEN with flaccid bullae, but since the causative organism is identical and two conditions often occurs side by side in nurseries, differentiation is hardly critical (6). Phage group II staphylococcus aureus was isolated from impetigo, pemphigus neonatorum and Bitter's disease (3).

In early stages, erythema multiforme pluriorificiaüs may resemble SSS, but the marked involvement of the oral mucous membranes and conjunctiva, the character of bullae and difficulty in eliciting the Nikolsky phenomenon in erythema multiforme makes differentiation easy (6).

In congenital group of vesicobullous disorders we observed five cases of epidermolysis bullosa. Although an acquired form of EB also exists, this latter disease is much likely to be an autoimmune disease of the skin (8).

There are three major types of EB, classified on the basis of ultrastructural localization of blisters within skin. There are epideimolytic, junctional and dystrophic forms. To date, more than 16 different forms of EB have been described, differing in levels of blister formation, clinical morphology, and mode of transmission (8,9). These all cases can be placed into one of three general groups: simplex, junctional or dystrophic.

Among our cases three of EB, in whom no extracutaneous manifestations, nail dystrophy, musculoskeletal abnormalities, anemia, growth retardation or poor neurologic development were present, were diagnosed as EB simplex. With the exception of occasional blisters or erosions within the oral cavity in the more generalized form of EB simplex, none of the forms of EB had any significant mucosa involvement. None of the forms of EB simplex has teeth or musculoskeletal abnormalities, anemia, growth retardation or abnormal neurologic development (10). These three EB simplex were probably the Koebner variety, the generalized form of EB simplex. Since biopsy was not performed this diagnosis was not confirmed histopathologically.

One case of EB, showed nail involvement. This condition reduces the possibility of its being EB simplex, although in unusual form of EB simplex, Dowling-Meara and Ogna variants, nails may be shed. Of junctional EB, generalized atrophic benign EB (GABEB) may show markedly dystrophic or absent nails, palmo-plantar hyperkeratosis and in addition may have significant scarring alopecia of the scalp (8).

Our case with absent nails demonstrated neither skin atrophy nor palmo-plantar hyperkeratosis. And alopecia was not present either. Herlitz form of this disease has the characteristic development of large, nonhealing areas of granulation tissue. Our case did not manifested these features.

Our case had anemia, low birth weight, hepatomegaly, palmar and plantar paronychia. Generalized blisters, milia, and scarring were present and nails were absent. These manifestations were attributed to the dystrophic EB. This infant died because of septicemia of enterobacter aurogenes. Biopsy was not performed to confirm the diagnosis. This type of EB may be inherited in autosomal dominant and autosomal recessive traits (8,11). The autosomal dominant form is milder, the latter is more severe. Patients with recessive dystrophic EB may show growth retardation and anemia as our patient did. We could not obtain any family history from the parents of our patient.

Final diagnosis of EB subtype is the result of clinical, geneologic, and histologic analysis. In some cases, an experienced dermatologist can find out the subtype of EB on the basis of clinical data and family history, but specimens from the border of the fresh blister should always be taken for election microscopic study. Although biochemical methods are advanced and reliable, they are not in routine use (10).

In our cases the others were diagnosed as EB simplex and as they were all discharged without any complications, biopsy was not needed. For this last case poor general condition of the infant prevented this invasive procedure and postmortem biopsy was not performed either.

Urticaria pigmentosa is also a disease with deep blistering, usually seen before two years age. The skin may be observed with solitary or multiple orange, red, or brown hyperpigmented macules, papules and nodules (2).

Benign chronic bullous dermatosis of childhood is a nonhereditary blistering disorder. It usually appears in the first decade of life with the onset most often in pre-school years and characterized by deep tense clear or hemorrhagic bullae, 1 to 2 cm in diameter. These lesions generally clustered on the lower trunk, perineum and thighs (2). These last two disorders were not present among our cases with neonatal vesicobullous diseases.

We did not find any literature to compare the clinical and statistical results of our study. We discussed these patients for pediatricians to facilitate their approaches to vesicobullous diseases of newborns and to emphasize the differential diagnosis of vesicobullous disorders of newborn period.

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