

DIFFERENT PATTERNS OF EXTENSION AND RECURRENCE IN ALGODYSTROPHY

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A true recurrence at exactly the same site is quite unusual in algodystrophy. Local or regional extension is possible. The bone scan is an easy way to demonstrate that the areas successively affected are not the same. An apparent local recurrence could in fact be a microscopic compression fracture of trabecular bone or cortical fractures or part of a factitious disorder.

Keywords: algodystrophy; reflex sympathetic dystrophy; recurrence; bone scan; stress fractures.

Mots-clés: algodystrophie; dystrophie réflexe sympathique; récurrence; scintigraphie osseuse; fractures de fatigue.

INTRODUCTION

Reflex sympathetic dystrophy or algodystrophy is characterized by vascular abnormalities with hyperpermeability (edema and accumulation of erythrocytes), followed by a local colonisation of fibroblasts, mostly confined to a single limb, and even a localized part of a limb, more often the distal part. Its natural clinical course is divided into three (inconstant) sequential stages: acute or pseudoinflammatory, dystrophic, and atrophic, with a great overlap between stages. After a variable period, the syndrome evolves to clinical resolution with either complete functional recovery or with permanent and disabling sequelae such as atrophy or contractures.

Some patients undoubtedly have extension or recurrence of algodystrophy apparently in the same area or more often in different widely separated articular areas (3, 6). However the real percentage of such patients with a migratory pattern of algodystrophy is not clear in the literature data, for the question of the links between

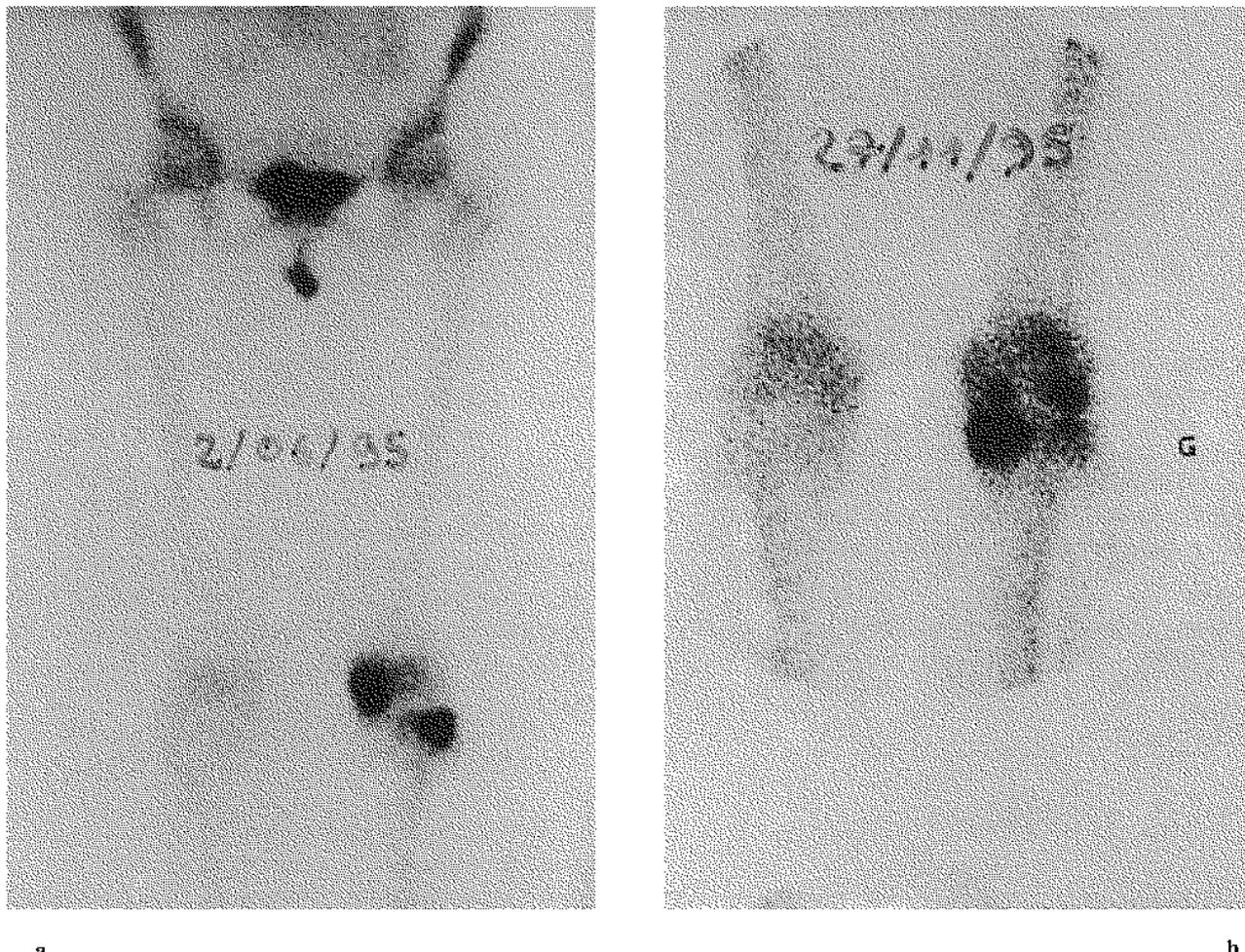
algodystrophy and transient osteoporosis or regional migratory osteoporosis — where the features of recurrence are present in the definition per se — is presently not resolved. At least one new localization will occur in 59% of cases of regional transient osteoporosis (8), with an apparent true recurrence in 8%. In other words, several diagnostic pitfalls have to be in mind, when local or regional pain recurs and the patient seems to suffer again from algodystrophy.

