Case Report

Water vapor therapy and polymyalgia rheumatica: Coincidental?

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Abstract

Polymyalgia rheumatica (PMR) is an inflammatory rheumatic condition characterized by pain and stiffness around the shoulders and hip girdles, an elevated erythrocyte sedimentation rate (ESR) or C-reactive protein (CRP) and a dramatic response to corticosteroids. It is usually seen in adults aged over 50 years; about 30% also have giant cell arteritis. Its etiology is unknown. A 72-year-old male received water vapor therapy, a novel, minimally invasive therapy for benign prostate hypertrophy (BPH). On postoperative day 1, he developed severe shoulder pain and weakness, with difficulty with lifting his arms above his head, and hip pain and weakness, with difficulty getting out of a bed or chair. Laboratory results showed elevated ESR and CRP, but a normal creatine kinase level. The patient received low-dose prednisone and had prompt symptom relief. This case illustrates that a diagnosis of PMR after water vapor therapy can be easily overlooked.

Keywords: Benign prostate hypertrophy, polymyalgia rheumatica, water vapor therapy

Introduction

Polymyalgia rheumatica (PMR) is an inflammatory rheumatic condition characterized by the prominent symptoms of pain and stiffness around the shoulders and hip girdles, an elevated erythrocyte sedimentation rate (ESR) or C-reactive protein (CRP) and a dramatic response to corticosteroid.[1,2] It is usually seen in adults over 50 years of age, and giant cell arteritis (GCA) can be seen in about 30% of persons with PMR. The etiology of PMR is unknown. However, there is no known association of PMR with water vapor therapy, a novel, minimally invasive therapy for benign prostate hypertrophy (BPH). Herein, we present a case of a 72-year-old male who developed PMR one day after receiving water vapor therapy.

Case History

The patient is a 72-year-old male who received water vapor therapy performed by urology for BPH. On postoperative day 1, he developed severe pain and weakness around his shoulders and hips, with difficulty lifting his arms above his head and getting out of a bed or chair. He took meloxicam 15 mg daily as needed with noticeable pain improvement, but stopped it after three weeks. Three days later, the pain and weakness returned with new onset of edema in the dorsum of the hands.

The patient presented to the emergency room, where his laboratory results showed an elevated ESR and CRP, but a normal creatine kinase level [Table 1]. He was diagnosed with probable myositis and started on prednisone 60 mg daily. The patient noticed rapid and dramatic improvement of his symptoms with minimal muscle weakness and malaise soon after starting prednisone. After seven days, prednisone was decreased to 40 mg daily for two days, then stopped. Two days later, his symptoms returned. Repeat laboratory results showed an elevated CRP and an ESR of 20 mm/hr [Table 1]. At this time, the patient was diagnosed with PMR. He resumed prednisone at 20 mg daily and had prompt symptom relief.

Over the next two months, prednisone was tapered to 5 mg daily and the patient's symptoms improved 95%. He reported

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Table 1: Laboratory results for the 72-year-old male case

	ESR (mm/hour)	CRP (mg/L)	CK (unit/L)
ER visit	53	147	42
At the time of PMR diagnosis	20	123	Not done
2-month follow-up	7	5.4	Not done
9-month follow-up	4	2.3	Not done

ESR=Erythrocyte sedimentation rate, CRP=C-reactive protein, CK=Creatine kinase, ER=Emergency Department, PMR=Polymyalgia rheumatica

mild bilateral shoulder pain and hip pain on arising. His ESR and CRP were normal. At this time, a medical record review by a rheumatologist supported the diagnosis of PMR. The rheumatological examination revealed some synovial thickening in the left middle finger proximal interphalangeal joint and some effusion and warmth in the left knee. Muscle strength and tone were normal. Prednisone was slowly tapered off over the next three months. At the 9-month follow-up visit, the patient had minimal symptoms and his examination and inflammatory markers were normal.

Discussion

In 2015, the United States Food and Drug Administration approved water vapor therapy for BPH. The treatment involves a transurethral injection of radiofrequency-converted water vapor into the prostate, causing cell necrosis. An improvement in symptoms is expected about 3 months postprocedure after the prostate volume shrinks.[3] The procedure has been associated with good short-term safety profiles.[3-7] The common side effects are dysuria, hematuria, and urinary retention.[5-8] Our literature search found no reported association between water vapor therapy and PMR.

The cause of PMR is under active investigation. Potential risk factors are environmental factors (ultraviolet radiation exposure and vaccine), genetic factors (HLA-DR4, a known risk for rheumatoid arthritis), and an abnormal immune response to viral infections.[2,9] The cardinal symptoms of PMR are pain and stiffness in the shoulder and elevated ESR or CRP. However, other symptoms include fatigue, malaise, weight loss,[10] fever, neck pain, periarticular pain, pelvic girdle pain and stiffness, bursitis, and hand synovitis. PMR is diagnosed based on signs and symptoms, but there is no confirmatory test. A useful reference for the diagnosis of PMR is the European League Against Rheumatism/American College of Rheumatology collaborative 2015 guidelines, which includes PMR symptoms along with clinical and ultrasound criteria into its scoring criteria.[11]

Recent advances in imaging can assist with the recognition of PMR. For person with prominent symptoms of weakness, the presence of normal muscle on magnetic resonance imaging (MRI) can exclude inflammatory muscle disease, but MRI features consistent with synovitis of the peripheral joints and bursitis can facilitate the diagnosis of PMR.[10] A well-trained ultrasound sonographer can detect the inflammation seen in PMR, such as synovitis and inflammation bursa. Also, the presence of inflammatory arteritis on positron emission tomography–computed tomography would indicate subclinical GCA, which is seen in approximately 30% of persons with PMR.[12] Screening for GCA after a diagnosis of PMR should be considered.

PMR is highly responsive to low-dose corticosteroid, and most patients report improvements by two to four weeks. Therapy can be tapered once symptoms improve. Unfortunately, long-term dependence on glucocorticoid steroids is often seen. Floris *et al.* reported that 77% of patients with PMR remained on corticosteroid at one year, and 51% remained on steroids at two years.[13] Factors associated with prolonged corticosteroid use and relapse is not known.[14] The use of methotrexate as a steroid sparing agent is not favored by all.[15,16] A recent study showed that intravenous tocilizumab was associated with reduced prednisone use at 24 weeks, but additional study is needed.[17]

In the reported case, the abrupt onset of symptoms the day after water vapor therapy suggested a possible temporal relationship between water vapor therapy and PMR, but many patients with PMR also presents with abrupt onset. The patient's symptoms were very responsive to corticosteroid therapy, and his disease duration was much shorter than expected for the typical patient with PMR, suggesting that the PMR onset was associated with water vapor therapy and resolved after treatment completion.

This case illustrates how PMR can be overlooked in general and can be missed as an associated condition post water vapor therapy. A potential association between PMR and water vapor therapy can be considered if additional cases are seen and a plausible mechanism for this association is discovered.

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Conflicts of interest

There are no conflicts of interest.

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