Pachydermoperiostosis associated with gastric neoplasia

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Background

Pachydermoperiostosis (PDP) or primary hypertrophic osteoarthropathy is a rare autosomal-dominant disease, more common in males[2], which is characterized by clubbing of digits, periostosis and skin thickening[1,3], mainly of the face. Arthralgia, arthritis, movement limitation, pseudogout, hyperhidrosis and palpebral ptosis can also be present[1,3].

PDP must be differentiated from secondary osteoarthropathy that appears during the evolution of some severe heart and lung diseases or even neoplasias, such as suppurative lung diseases, lung neoplasia, congenital cyanotic heart disease, infective endocarditis[1,4,5] and gastric neoplasia[5,14], among others.

More than 20% of the patients with PDP have hypertrophic gastritis or gastric ulcer and some of them have high pepsinogen levels. Other diseases of the gastric system can be considered occasional associations, such as gastric polyposis, Crohn's disease and protein-losing enteropathy[3,4].

The association between primary osteoarthropathy and gastric neoplasia is rare, with few cases described in the literature[5,15].

We describe a patient presenting with this association, hypothesizing that PDP might have been a risk factor for the development of gastric cancer[5].

Case report

A 47-year-old white male, ex-farmer, smoker, was referred to the Outpatient Clinic of the Service of Rheumatology of *Hospital Universitário de Santa Maria* (HUSM), complaining of symmetrical polyarthralgia of large joints, affecting knees, ankles and hips for more than 20 years. He also had lower-limb and hand paresthesia at rest and mechanical cervicalgia with movement limitation.

At physical examination, the patient had clubbing of digits and thickened skin on palms and hands (Figure 1), soles of feet and face (Figure 2), increased volume of ankles and knees, knee and shoulder cracking, in addition to decreased cervical range of movement.

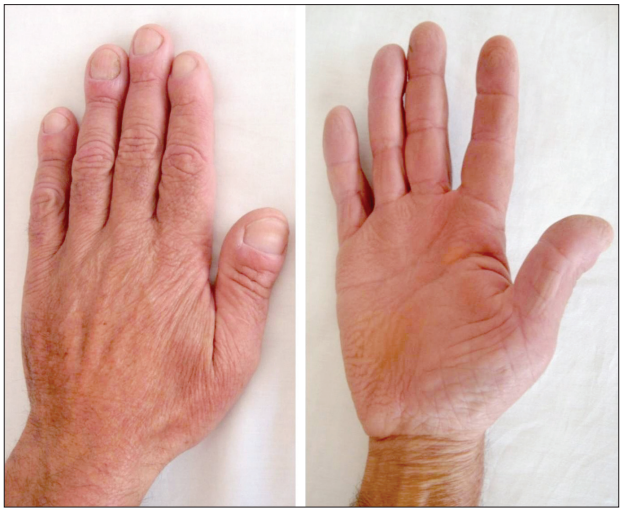

Figure 1 – Clubbing of digits and thickened skin on palms and hands.

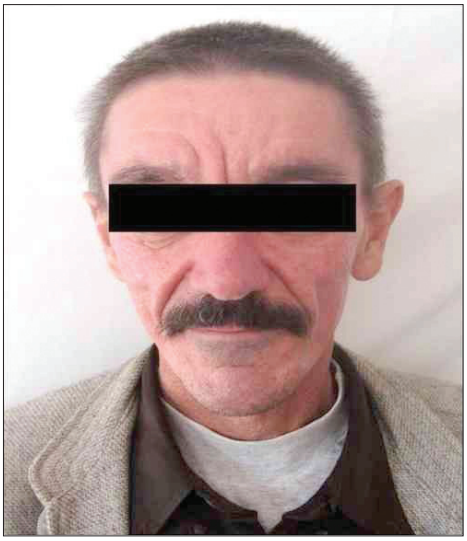

Figure 2 – Facial skin thickening.

Laboratory assessment, which included complete blood count, liver, kidney thyroid and pancreatic function tests, as well as protein electrophoresis, was normal.

Chest x-ray showed pleural thickening, later confirmed through a chest computed tomography (CT), which showed loss of volume in the left lung, mediastinadeviation, pleural thickening and calcifications in the left lung. The appendicular skeleton x-ray disclosed generalized periosteal and cortical thickening of long bones, which was more marked in the femur and tibia (Figure 3), bilaterally, also affecting the metacarpals and phalanges of both hands. The radiographic findings in PDP usually consist of soft tissue enlargement and acroosteolysis of distal phalanges and periostosis in long bones, which is more prominent in the distal part of lower limbs[17,18].

