Large subcutaneous nodules in lower limbs following thyroiditis

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A 20-year-old woman was admitted with complaints of fever and polyarthralgia since January 1996. All investigations including collagen markers were negative. The patient was treated with analgesics and showed improvement. In July she noticed a thyroid swelling with low-grade fever, and investigations showed that she was hypothyroid. Antimicrosomal antibodies were positive and antithyroglobulin was negative. Thyroid receptor antibody status was not available. Thyroid fine needle biopsy showed chronic lymphocytic thyroiditis. She was put on thyroid hormone replacement therapy.

In February 1997 she noticed multiple subcutaneous lumps in the lower limbs. She also complained of low-grade fever and arthralgia. There was no malar or discoid rash or rash elsewhere on the body. On examination, the lumps were hard, mobile, and non-tender, varying in size from 3–7 cm. She was febrile and had swelling of the small joints of both hands. Investigations showed normal blood picture, erythrocyte sedimentation rate was 130 mm in 1st hour, ANA and dsDNA both were strongly positive. Anti-Sm, and antiphospholipid antibodies (IgG, IgM) were negative. Lupus anticoagulant was positive. Echocardiography showed mild pericardial effusion. Chest X-ray was normal and X-ray of the hands did not show any erosion. Liver, renal function tests, serum calcium, phosphorus, alkaline phosphatase, parathyroid levels, creatine phosphokinase, barium swallow and pulmonary functions test were all normal. Rheumatoid factor was negative. X-Rays of the lower limbs are shown in figures 1 and 2.

Figure 1 X-Ray of the lower limbs

Figure 2 X-Ray of the lower limbs

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Questions

- 1 What are the X-ray findings?
- 2 What is the diagnosis?

Answers

QUESTION 1

Extensive calcification in subcutaneous tissue of lower limbs.

QUESTION 2

Calcinosis cutis in systemic lupus erythematosus (SLE). The patient fulfilled the criteria of the American Rheumatism Association for the diagnosis of SLE. Fine needle biopsy from the nodules showed calcium deposits in subcutaneous tissues and was consistent with the diagnosis of calcinosis cutis.

Discussion

Calcium deposits in the skin can occur in connective tissue disorders such as dermatomyositis and scleroderma. Although calcinosis cutis in such collagen disorders is not rare, its occurrence in cases of SLE is,¹ and only 30 cases have been reported. Calcinosis cutis is extremely rare in mixed connective tissue disorders.² Although it is common in scleroderma, it is rare in morphea and was reported in only one of 74 patients by Muller.³ The clinical examination of our patient was not suggestive of such a disorder.

Calcinosis cutis may be an incidental finding or may present as subcutaneous tumours. The calcinosis may involve a small area (circumscripta) or be diffuse (universalis). In dermatomyositis, the calcium deposits occur in shoulders and hips of young men. The deposits are usually large,⁴ in contrast to scleroderma in which they are small and occur in fingers of adults.³ All the above conditions are examples of dystrophic calcification and the product of serum calcium and phosphorus levels is not raised. The exact mechanism of calcification in SLE is not known. The proposed mechanism involves trauma and inflammation, which denature the protein in necrotic tissue. The phosphates bind to denatured protein and act as a nidus for calcification. The other mechanism involves the increased activity of alkaline phosphatase in the local tissue by lysosomes leading to calcification. Although intralesional steroids, aluminum hydroxide, and etidronate have been shown to be useful, medical treatment is usually not successful. Surgical excision of the lesion with skin grafting has been recently shown to be beneficial.¹ Our patient was unusual as she had calcinosis cutis associated with relatively mild SLE which was of shorter duration.

Our patient also had thyroid involvement, the prevalence of which is 7.5% in cases of SLE.⁵ This prevalence is greater than that seen in the general population. In SLE, thyroid function tests are frequently abnormal and thyroid autoantibodies may be present without disease being actually present. Thyroid disease in SLE occurs before the diagnosis of SLE is made or after stopping the immunosuppressive therapy.⁵

Calcinosis cutis in SLE

- rare cause of calcinosis cutis
- product of calcium and phosphorus is normal
- common site of calcinosis is lower limb
- may be associated with myopathy
- occurs with long-standing, severe disease
- calcification may be bilateral and diffuse or unilateral and localised

Box 1

Thyroid disorders in SLE

- diagnosis may be missed because of overlap of non-specific symptoms
- patients with autoimmune thyroiditis may develop SLE
- HLA-B8 DR3 occur more commonly with SLE and autoimmune thyroiditis
- both hyper- and hypothyroidism occur in SLE
- SLE patients on steroids, nonsteroidal anti-inflammatory agents, beta-blockers and dilantin would have lower T3 and T4 values while propylthiouracil used to treat thyrotoxicosis rarely causes SLE

