

Relevance of ^{99m}Tc -HYNIC-tir-octreotide scintigraphy in a patient affected by sarcoidosis with lung and joints involvement and secondary Sjogren's syndrome treated with infliximab

Case report

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Abstract. – We report the case of a 59 years old woman affected by lung and joint sarcoidosis, secondary Sjogren's syndrome refractory to common disease-modifying antirheumatic drugs (DMARDs) that regressed with infliximab and methotrexate. ^{99m}Tc -HYNIC- TOC scintigraphy was useful in diagnosis, choice of treatment and follow-up.

Key Words:

Sarcoidosis, Sjogren, Octreotide, TNF-alpha, Infliximab.

Introduction

Sarcoidosis is a multisystem disease of unknown aetiology. Histological evidence of non-caseating granulomas represents the main finding. Sjogren's syndrome (SS) is a chronic autoimmune disease affecting the exocrine glands, primarily the salivary and lacrimal glands. SS can be secondary to many other autoimmune and non-autoimmune diseases, like rheumatoid arthritis, systemic lupus erythematosus (SLE), Hashimoto's thyroiditis, neoplasia, sarcoidosis¹. It is known that chronically inflamed tissues overexpress the receptor for somatostatin (SSR)².

We have previously reported the clinical usefulness of ^{99m}Tc -HYNIC-tir-octreotide (TOC) in patients with rheumatological diseases³. Here we report the case of a 59 year old woman affected by lung and joint sarcoidosis and secondary SS, successfully treated with infliximab and methotrexate, where ^{99m}Tc -HYNIC- TOC scintigraphy was useful in diagnosis, choice of treatment and follow-up.

Case Report

A 59 year old woman was referred to our clinic in November 2004 for diffuse joint pain, persistent cough, xerostomia and xerophthalmia. Joint pain started in 2003, localized at the left wrist, and then rapidly spreading to many other diarthrodial joints. Laboratory findings showed presence of antinuclear antibodies (ANA) with speckled pattern at low titre (1:80), high levels of circulating immunocomplexes, polyclonal hypergammaglobulinemia, elevated levels of erythrocyte sedimentation rate (ESR), CRP and rheumatoid factor, while anti citrullinated-peptide antibodies and anti ENA antibodies were undetectable. Schirmer's test and functional salivary gland scintigraphy showed a decrease in exocrine glands function; ultrasonographic study of parotid glands showed a typical chronic inflammatory pattern, without isolated neoformations in the contest of gland parenchyma, fully compati-

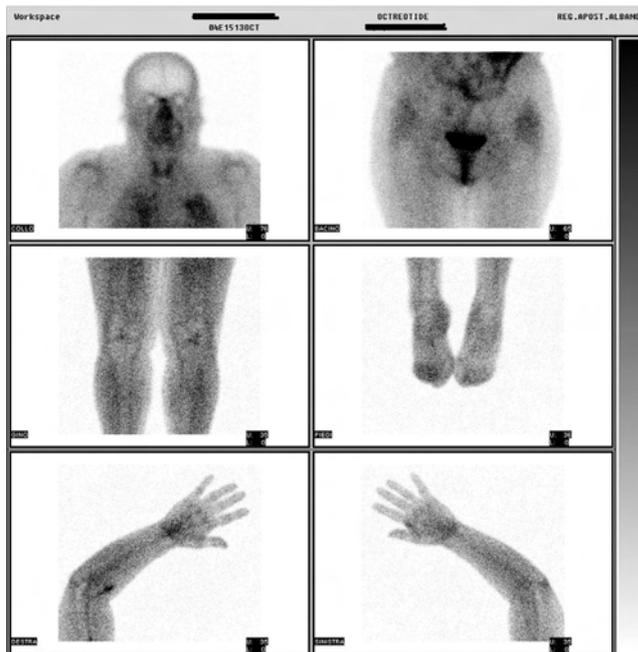


Figure 1. Polyarticular involvement observed by ^{99m}Tc -HYNIC-tir-octreotide scintigraphy.

ble with diagnosis of SS. Patient refused any kind of biopsy.