EXTENSION OR RECURRENCE OF ALGODYSTROPHY IN NEARBY AREAS

Local extension in the same bone or other local areas is possible. Careful clinical examination shows that the pain is not exactly at the same place. Repeat isotope bone scans are an easy way to demonstrate that the areas successively affected are not the same in the distal lower limb (Fig. 1) (5). Repeat CT scan and nuclear magnetic resonance have been used in some cases to monitor the *in situ* movement of the pathophysiological process of algodystrophy in the knee (10). Hauzeur *et al.* (7) have also reported a migration of the MRI abnormalities during the course of the disease in 5 cases at the hip: abnormal MRI signals were first observed in the anterior region; they then migrated to the posterior part, while a normal MRI signal reappeared in the anterior region. Such an evolution was also described using CT scan in a case of algodystrophy of the hip (18).

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a
b
Fig. 1. --- Local extension of bone scan uptake of 99m technetium EHDP in a case of algodystrophy of the knee. a : June 02, 1995 ; b : November 27, 1995.

These recent data confirm the existence of the zonal or partial form described by Lequesne *et al.* (11) in the seventies : edematous osteoporosis remains in part of an epiphysis for 2 or 3 months, after which it becomes a panepiphyseal form, while in another form, described by Doury *et al.* (4), algodystrophy affects a very limited area which appears demineralized with a high uptake of 99m pertechnate EHDP, without local extension (parcellar form).

The close extension of algodystrophy is often clinically difficult to distinguish from the first affected area, especially in the different parts of the foot, ankle, knee or hip. The literature data on the percentages of true recurrence have to be

evaluated with this concept of possible local extension or migration of algodystrophy (or regional migratory osteoporosis) and the occurrence of primary and secondary trabecular fractures (see infra).

EXTENSION OR RECURRENCE OF ALGODYSTROPHY IN CLEARLY SEPARATED AREAS

Migration of algodystrophy from one area to another may occur (1, 3, 6, 19). The condition starts in an area, e.g., a foot, an ankle, a knee, or a hip, and may recur in another area of the same limb, the contralateral limb, or rarely in

joints of the upper limbs. Some patients may have 2 to 20 episodes of involvement of one or two sites over a 2- to 20-year period. This situation is more frequent in men than in women, in their forties or fifties. Lower limb involvement is a predominant feature. Involvement of upper and lower limbs in the same patient is infrequent (1, 6).

The case of a young female patient has been described with recurrent algodystrophy as a manifestation of systemic lupus erythematosus with more than 20 sites, and involvement of all 4 extremities at various times (13). No correlation was found between the joint at which arthritis had flared and the sites of algodystrophy recurrence. Ten systemic lupus erythematosus exacerbations were associated with recurrence of algodystrophy. The precise areas of involvement were not indicated.

When a patient is still suffering from algodystrophy after a long period with new localizations, the condition may be related to malignant proliferation, but this condition is rare and has to be differentiated from palmar fasciitis and polyarthritis associated with ovarian (or other) carcinomas (14).

