

case report

Pemphigus vulgaris in a neonate

Yousef Bin Amer,* Waleed Al Ajroush†

From the *Section of Dermatology, Department of Medicine, King Faisal Specialist Hospital and Research Centre and the †Department of Medicine, King Abdulaziz Medical City, Riyadh, Saudi Arabia

Correspondence and reprint requests: Yousef Bin Amer, MD · Dermatology Section · Department of Medicine · King Faisal Specialist Hospital and Research Centre · MBC 46 · P.O. Box 3354 · Riyadh 11211 · Saudi Arabia · dr.binamer@gmail.com · Accepted for publication April 2007

Ann Saudi Med 2007; 27(6): 453-455

Pemphigus vulgaris (PV) is a common blistering disease in Western countries but neonatal pemphigus (NP) is rare.^{1,3,5,6} It is characterized by multiple skin and mucosal erosions and is caused by transplacental passage of maternal antibodies against desmoglein.³ It heals spontaneously in two to three weeks.

CASE

A 3-hour-old baby boy was referred with multiple skin erosions on the left side of the neck, upper left chest and groin without oral involvement (Figure 1A). He was born by normal vaginal delivery without complication with an APGAR score of 8 and 9 at 1 and 5 minutes, respectively, and a weight of 2.57 kg. His mother was known to have PV since 1999, which was proven by biopsy and immunofluorescence. The product of her first pregnancy in 1999 was a baby boy with multiple erosions. The first baby was diagnosed with NP based on the results of a skin biopsy and immunofluorescence. The erosions healed spontaneously in two weeks. The mother was treated with prednisone, and later dapsone was added. She went into complete remission. She went off treatment in July 2001 and developed a new flare of PV in June 2005 during her second pregnancy. She was treated with prednisone 40 mg every other day. Physical examination of the second baby showed multiple erosions over the left side of the neck, shoulder and groin. Skin biopsy was refused by the parents and indirect immunofluorescence showed 1:10. He was treated with topical fucidin and 1% hydrocortisone, and discharged three days after delivery in good condition. At the age of four weeks, he had complete clearance (Figure 1B).

DISCUSSION

PV is the most common form of pemphigus.⁵ It is usually seen in the fifth decade of life.^{2,5} Neonatal PV is a

rare disease^{1,3,6} seen soon after birth and characterized by cutaneous, mucosal or mucocutaneous erosions. PV is diagnosed by histological and immunofluorescence studies. Routine histology will show epidermal basal cell vacuolization and spongiosis with exocytosis of polymorphonuclear leucocytes and eosinophils. Immunofluorescence will show IgG and C3 deposition. Indirect immunofluorescence is positive in patients with active disease. A high titre indicates active disease.² It usually resolves spontaneously in 2 to 3 weeks.^{2-5,7,9,12,13,19-21}

Neonatal PV results from transplacental passage of IgG maternal autoantibodies, mainly class 4, against desmoglein 3 (Dsg3), a transmembrane glycoprotein of the cadherin family.^{1,3,4,5,7,8,11,20,23-27} More than 21 cases of neonatal PV have been reported (Table 1), with the first proven one in 1975 by Rucco et al.²⁸ However, there are only 3 reported cases of pemphigus foliaceus (PF).¹⁵⁻¹⁷ This difference in incidence may be related to the distribution of Dsg1 and 3 in neonatal skin. Dsg1, the protein affected in PF, is present throughout the epidermis in both adults and neonates, while type 3 is present in the basal and intermediate suprabasal layer in adults, but throughout the epidermis in neonates. So the frequency of neonatal PF is less than PV in babies born to mothers with pemphigus based on the desmoglein compensation theory.^{5,18} This is supported by at least 18 cases of pregnant women with PF who delivered babies free of the disease.^{29,30} There is no correlation between the titer of maternal PV antibodies and the presentation of the disease in neonates.^{2,5,6} This is supported by cases of neonatal PV from mothers with no active disease^{5,9,31} and cases of healthy neonates born to mothers with highly active disease.^{4-6,16,17,32-36} The mother might have only oral disease while the baby has both oral and cutaneous involvement.^{5,36} Stillbirths have been also reported.^{23,24,31}

case report

NEONATAL PEMPHIGUS VULGARIS

Figure 1a. At birth, multiple eroded vesicles at upper chest and left side of the neck.



Figure 1b. At age four weeks with complete healing.

Table 1. Reported cases of neonatal pemphigus vulgaris.

