

ACROMEGALIC ARTHROPATHY  
OF THE HIP: A CASE REPORT

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**Abstract**

Acromegaly is a chronic and slowly developing endocrinopathy caused by hypersecretion of growth hormone and consequently of insulin like growth factor-1. The arthropathy in acromegaly can affect both axial and peripheral joints and it may present as the earliest clinical symptom of the disease. Patients with acromegaly may have high prevalence of joint related comorbidity and a reduced self perceived quality of life. An early diagnosis is crucial to obtaining the optimal treatment due to the potential reversibility of the lesions in an early stage. The aim of this case report is to draw attention to the possible articular involvement of acromegaly.

**Keywords:** Acromegaly; Arthropathy; Hip

**Resumo**

A acromegalia é uma endocrinopatia crónica de evolução lenta causada pela hipersecreção de hormona de crescimento e consequente aumento de *insulin like growth factor-1*. A artropatia da acromegalia pode afectar quer o esqueleto axial, quer as articulações periféricas e pode ser a primeira manifestação clínica desta doença. Os doentes com acromegalia apresentam uma elevada prevalência de morbilidade articular e uma redução na qualidade de vida. O diagnóstico precoce é crucial para um tratamento atempado de lesões potencialmente reversíveis. Com o relato deste caso clínico pretendemos chamar a atenção para o envolvimento articular da acromegalia.

**Palavras-chave:** Acromegalia; Artropatia; Anca.

**Introduction**

Acromegaly is a chronic endocrinopathy characterized by hypersecretion of growth hormone (GH) and consequently of insulin like growth factor-1 (IGF-1).<sup>1</sup> The disease usually develops in the second and third decades of life and it seems to affect females more frequently than males.<sup>2</sup> Active acromegaly is associated with complaints such as fatigue, headaches, paresthesias, excessive perspiration and joint pain.<sup>3</sup> Osteoarticular involvement is a featuring sign of acromegaly and the articular complaints can be due to both spinal and peripheral joint involvement. The most commonly involved peripheral joints are the hips, shoulders, knees, hands and elbows.<sup>4</sup> Arthropathy may present as the earliest clinical symptom of acromegaly and its progression usually becomes clinically evident, resembling active osteoarthritis in later phases.<sup>5</sup> The aim of this case report is to draw attention to the possible early articular involvement of this disease.

**Case Report**

A 46-year-old female patient was referred to our department with the complaints of difficulty in walking and pain and limitation in hip movements. She had a 17-year history of hip pain worsening with physical activity, accompanied by limited hip motion in the last 3 years. Sixteen years ago she had presented to another medical centre with fatigue, headache, long lasting joint pain in her shoulders, knees and especially in hips, and enlargement of hands and feet. She had been diagnosed with acromegaly depending on the clinical, laboratory and radiological findings. After surgery of pituitary adenoma, she was treated with somatostatin for one year and with hormone replacement therapy (Levo-thyroxine and prednisolone).

On physical examination she had prominence of orbital, mandibular and acral parts of the limbs and difficulty in walking. Systemic evaluation was un-

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**Figure 1.** Pelvic X-ray in late stage acromegalic hip arthropathy demonstrates marked narrowing of joint space, subchondral sclerosis, osteophytosis and subluxation of the prominent femoral head.

remarkable. Hip movements were reduced, with the abduction of 30°, adduction of 15°, internal rotation of 40°, and external rotation of 45° bilaterally and with flexion of 110° on the right side. There was narrowing of joint spaces, cyst formation, sclerosis and osteophytosis resembling primary degenerative disease and subluxation of the prominent femoral head on the right side in radiological evaluation (Figure 1). An appropriate physiotherapy and rehabilitation program was started in order to improve her daily activities. Hip replacement surgery was planned for residual morbidity.

## Discussion

Many metabolic and endocrine disorders affect the musculoskeletal system, either due to primary changes in bone and collagen or resulting in secondary arthropathic changes.<sup>6</sup> The clinical syndrome of acromegaly results from increased circulating GH classically caused by a pituitary adenoma. The pathogenesis of arthropathy in acromegaly comprises two mechanisms: initial endocrine changes and subsequent mechanical changes.<sup>7</sup> In the early course of the disease, elevated GH and IGF-1 levels promote growth of the articular cartilage and periarticular ligaments. As a result, the cartilage lining thickens, leading to limitation in the range of movements. Overgrown ligaments cause laxity of the joint. This stage occurs very early in the course of the disease and seems to be fully reversible.<sup>7</sup> If allowed

to persist, cartilage hypertrophy and hyperplasia lead to the disruption of joint geometry, altered chondrocyte metabolism and degenerative changes, which are probably irreversible.<sup>4</sup> Arthropathy may present as the earliest clinical sign of acromegaly in a significant proportion of patients<sup>5</sup> and its prevalence and severity worsen with the duration of uncontrolled disease.<sup>8</sup> It has also been reported that acromegalic patients have high prevalence comorbidity and joint complaints, contributing to a reduced self perceived quality of life.<sup>3</sup> The acromegalic arthropathy that can affect both axial and peripheral sites is generally non-inflammatory.<sup>9</sup> Spinal involvement can lead to backache that can be accompanied with local tenderness in half the patients.<sup>2</sup> Besides the most commonly involved peripheral joints such as hips, shoulders, knees and elbows, the first carpometacarpal joints can be involved and enlargement of the distal interphalangeal joints with a wide range of pain free movement can be observed.<sup>2</sup> The coarse crepitus with little or no pain and full range of motion in joints can be seen in the early stages of the disease. However, secondary degenerative changes, particularly in large joints, and limitation of joint motion may produce arthralgia which is the leading symptom affecting the majority of the patients in later stages.<sup>2</sup> Radiological signs of joint space widening occur early in the acromegalic arthropathy, whereas long-standing disease is characterized by the narrowing of joint spaces, osteophytosis, and other features of osteoarthritis.<sup>10</sup> However, unlike osteoarthritis, the non weight bearing joints such as shoulders and elbows can be also involved.<sup>2</sup> To design appropriate therapeutic strategies it is necessary to understand the bi-phasic nature of arthropathy, because of the potential reversibility in early stages. Treatment of acromegaly often requires multiple therapeutic modalities including surgery, pharmacotherapy and, in some cases, pituitary irradiation. The current effective GH and IGF-1 lowering treatments are able to reduce subjective joint-related complaints, and also objective parameters such as cartilage thickness measured by ultrasonography.<sup>11</sup> Any residual morbidity has to be dealt with using traditional methods: physical therapy, NSAIDs, local steroid injections or, in advanced cases, surgical interventions, including joint replacement.<sup>7</sup>

## Conclusion

Arthropathy may present as the earliest clinical symptom of acromegaly and its severity worsens

with the duration of uncontrolled disease, resulting in reduced quality of life. To obtain the optimal reduction of complaints and disability, the disease should be diagnosed as early as possible. In patients with joint complaints, an increased awareness of acromegaly as a diagnostic possibility may contribute to an early intervention.

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