OTHER CONDITIONS MIMICKING A RECURRENCE OF ALGODYSTROPHY

Occurrence of Cortical or Trabecular Fractures (9, 16)

Patients suffering from algodystrophy may still have significant osteoporosis for a long period and hence be at risk for fractures. This situation is frequent with the involvement of areas of the lower limbs. These fractures often induce local edema or hemorrhage, and acute pain (Fig. 2).

We have previously reported the case of a 62-year-old male, who developed 8 episodes of algodystrophy in several sites of the lower limbs over an 8-year period. Two stress fractures occurred during the sixth and the seventh years in bones previously affected by osteoporosis (16). In this situation regional or (more diffuse) osteoporosis may be linked to algodystrophy, a long period of immobilization or other factors. Serial evaluation of bone mineral content appears to be useful

for the follow-up of such patients since there is a well-known relationship between the risk of fractures and bone-mineral content.

Factitious Algodystrophy-like Conditions and Psychological Decompensation

Some patients seem to recover from their algodystrophy but still complain of pain. In this situation, apparent recurrence could be part of a factitious disorder: "external" secondary gains e.g. workers' compensation, other financial compensation, malingering; or "internal" secondary gains, e.g. Munchausen's syndrome (2, 17), or conversion disorders (20). Nevertheless some patients never recover from algodystrophy (12). Increased vascular permeability is transient, but fibrosis can last; and when the fibrosis retracts the capsules, tendons, or muscles, and when it also forms around the terminal nerves, the patients may still become incapacitated and suffer pain (especially a burning pain). Furthermore, patients with algodystrophy often appear to overreact since they may refuse the physician an opportunity to examine the affected part because of allodynia and hyperpathia. Psychological decompensation occurs when the algodystrophy pain persists over long periods. All these factors have to be taken into account when the condition raises a legal issue.

CONCLUSION

Some patients may develop several episodes of algodystrophy in separated areas, especially in the lower limbs, sometimes in lower and upper limbs. Unfortunately, there is no known way of preventing such algodystrophy recurrences. The reason for the absence or the rarity of a true recurrence of algodystrophy in the same area is not known. A hypothesis is that it could be related to the thickening of the arteriolar wall, which is regularly seen in biopsies of algodystrophy-affected bone or articular structures (Fig. 3) (20). In the near future, the links and the differences between algodystrophy, trabecular fractures/regional migratory osteoporosis will be better understood.

