

TEACHING CASES

A 1-week-old newborn with hypercalcemia and palpable nodules: subcutaneous fat necrosis

Abstract: We present a 1-week-old newborn with subcutaneous fat necrosis complicated by hypercalcemia. She received conservative treatment of adequate hydration and restricted supplementary vitamin D.

The case: A 1-week-old term newborn girl was brought to her physician with a 2-day history of subcutaneous masses. The girl had been born by vacuum-assisted vaginal delivery with a birth weight of 3.5 kg. She did not require resuscitation but was observed for 24 hours in a special care nursery because of tachypnea. The patient was discharged home after 48 hours, and her course over the next 5 days was unremarkable.

On physical examination, the newborn was afebrile and in no obvious distress. She had multiple firm, mobile, mildly tender subcutaneous nodules with overlying erythema (Figure 1). The largest mass on palpation was located in the left deltoid area and measured 2 × 2.5 cm (Figure 1). Two smaller lesions were located in the left posterior axillary area (Figure 1) and a fourth lesion was in the right posterior auricular region. The remainder of the physical examination and the results of a complete blood count were normal. The newborn's total serum calcium level was elevated (2.94 [normal 1.96–2.66] mmol/L) as was her ionized calcium level (1.36 [normal 1.14–1.29] mmol/L). A biopsy was not performed because the infant was well and the results of clinical investigations were consistent with subcutaneous fat necrosis.

Subcutaneous fat necrosis of the newborn is a relatively uncommon condition that occurs in the first several

weeks after birth. The incidence is unknown; however, it is more frequently reported after perinatal distress than after uncomplicated deliveries, and maternal risk factors include gestational diabetes and preeclampsia.¹ Skin lesions are characterized by indurated nodules that range from flesh-coloured to blue and by plaques on the face, trunk and buttocks as well as on the arms and legs near the trunk. Figure 2

is a representative microscopic image of this condition.² The differential diagnosis is bacterial cellulitis, erysipelas and sclerema neonatorum.³

Although subcutaneous fat necrosis of the newborn is often benign and self-limited, the most important concern is hypercalcemia, which can lead to neurologic or cardiac problems, nephrocalcinosis and nephrolithiasis. Clinical signs of newborn hypercalcemia include irritability, poor feeding and vomiting. Skin lesions typically resolve over a period of weeks to several months; however, hypercalcemia can persist longer and requires serial monitoring. The treatment of hypercalcemia

