Reflex sympathetic dystrophy syndrome in a child

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KEY WORDS

reflex sympathetic dystrophy syndrome, childhood, trauma

ABSTRACT

Reflex sympathetic dystrophy syndrome (RSDS) is a painful condition that usually follows regional trauma. We report the case of a 13-year-old girl that was seen for a painful swelling of the right hand associated with palmar hyperhidrosis, which occurred after a trauma to the hand. Bone scan images showed early tissue abnormality, which was more significant on the right hand and wrist, as well as moderate bone uptake on the right side. Nonsteroidal anti-inflammatory drugs and alternating hot and cold baths led to a marked improvement. RSDS occurs following trauma or subsequent to various diseases or drug intake. This syndrome is related to impaired tissue microvasculature under the influence of abnormal sympathetic reflex hyperactivity. Bone scan is the diagnostic procedure of choice in RSDS, but it may be normal. Physiotherapy should be preferred in pediatric cases.

Introduction

Reflex sympathetic dystrophy syndrome (RSDS) is a painful condition that usually follows regional trauma or surgery. It is clinically characterized by a triphasic evolution involving burning pain, vasomotor symptoms, and functional impairment. The occurrence seems to be rare in children (1). We report a pediatric case of this condition.

Case report

A 13-year-old girl without significant medical history was referred to dermatology because of a painful swelling of the right hand associated with palmar hyperhidrosis. This burning pain developed gradually with nocturnal exacerbation and paroxysmal crises occurring after exposure to heat. The patient reported that the pain developed after an injury from broken glass on the back of her right hand that had occurred 18 months earlier. Skin examination showed a firm, painful swelling of the right hand with an ill-defined erythema of the thumb and index finger extending to the outer edge of the wrist. There was also a 3.5 cm arcuate scar on the back of the hand (Fig. 1). The remaining physical examination was normal. The complete blood count was within normal ranges and the screening for antinuclear antibodies was negative. Comparative radiographies of the hands were normal. Bone scan images showed early tissue abnormality, which was more significant on the right hand and

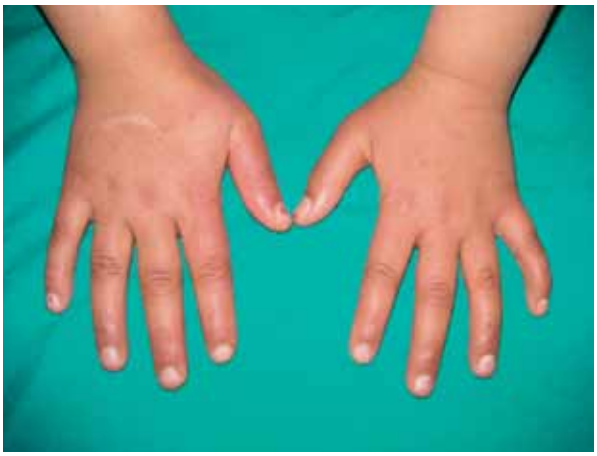

Figure 1. Erythema of the hand with an arcuate scar.

wrist (Fig. 2). On delayed images, there was moderate bone uptake on the right side (Right/Left: 1.3; Fig. 3). These findings were consistent with the diagnosis of RSDS. The patient was then treated by nonsteroidal anti-inflammatory drugs together with alternating hot and cold baths (Scottish baths), leading to a marked improvement.

Discussion

RSDS is a condition that affects both adults and children. Pediatric forms have some epidemiological and clinical features. A female preponderance, which is not noticed in adults (2), is reported in the published pediatric series (3, 4). The average age of affected children is around 12 to 13 years (5). RSDS occurs following trauma or subsequent to various diseases (diabetes mellitus, hemiplegia, myocardial infarction, arthritis, etc.) (6). Some drugs such as isoniazid, phenobarbital, and some immunosuppressants have been implicated in the onset of RSDS (7). In our patient, her scar attests to a trauma that seems to be found more rarely in children than in adults (1). Several authors agree on the importance of psychological factors in childhood RSDS (4, 5). The pathophysiology of this syndrome is related to impaired tissue microvasculature under the influence of abnormal sympathetic reflex hyperactivity. RSDS typically evolves in three phases: a "warm" phase characterized by edema, erythema, and sweating; a "cold" phase during which the skin becomes pale and cold; and, finally, a scleroderma-like phase. In children the disease rarely evolves to the third phase. Radiography, which was normal in our patient, shows diffuse demineralization or osteoporosis in 50% of cases (2). A triple-phase bone scan (vascular, tissue, and bone) remains the procedure of choice in RSDS (8). However, a normal bone scan result, which is common in children but does not rule out the diagnosis. The treatment of RSDS depends on the cause, the patient, and the stage of the disease. Physiotherapy, including alternating hot and cold baths (Scottish baths), soft joint mobilization, and wearing dynamic orthotics, should be preferred in pediatric cases. Many different systemic treatments may be used, including analgesics, nonsteroidal anti-inflammatory drugs, corticosteroids, and calcitonin. Regional guanethidine blocks have demonstrated their effectiveness even in children (9).

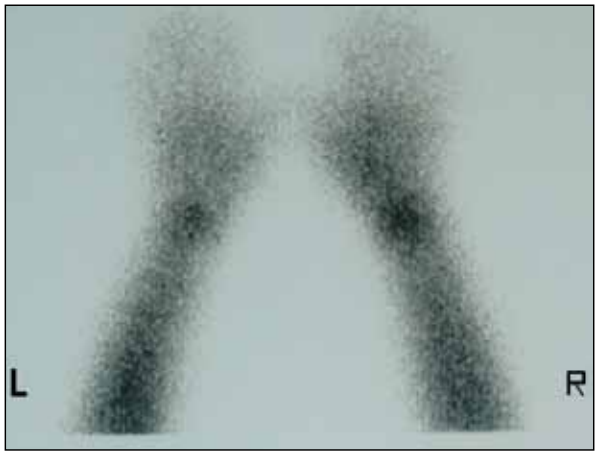

Figure 2. Bone scan: early tissue abnormality, significant on the right side.

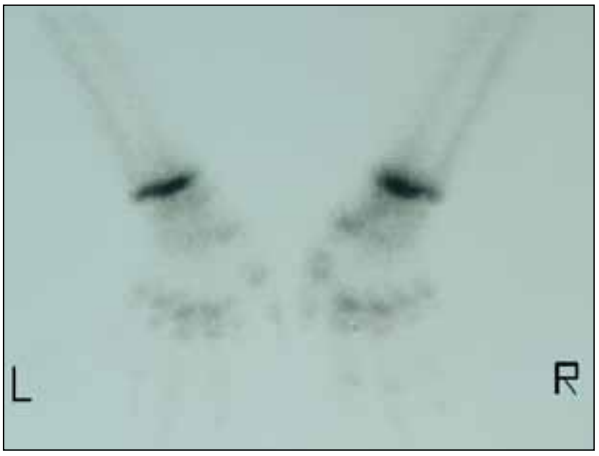

Figure 3. Bone scan: significant bone uptake on the right side.

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