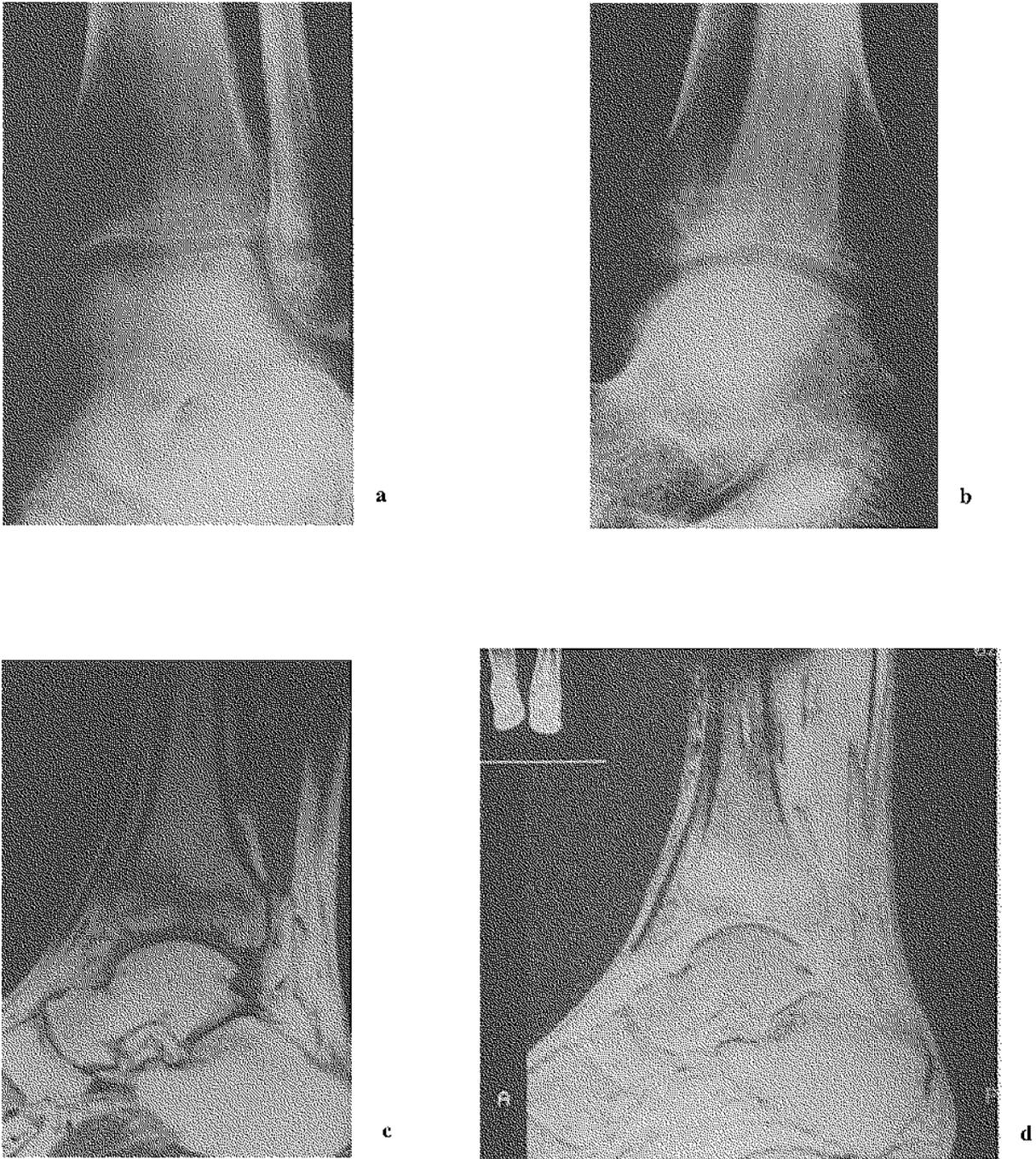


Fig. 2. — A case of stage II algodystrophy of the foot and ankle. Mortise radiograph (a, b) shows typical patchy osteoporosis of algodystrophy and a cortical fracture (b). MRI aspects at the same date (c: T1, d: T2): bone-marrow edema is clear, but only demonstrable in the area of the recent cortical and trabecular fracture.

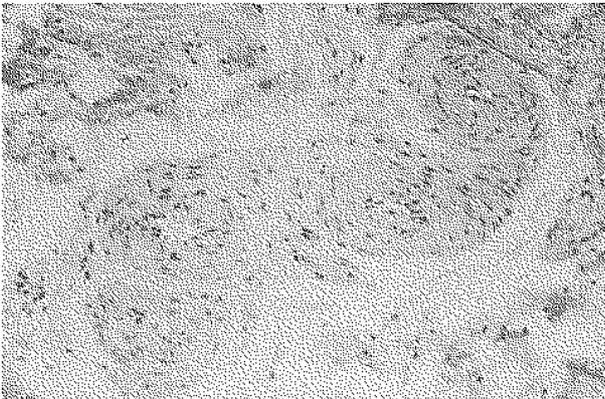


Fig. 3. — Arteriolar thickening and hyperplasia in the synovium of a patient with algodystrophy of the hip.

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SAMENVATTING

C. MASSON, J. C. RENIER, C. PASCARETTI, E. LEGRAND, C. BRÉGEON, M. AUDRAN. *Ogensschijnlijk recidief van algodystrofie.*

Recidief van een algodystrofie op precies dezelfde plaats is zeldzaam. Lokale of regionale uitbreiding is mogelijk, zeker in de aandoening gekend onder de naam regionale transiënte osteoporose. Botscan is een eenvoudige manier om aan te tonen dat de opeenvolgende aangetaste zones niet precies dezelfde zijn. Een schijnbaar lokaal recidief kan ook een corticale of trabeculaire fractuur zijn, of deel uitmaken van een automutilatiebeeld.

RÉSUMÉ

C. MASSON, M. AUDRAN, C. PASCARETTI, E. LEGRAND, C. BREGEON, J.-Cl. RENIER. Différents modes d'extension et de récurrence de l'algodystrophie.

Une récurrence située exactement dans le même site est inhabituelle dans l'algodystrophie. Une extension locale

ou régionale est possible. La scintigraphie osseuse est un moyen facile de montrer que les zones successivement affectées ne sont pas les mêmes. Une récurrence apparente peut correspondre aussi à une fracture trabéculaire ou corticale, ou faire partie d'une pathologie factice.