Patients underwent ^{99m}Tc -HYNIC-tir-octreotide scintigraphy to assess the presence of chronic immune phenomena in joints and ex-

ocrine glands. Results showed several areas of pathological accumulation at the interphalangeal joints, wrists, ankles, knees, parotid glands and, as an occasional finding, both lungs, with typical characteristics of lung sar-

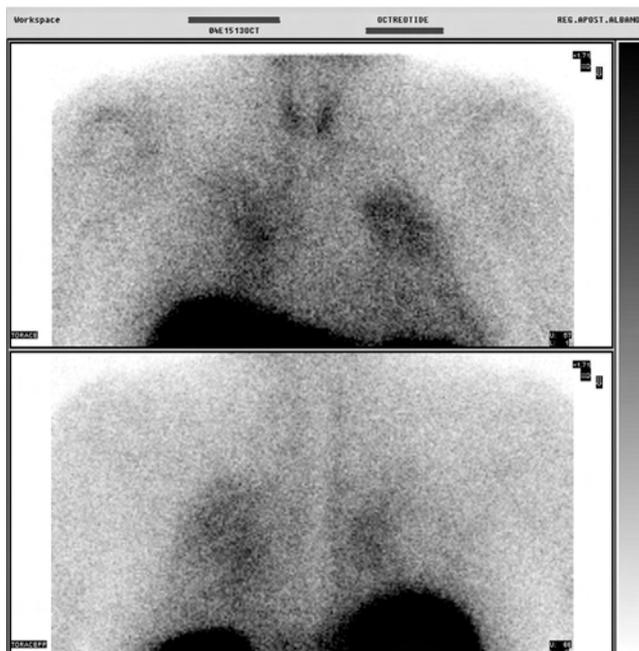


Figure 2. Lung sarcoidosis as detected by ^{99m}Tc -HYNIC-TOC scintigraphy before treatment with infliximab and methotrexate and ^{99m}Tc -HYNIC-TOC scintigraphy of the lungs after treatment

Table I. Joint Severity Index and Lung Uptake Index compared in three different TOC scintigraphies, performed before therapy, after azathioprine therapy and during infliximab-methotrexate based therapy.

	First scan	Second scan	Third scan	Normal Ronger
Joint Severity Index	2.2	2.1	1.4	< 1.5
Lung Uptake Index	2.1	2.1	1.4	< 1.5

coidosis^{4,5} (Figure 1). Computerized tomography confirmed the suspect of lung sarcoidosis and bronchoalveolar lavage results were typical of sarcoidosis, while cultures for bacteria and mycetes were negative. ACE levels were high (185 U/ml, normal range 18-67 U/ml)

Treatment was started with cyclosporin A (200 mg/die), along with prednisone 10 mg/die and omeprazole 20 mg/die, but at day 60 a severe gastric pain prevented continuation of therapy. Therapy was therefore changed to azathioprine 50 mg/die, along with prednisone 10 mg/die and omeprazole 20 mg/die, but after 120 days elevated liver enzymes caused the discontinuation of azathioprine therapy. The patient was re-evaluated after 6 months of treatment: salivary gland scintigraphy and ^{99m}Tc-HYINC-TOC did not show significant differences compared to the baseline studies. ACE levels stayed high (215 U/ml) while ESR value was 78 mm/hr and CRP value was 42 mg/L.

Results of tests and clinical evaluation indicated failure of treatment and it was decided to start a therapy with infliximab 3 mg/kg/8 weeks following the protocol reported by the ATTRACT study, methotrexate 10 mg/week and folic acid 7.5 mg/week, given the day after methotrexate administration⁶. infliximab/methotrexate-based therapy started in may 2005. The patient referred complete remission of joint pain after the very first infusion of infliximab, and an almost complete remission of the persistent cough at ten months of follow-up. A ^{99m}Tc-HYNIC-TOC scintigraphy was performed in march 2006, and not only joint involvement was clearly reduced, but also lung uptake was significantly reduced (Figure 2). Computerized tomography confirmed the amelioration of the lung involvement. ACE levels were within normal ranges (48 U/ml). Table I shows amelioration in TOC scintigraphy values during subsequential scans, per-

formed before therapy, after therapy with azathioprine and during therapy with infliximab-methotrexate.

Discussion

Combined therapy with infliximab and methotrexate was successful in treating a case of sarcoidosis with lung and joints involvement and secondary SS resistant to conventional treatment. Scintigraphy with ^{99m}Tc-HYNIC-TOC played an important role for the diagnosis of sarcoidosis; it was useful to verify treatment failure and it was then used to verify the effect of final treatment on both lungs and joints.

As we know, this is the first report in the literature on the use of ^{99m}Tc-HYNIC-TOC in a patient with sarcoidosis. This new technique offers several advantages over currently available methods such as ⁶⁷Ga-citrate and ¹¹¹In-pentetreotide: it is more readily available, exposes the patients to a lower radiation burden, provides conclusive information within 3 hours.

In inflammatory diseases this technique gives relevant information and is particularly useful in patients where multiple sites of involvement are suspected.

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