Box 2

Dermopathy in primary hypothyroidism or chronic lymphocytic thyroiditis is exceptionally rare.⁶ In 15–20% patients with Graves' disease, there is dermopathy over the dorsal surface of the legs or feet called pretibial myxoedema.⁶ This commonly presents with ophthalmopathy and is a late manifestation of Graves' disease. Older patients are more at risk for developing this dermopathy.⁷ The affected area is raised, circumscribed and thickened. It has a peau d'orange-like appearance. There is a localised area of hyperpigmented and non-pitting oedema. The lesions may rarely be plaque, nodular or polypoidal. Histologically there is lymphocyte infiltration and metachromatic material is seen in the deeper layers of the dermis.⁸

In calcinosis cutis the lesions may be diffuse and bilateral and commonly occur in lower limbs.¹ The calcification occurs in a diffuse, linear, streaky or nodular form. Calcifications may also be plaque-like along the anterior aspect of lower limbs; they are hard on palpation. There may be associated myopathy, peripheral vascular calcification, or skin ulcerations. The skin biopsy in these patients may show extensive deposition of collagen in dermal and subcutaneous tissue with calcification.

Final diagnosis

Thyroiditis with calcinosis cutis universalis in SLE.

Keywords: thyroiditis; calcinosis cutis; systemic lupus erythematosus

- 1 Cousins MAM, Jones DB, Whyte MP, Monafo WW. Surgical management of calcinosis cutis universalis in systemic lupus erythematosus. *Arthritis Rheum* 1997;**40**:570–2.
- 2 Baurle G, Hornstein OP. Generalized cutaneous calcinosis and mixed connective tissue disease. *Dermatologica* 1979; **158**:257.
- 3 Muller SA, Brunsting LA, Winkelmann RK. Calcinosis cutis: a relationship to scleroderma. *Arch Dermatol* 1959;**80**: 15–21.
- 4 Muller SA, Winkelmann RK, Brunsting LA. Calcinosis in dermatomyositis. *Arch Dermatol* 1959;**79**:669–73.
- 5 Miller FW, Moore GF, Weintraub BD, Steinberg AD. Prevalence of thyroid disease and abnormal thyroid function test results in patients with systemic lupus erythematosus. *Arthritis Rheum* 1987;**30**:1124–9.
- 6 Mc Dougall R. Grave's disease. Current concepts. *Med Clin North Am* 1991;**75**:79–95.
- 7 Kriss JP. Pathogenesis and treatment of pretibial myxedema. *Endocrinol Metab North Am* 1987;**16**:2.
- 8 Johnson WC, Hellwig EB. Cutaneous focal mucinosis a clinicopathological and histochemical study. *Arch Dermatol* 1966;**93**:13.

Gestational pancreatitis complicating uncontrolled diabetes mellitus

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A 36-year-old G₅ P₂ AB₂ woman was admitted to our hospital due to nausea, vomiting and severe epigastric pain for one day at 24 weeks gestation. She had a history of diabetes for one year, but was not receiving any medical treatment. The patient also denied any other drug history or alcohol drinking. Physical examination revealed a blood pressure of 150/100 mmHg, body temperature 37°C, weight 60 kg, and height 159 cm. Cutaneous eruptions or xanthomas were not seen. The epigastric tenderness was severe, but without rebounding pain or muscle rigidity. Pelvic examination was unremarkable. Fundus height was 22 cm and foetal heart rate 140 beats/min. Laboratory studies showed a serum amylase level of 457 U/l (normal range <180 U/l) and lipase 1056 U/l (<190 U/l). Plasma sugar was 12.9 mmol/l, triglycerides 81.8 mmol/l and total cholesterol 20.7 mmol/l. HbA_{1c} was 10.2% (4–6%), and postprandial serum C-peptide 0.2 nmol/l. Arterial blood gasses were pH_a 7.23, p_aO₂ 113 mmHg at room air, p_aCO₂ 21 mmHg, base deficit 15 mmol/l. Blood ketone reaction was strong with 1:4 dilution. Abdominal sonography disclosed a swelling pancreas, but no evident biliary tract disease. Under a provisional diagnosis of acute pancreatitis, parenteral dextrose (2000 kcal/day by 50% glucose water and 0.9% glucose saline) and intravenous insulin were administered. Ketoacidosis was promptly corrected in one day and serum triglyceride was decreased to 13.5 mol/l by the seventh day. Thereafter a low fat diet was resumed and plasma sugar was well controlled by daily subcutaneous insulin. The serum triglyceride was further lowered to 3.3 mol/l after 2 weeks. The patient had a weight gain of 3 kg within 3 weeks of hospitalisation and finally gave birth to a healthy baby of 2600 g by caesarean section at the 38th week of pregnancy.

Questions

- 1 What is the most likely cause of acute pancreatitis in this pregnant woman?
- 2 What are the possible mechanisms of her extreme gestational hypertriglyceridaemia?
- 3 How should her hypertriglyceridaemia be managed?