

Digital ischemia as a paraneoplastic phenomenon

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A 50 year-old female was referred for rheumatological evaluation due to bilateral and painful cyanosis of fingers, associated with paresthesias. She complained also of weight loss (four kilograms in one month) and a breast lump known for about a year without any additional investigation. Physical examination revealed a painful cyanosis of seven fingers, sparing the first fingers of both hands, and digital necrosis of the third finger of the left hand (Figure 1). The examination detected a palpable axillary mass, of about four centimetres, painless, mobile and tender, with rubbery consistence. The laboratory tests revealed a normal hemogram, erythrocyte sedimentation rate of 60 mm at first hour (normal < 20 mm at first hour); normal renal and liver function; lactic dehydrogenase 200 U/L (normal < 190 U/L). The autoimmunity study was strongly positive for antinuclear antibodies (ANA) with mottled pattern. Viral serologic testing (HBV, HCV, HIV) and tumour markers (CA 19.9, CEA, CA15.3, AFP, CA125)

were negative. The breast ultrasound revealed in the right breast a mass with 46 mm suggesting a simple cyst, and an axillary adenopathy (43x40.9mm). The biopsy of the axillary lymph node was positive for metastatic breast cancer, which was confirmed subsequently by the histology of the mass in the right breast, positive for invasive ductal carcinoma. She underwent neoadjuvant chemotherapy, radical mastectomy, chemotherapy and radiotherapy, with symptomatic relief seven days after starting therapy, and significant improvement of digital ischemia in six months (Figure 2). Six years later the patient presents sustained remission of breast cancer and digital lesions.

Digital ischemia is a rare paraneoplastic syndrome associated with several malignant tumours, especially adenocarcinomas of gastrointestinal tract, lung and breast^{1,2}. It can precede, coincide or follow the diagnosis of cancer, but the majority of patients develop digital ischemia and cancer simultaneously³. The mean time between digital ischemia and cancer diagnosis is two months³. To our knowledge there are only four cases published in the literature of digital ischemia associated with breast carcinoma¹. The probable mecha-

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FIGURE 1. Patient's hands before treatment



FIGURE 2. Patient's hands after treatment

nisms implicated in this association are: 1) vasospasm related to sympathetic hyperactivity caused by tumour invasion^{1,3,4}; 2) arteritis by deposition of tumour antigen-antibody complexes and subsequent complement activation in contact with arterial wall^{1,3,4}; 3) an immune deregulation secondary to the neoplasm¹ – this mechanism is also supported by an elevated antinuclear antibodies titers in up to 46.7% of patients with digital ischemia associated with cancer³ as observed in this patient; 4) blood hyperviscosity caused by various factors, like the increase of circulating blood proteins (eg. cryoglobulins)^{1,4}; 5) hypercoagulability due to tumour activation of haemostatic cascade and peripheral thrombosis¹. The number of cases of digital ischemia as a paraneoplastic phenomenon is increasing³. Exclusion of a malignant tumour must be considered in patients presenting constitutional symptoms and unexplained digital ischemia⁵ and treatment should be rapidly performed to prevent permanent digital lesions.

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