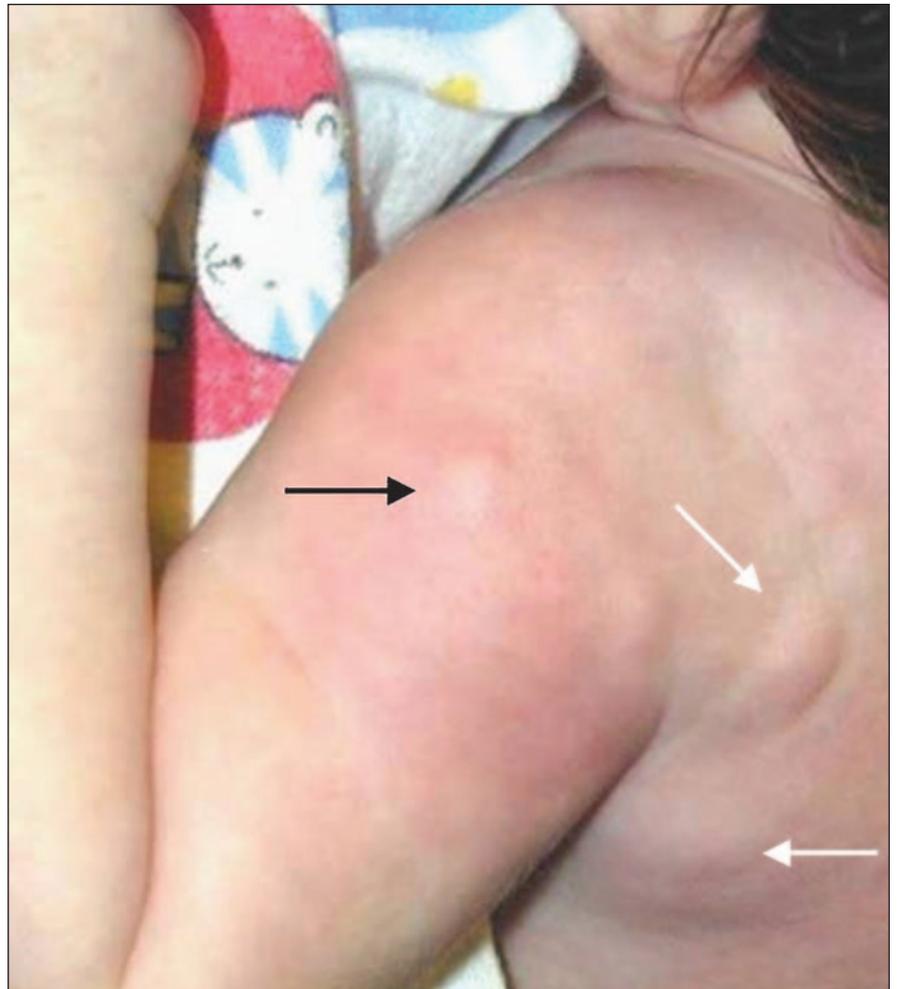


Figure 1: A 5-day-old infant with lesions of subcutaneous fat necrosis. The largest mass (black arrow) measured 2 × 2.5 cm. Two smaller lesions (white arrows) were located in the left posterior axillary area.

ranges from conservative measures such as hydration and restriction of vitamin D and calcium to more aggressive interventions such as furosemide,

glucocorticoid or bisphosphonate therapy in severe cases.⁴

In our patient, mild hypercalcemia was accompanied by mild elevations in

the ratio of calcium to creatinine in the urine and a normal 1,25-dihydroxyvitamin D level. Because our patient was otherwise well, we opted for conservative management. In 2 months, her calcium level had normalized and the lesions completely regressed.

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Competing interests: None declared.

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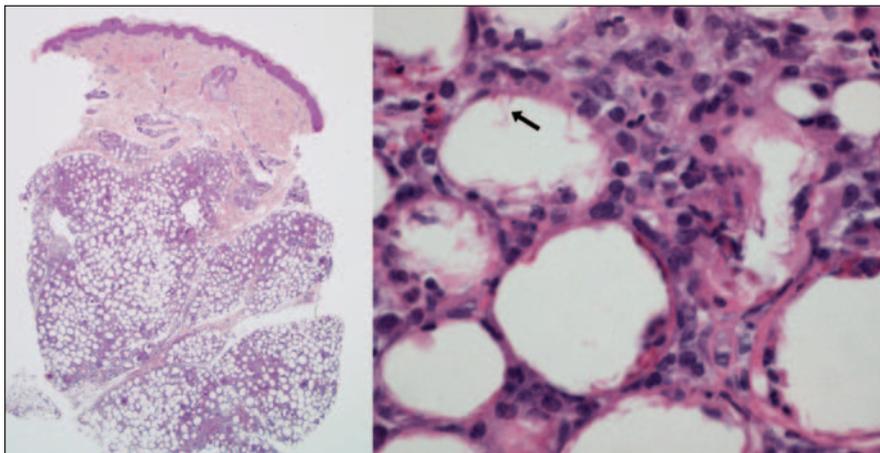


Figure 2: Left: A typical photomicrograph from a different patient showing lobular panniculitis with sparing of the dermis and epidermis (original magnification $\times 20$). Right: A high-power view shows that the inflammatory infiltrate is mixed and composed of histiocytes, lymphocytes, neutrophils and eosinophils. Cleft-like spaces (arrow) suggestive of dissolved crystals can be seen at the periphery of some of the fat cysts (original magnification $\times 400$). Reproduced with permission from Macmillan Publishers Ltd: *Journal of Perinatology* (Diamantis et al.²) © 2006.

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