Reference number	Mother's Disease	Recovery Duration	Treatment	DIF**	IDIF*	Site	Sex
1	Severe	2 weeks	Like above	IgG and C3	1/160	Skin and oral cavity	F
3	Mild	2 weeks	Emollient and mupirocin	IgG and C3	1/160	Skin and tongue	F
6	Unknown	2 weeks	Like above	NA	NA	Skin	F
7	Mild	2 weeks	Like above	IgG and C3	1/160	Skin	M
8	Unknown	3 weeks	Like above	NA	1/20	Skin	F
9	Mild	2 weeks	No treatment	IgG and C3	1/40	Skin and occipit	M
10	Mild	2 weeks	Emollient and mupirocin	IgG and C3	1:80	Skin	F
12	Severe	2 weeks	No treatment	IgG	1/20	Oral	M
13	Mild	3 weeks	No treatment	NA	1/20	Skin, tongue and scalp	F
15	Unknown	3 weeks	Like above	IgG	1/32	Skin and occipit	M
22	Mild	2 weeks	No treatment	IgG	NA	Skin	F
34	Unknown	2 weeks	Like above	IgG and C3	Neg	Skin and scalp	F

* Indirect immunofluorescence, **direct immunofluorescence, Rx: treatment, NA: Not available, Neg: negative result, M: male, F: female

