

SUBCUTANEOUS FAT NECROSIS OF THE NEWBORN COMPLICATED WITH HYPERCALCAEMIA

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ABSTRACT

Subcutaneous fat necrosis of the newborn (SCFN) is an unusual disorder which occurs in term or post-term newborns due to perinatal stress. SCFN appears by firm nodules over the trunk, arm, buttock, thigh and cheeks in the first several weeks of life. Prevalence of SCFN is unknown. Race and sex do not play a role in this condition Hypocalcaemia and rarely hypercalcaemia are considered as major causes of morbidity and mortality in cases of SCFN. We report a case of SCFN in a two month male infant complicated with hypercalcemia and hyperuricemia.

KEYWORDS: Fat necrosis, Hypercalcaemia, Newborn.

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INTRODUCTION

Subcutaneous fat necrosis of the newborn (SCFN) is a rare event mostly occurs in term or post term newborns with perinatal stress.¹⁻⁸ It usually occurs in the first weeks of life and could run a spontaneous resolution in most cases but its uncommon complications such as hypercalcaemia may occur and be life threatening, which needs emergent therapy.^{1-5,7,8} We report a case of SCFN observed in a two months male infant with hypercalcaemia and hyperuricemia.

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CASE REPORT

A two month old boy with primary impression of sepsis and poor response to antibiotic therapy was referred to our hospital. He was born with asphyxia and low apgar score due to meconium aspiration. On the first day of life he had a focal seizure following hypocalcaemia which was treated with phenobarbital and calcium gluconate up to normalization of calcium level. On 45th day he was admitted with fever, poor feeding and subcutaneous nodules. After three weeks he was referred to our hospital with no response to antibiotic therapy. He had prolonged fever, poor feeding, hypotonia, multiple firm and rubbery well defined nodules on arms, cheeks and submandibular area. His weight and length were under 5th percentile and his head circumference was at 5th percentile (weight 3950gr, head circumference 37cm and length 51cm). The most important point in his past history was delivery four by cesarean section due to fetal distress at 40 weeks of gestational age from a 34 years old mother (G2 P2 ab0L1). At birth time his weight, head circumference and length were above 50th percentile (Weight 4700gr, head circumference 35cm and length 50cm). Pyuria (20-25 WBC / HPF), hypercalcaemia (ca = 13.5mg/

dl, P = 3.5mg/dl, Alk .ph = 326), hyperammonia (160mg/dl), hyperuricemia (7.2mg/dl), hypertriglyceridemia (415mg/dl) were detected as abnormal laboratory findings. Arterial blood gas, CBC diff, renal and liver function tests all were in normal ranges. First renal ultrasonography revealed increased echogenicity of both kidneys and the second one showed kidneys enlargement with severely increased medullary echogenicity. Abdominal and pelvic CT scan with contrast revealed calcification of both kidneys (nephrocalcinosis). Calcium creatinin ratio in spot urine was 0.54 and PTH was normal (10mg/dl) but no obvious calcification was detected on plain x-rays of both arms. According to lab findings and clinical judgement, SCFN was diagnosed and treatment with hydration, furosemide and dexamethasone was started for him. Immediately after treatment hypotonia improved, three days later fever subsided and after several days he began to gain weight. An excisional biopsy of subcutaneous nodule showed fatty tissue characterized by lymphohistiocytic infiltration, lipid laden macrophages speckles of crystalline lipids, many foreign body giant cells, mild fibroblastic proliferation and increased vascularization compatible with SCFN. Fig(1,2)

DISCUSSION

SCFN is an inflammatory disorder of the adipose tissue which mostly occurs in term or post term neonates with perinatal stress such

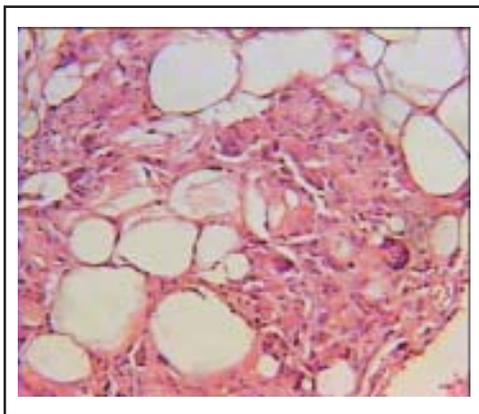


Figure-1: Pathologic section of subcutaneous nodule.

as hypoxemia, hypothermia, Rh incompatibility, obstetric trauma and some of maternal disorders such as preeclampsia and cocaine abuse.^{1,8} In a young infant with some scattered palpable nodules on arms and cheeks the main differential diagnosis are SCFN, sclerema neonatarum, erythema nodosum, cellulitis, deep hemangioma, farber disease, plexiform neurofibroma and rhabdomyosarcoma.^{1,2} SCFN is characterized by firm nodules over the trunk, arm, buttock, thigh and cheeks which usually appear in the first several weeks of life.¹⁻³ Prevalence of this disorder is unknown.^{1,4} Race and sex do not play a role in this condition. Hypocalcaemia and rarely hypercalcaemia are considered as major causes of morbidity and mortality in cases of SCFN.¹⁻⁴ Hypercalcaemia could be presented with lethargy, hypotonia, polyuria, polydipsia, dehydration, constipation, FTT and even sudden death.¹⁻³ Mortality rate is up to 25% without treatment. Positive history of hypoxia due to meconium aspiration, age of onset, pattern of distribution, nature of lesion and presence of hypotonia with nephrocalcinosis led us to treat him as a case of SCFN.

Hypercalcemia is a rare complication in these patients but hyperuricemia, mild hypertriglyceridemia and hyperammonemia were unexplained for us. We think tissue dam-



Figure-2: Macroscopic view of subcutaneous fat necrosis

age and fat necrosis in early infancy may lead to mild increase in, uric acid and triglyceride. The pathophysiology of hypercalcaemia is not known completely but calcium release from necrotic fat cells and production of 1, 25 (OH) 2 vit D from granulomatous cells (like macrophages) result to prostaglandin production which increases osteoclastic activity. Corticosteroids interfere with the metabolism of vit D to active form and also may inhibit production of this metabolite by macrophages in the granulomatous inflammatory process.² With hydration and usage of calcium wasting diuretics such as furosemide and steroid therapy, hypotonia improved then calcium dropped dramatically and uric acid, triglyceride and ammonia level became normal during 48h after treatment.

CONCLUSION

SCFN is a rare benign condition but patients should be followed for complications especially hypercalcaemia which may appear in the first six months of life and treat them appropriately.

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