In 2009, the patient underwent an upper digestive endoscopy (UDE) at another Service, which showed non atrophic inactive chronic gastritis grade I and positive *Helycobacter pylori* test. The UDE was repeated in January 2010 at HUSM and showed an infiltrating lesion in the gastric fundus. The lesion biopsy was compatible with poorly differentiated adenocarcinoma with signet ring cells in the gastric fundus and transitional mucosa with intestinal metaplasia, consistent with Barrett's esophagus in the esophageal-gastric transition. Considering these findings, the patient was referred to the Service of Digestive Surgery and submitted to total gastrectomy after staging. The anatomopathological analysis of the surgical specimen showed poorly differentiated, ulcerated Lauren's diffuse-type adenocarcinoma, with metastasis in 15 of the 35 lymph nodes of the small gastric curvature and 0 of 9 lymph nodes of the large curvature, with free surgical margins. After the surgical treatment, he was referred to the Oncology team of HUSM for chemotherapy and is currently undergoing clinical follow-up.

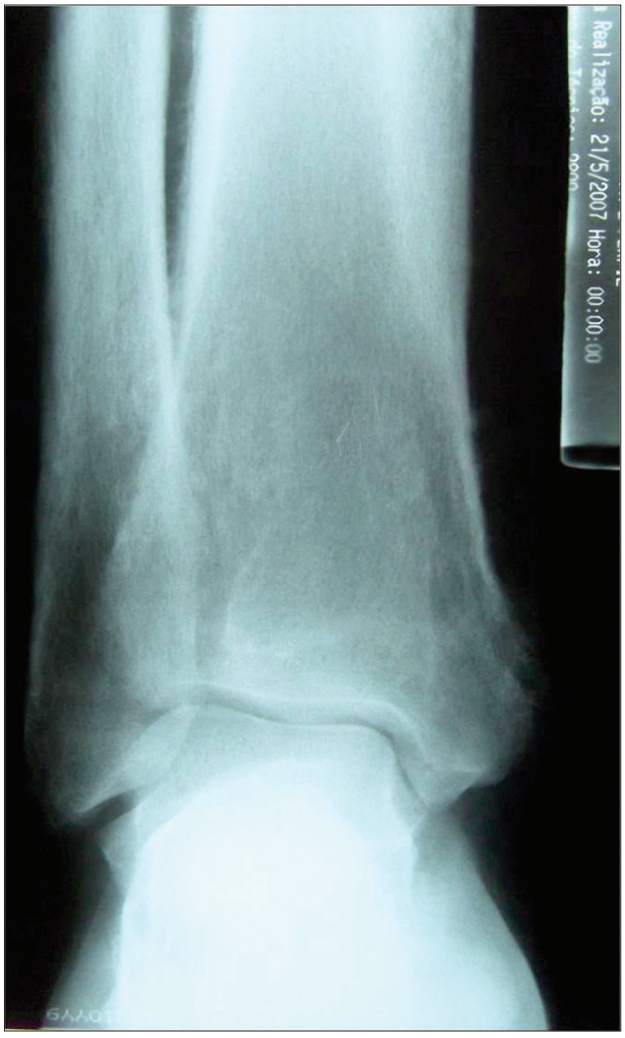

Figure 3 – Thickening of cortical layers in x-ray of tibia.

Discussion

PDP is a primary osteoarthropathy, with varied clinical manifestations, of which the most common are clubbing of digits, periostosis and skin thickening. It must be differentiated from the secondary form, triggered by lung, heart or neoplastic diseases.

The association between the primary form and gastric neoplasia is a rare one, with few cases reported in the literature[5,14-16], although hypertrophic gastritis and/or gastric ulcers are present in more than 20% of patients with PDP[3].

Twenty years after PDP symptom onset, the presence of gastric neoplasia raised the hypothesis of a possible association between this osteoarthropathy and the gastric malignancy, even without the concomitant presence of hypertrophic gastritis.

Although genetic abnormalities are suspected in PDP, the culprit genes have yet to be identified. Moreover, studies on the association between PDP and carcinogenesis have been insufficient. In this article, a possible association between PDP and gastric neoplasia is suggested.

Therefore, the UDE can be performed sometime during the evolution, considering that PDP might be a risk factor for gastric cancer[5] and also for the concomitant investigation of esophageal diseases, as there are several publications in the literature on esophageal pathologies associated with hypertrophic osteoarthropathy[4].

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