REFERENCES

1. Shieh S, Frang YV, Becker JL, Holm A, Beutner EH, Helm TN. Pemphigus, pregnancy and plasmapheresis. *Cutis* 2004 May; 73(5): 327-9
2. Bjarnason B, Flosadottir E. Childhood, neonatal and stillbirth pemphigus vulgaris. *Int J Dermatol* 1999;38:680-688
3. Chowdhury MM, Natarajan S. Neonatal pemphigus vulgaris associated with mild oral pemphigus vulgaris in the mother during pregnancy. *Br J Dermatol* 1998 Sep; 139(3): 500-3.
4. Singalavanija S, Limpongsanurak W. Immunobullous disease in Thai children. *J Med Assoc Thai* 2003 Aug;86 Suppl 3: S681-8.
5. Campo-Voegeli C, Muniz F, Mascaro JM et al. Neonatal pemphigus vulgaris with extensive mucocutaneous lesions from a mother with oral pemphigus vulgaris. *Br J Dermatol* 2002 Oct; 147(4):801-5.
6. Kalayciyan A, Engin B, Serdaroglu S, Mat C, Aydemir EH, Kotogyan A. *Br J Dermatol* 2002 Aug;147(2):396-7.
7. Parlowsky T, Welzel J, Amagai M, Zillikens D, Wygold T. Neonatal pemphigus vulgaris: IgG4 autoantibodies to desmoglein 3 induce skin blisters in newborns. *J Am Acad Dermatol* 2003 Apr;48(4):623-5.
8. Ding X, Diaz LA, Fairley JA, Giudice GJ, Liu Z. The anti-desmoglein 1 autoantibodies in pemphigus vulgaris sera are pathogenic. *J Invest Dermatol* 1999 May;112(5):739-43.
9. Tope WD, Kamino H, Briggaman RA, Rico MJ, Prose NS. Neonatal pemphigus vulgaris in a child born to a woman in remission. *J Am Acad Dermatol* 1993 Sep;29(3):480-5.
10. Grunwald MH, Zamora E, Avinoach I et al. Pemphigus neonatorum. *Pediatr Dermatol* 1993 Jun;10(2):169-70.
11. Hup JM, Bruinsma RA, Boersma ER, de Jong MC. Neonatal pemphigus vulgaris: transplacental transmission of antibodies. *Pediatr Dermatol* 1986 Dec;3(6):468-72.
12. Merlob P, Metzker A, Hazaz B, Rogovin H, Reisner SH. Neonatal pemphigus vulgaris. *Pediatrics* 1986 Dec;78(6):1102-5.
13. Storer JS, Galen WK, Nesbitt LT Jr, Deleo VA. Neonatal pemphigus vulgaris. *J Am Acad Dermatol* 1982 May; 6(5): 929-32.
14. Fainaru O, Mashiach R, Kupferminc M, Shenhay M, Puzner D, Lessing JB. Pemphigus vulgaris in pregnancy: a case report and review of literature. *Hum Reprod* 2000 May;15(5):1195-7.
15. Hirsch R, Anderson J, Weinberg JM et al. Neonatal pemphigus foliaceus. *J Met al. J Am Acad Dermatol* 2003 Aug;49(2):623-5.
16. Walker DC, Kolar KA, Herbert AA, Jordon RE. Arch. Neonatal pemphigus foliaceus. *Arch Dermatol* 1995 Nov;131(11):1308-11.
17. Avalos-Diaz E, Olague-Marchan M, Lopez-Swidorski AL, Herrera-Esparza R, Diaz L. Transplacental passage of maternal pemphigus foliaceus autoantibodies induces neonatal pemphigus. *J Am Acad Dermatol* 2000 Dec;43:1130-4.
18. Wu H, Wang ZH, Yan A et al. Protection against pemphigus foliaceus by Desmoglein 3 in neonates. *N Engl J Med* 2000 July; 343(1):31-35.
19. Amagai M, Koch PJ, Nishikawa T, Stanley JR. Pemphigus vulgaris antigen (desmoglein 3) is localized in the lower epidermis, the site of blister formation in patients. *J Invest Dermatol* 1996 Feb;106:351-5.
20. Moncada B, Kettelsen S, Hernandez-Moctezuma JL et al. Neonatal Pemphigus vulgaris: role of passively transferred pemphigus antibodies. *Br J Dermatol* 1982;106:465-8.
21. Moncada B, Sandoval-Cruz JM, Baranda L et al. Neonatal Pemphigus. *Int J Dermatol* 1989 Mar;28:123-4.
22. Middelkamp Hup JM, Bruinsma RA, Boersma ER et al. Neonatal Pemphigus vulgaris: transplacental transmission of antibodies. *Pediatr Dermatol* 1986;3:468-72.
23. Terpstra H, de Jong MC, Klokke AH. In vivo bound pemphigus antibodies in stillborn infant: passive intrauterine transfer of pemphigus vulgaris. *Arch Dermatol* 1979;115: 316-19.
24. Green DE, Maize JC. Maternal pemphigus vulgaris with in vivo bound antibodies in the stillborn fetus. *J Am Acad Dermatol* 1982; 7(3):388-92.
25. Karpati S, Amagai M, Prussick R et al. Pemphigus vulgaris antigen, a desmoglein type of cadherin, is localized within keratinocyte desmosomes. *J Cell Biol* 1993;122:409-15.
26. Koulu L, Kusumi A, Steinberg MS et al. Human autoantibodies against a desmosomal core protein in pemphigus foliaceus. *J Exp Med* 1984;160:1509-18.
27. Anhalt GJ. Making sense of antigens and antibodies in pemphigus. *J Am Acad Dermatol* 1999;40(5 Pt 1):763-6.
28. Ruocco V, Rossi A, Astarita Cet al. A congenital acantholytic bullous eruption in the newborn infant of a pemphigus mother. *Ital Gen Rev Dermatol* 1975;12:169-174.
29. Rocha-Alvarez R, Friedman H, Campbell IT, Souza-Aguiar L, Martins-Castro R, Diaz LA. Pregnant women with endemic pemphigus foliaceus (fogo selvagem) give birth to disease-free babies. *J Invest Dermatol* 1992;99:78-82.
30. Eyre RW, Stanley JR. Maternal pemphigus foliaceus with cell surface antibody bound in neonatal epidermis. *Arch Dermatol* 1988;124:25-7.
31. Wasserstrum N, Laros RK. Transplacental transmission of pemphigus. *JAMA* 1983;249:1480-2.
32. Yair D, Shenav M, Botchan A et al. Pregnancy associated with pemphigus. *Br J Obstet Gynaecol* 1995;102:667-9.
33. Goldberg NS, DeFeo C, Krishnbaum N. Neonatal pemphigus vulgaris and pregnancy: risk factors and recommendations. *J Am Acad Dermatol* 1993;28:877-9.
34. Virgili A, Corazza M, Vesce F et al. Pemphigus in pregnancy. *Acta Derm Venereol* 1995;75:172-3.
35. Ross MG, Kane B, Frieder R et al. Pemphigus in pregnancy: a reevaluation of fetal risk. *AM J Obstet Gynecol* 1986;155:30-3.
36. Hern S, Vaughan Jones SA, Setterfield J et al. Pemphigus vulgaris in pregnancy with favourable foetal prognosis. *Clin Exp Dermatol* 1998;23:260-3.
37. Bjarnason B, Skoglund C, Flosadottir E. Childhood pemphigus vulgaris treated with dapsone. *Pediatr Dermatol* 1998; 15:381-3.