CASE REPORT

Cutaneous manifestations of kwashiorkor: a case report of an adult man after abdominal surgery *

Alterações cutâneas no Kwashiorkor: relato de caso de um homem adulto após cirurgia abdominal

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Abstract: Kwashiorkor is a type of protein-energy malnutrition where diet protein deficit is found, in spite of appropriate caloric intake. Cutaneous manifestations include xerosis, with abnormally dry skin that has a flaking enamel paint aspect, a typical red to gray-white hair color, the "flag sign" and more evident edema in lower limbs and face, giving it a full moon appearance. This article reports a case of a male adult patient who had undergone Whipple surgery for treatment of chronic pancreatitis associated with pseudotumor of the pancreatic head that progressed to cutaneous manifestations of kwashiorkor after pulmonary tuberculosis.
Keywords: Pancreatitis, chronic; Protein-energy malnutrition; Tuberculosis, pulmonary

Resumo: Kwashiorkor é um tipo de desnutrição proteico-energética em que há deficiência dietética de proteína, embora a ingestão de calorias se mantenha adequada. As manifestações cutâneas incluem pele xerótica, com aspecto de esmalte descascado, típica coloração avermelhada a branco-acinzentada dos cabelos, o sinal da bandeira e edema mais evidente, nos membros inferiores e na face, dando aspecto de lua cheia. O presente artigo relata o caso de um paciente adulto, do sexo masculino, previamente submetido à duodenopancreatectomia para tratamento de pancreatite crônica associada ao pseudotumor em cabeça de pâncreas que evoluiu com alterações cutâneas de kwashiorkor após tuberculose pulmonar.
Palavras-chave: Desnutrição proteico-calórica; Pancreatite crônica; Tuberculose pulmonar

INTRODUCTION

Kwashiorkor is a form of protein-energy malnutrition where there is diet protein deficit, although caloric intake is adequate. Fat reserves and muscle mass are not affected at first, giving an illusory aspect of adequate nutrition. There is a connection with acute diseases such as traumatism and sepsis, as well as chronic diseases involving inflammatory responses that increase protein-energy requirements when consumption is limited.[1]

A duodenopancreatectomy or Whipple procedure is a therapeutic option for chronic pancreatitis, when the cephalic portion of the pancreas is compromised. Resection involves head and body of the pancreas, duodenum, part of the jejunum, the distal choledochus and the gall bladder.[2]

This article reports the case of an adult male patient previously subjected to the Whipple procedure, who presented pulmonary tuberculosis and progressed to clinical kwashiorkor, also verified by laboratory tests.

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CASE REPORT

A 43-year old man, black, lawyer, had been subjected to the Whipple procedure three years before, due to chronic pancreatitis associated with pseudotumor on the pancreas head. It progressed to about seven daily bowel movements, weight loss of 13 kg for some time, without loss of appetite. He had been using iron sulfate and folic acid replacement. Two years after the surgery the patient was diagnosed with pulmonary tuberculosis, which was treated for six months. He began to notice skin depigmentation and body hair rarefaction.

The physical examination showed moon facies, dry reddish hair that was easily detached, depapillated tongue, angular cheilitis, onychodystrophy of fingernails and toenails, periungual desquamation and fissures, plantar keratosis and fissures, edema in hands and lower limbs up to the knees, diffuse hair rarefaction, ichthyosiform skin, hypochromia and desquamation of superciliary and central face regions, hypopigmentation under desquamative body areas, hyperemia and hair rarefaction in the genital area (Figures 1 to 3).

Laboratory tests demonstrated normochromic normocytic anemia (Hct 24% Hb 7.4 g/dl), hypoalbuminemia (1.9 g/dl), positive fecal fat test, normal vitamin B12, folic acid, ferritin, amylase and lipase levels. Negative serologies for HIV and hepatitis C. Hepatitis B with a pattern of cured prior disease. Non reactive PPD. High digestive endoscopy revealed subtotal gastrectomy with Billroth II reconstruction .

The histopathological examination revealed confluent hyperkeratosis and parakeratosis with focuses of cell vacuolation in the granulous layer of straightened epidermis. The papillary dermis showed edema and moderate perivascular infiltrate with lymphocytes (Figure 4).

Figure 2: Ichthyosiform skin and body hair rarefaction

The patient was referred to the outpatient clinic and a special diet was prescribed, according to orientation of nutritional support (hypercaloric oral diet, hyperproteic and with medium-chain triglycerides), vitamin supplements, oligoelements and oral replacement of pancreatic enzymes. He was discharged one month later for outpatient clinic follow-up with progressive elevation of serum albumin, decrease of edema, weight gain of around 5 Kg, decrease to two daily bowel movements and better general disposition. After three months of treatment, important improvement in skin and hair pigmentation could be verified (Figures 5 and 6).

Figure 1: Moon facies, reddish hair and eyebrows, superciliary and central face hypochromia

Figure 3: Hair, eyebrows and eyelashes depigmentation

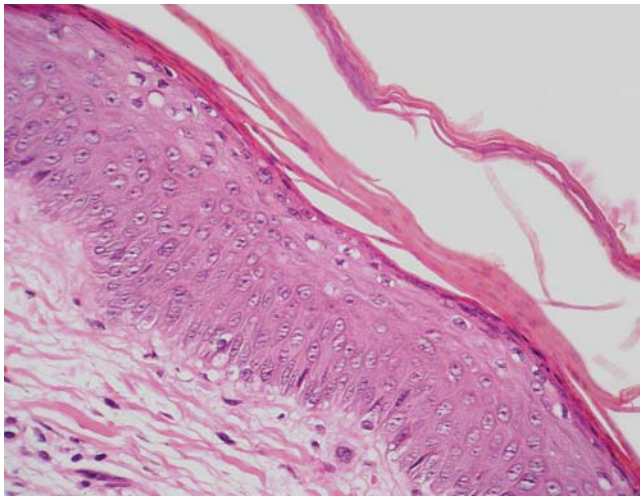

Figure 4: Confluent hyperkeratosis and parakeratosis with focuses of cell vacuolation in the granulous layer of straightened epidermis

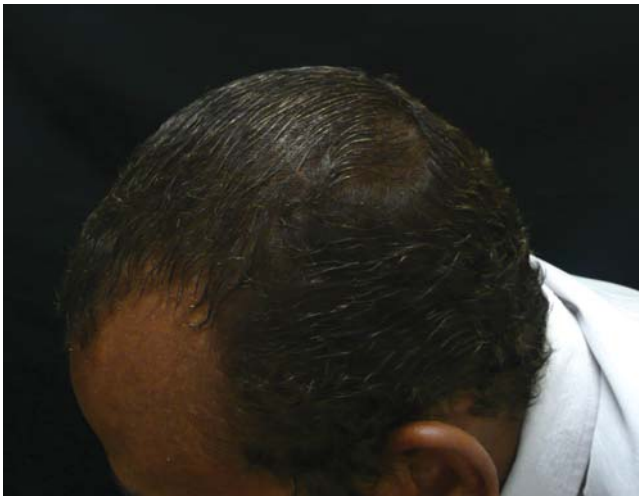

Figure 6: Hair repigmentation shown in detail, after three months of treatment

DISCUSSION

The clinical diagnosis of Kwashiorkor is confirmed by signs that include: easily detached hair; edema; skin fissures; faulty wound healing; skin anergy. Symptoms that are considered s*ine qua non*: albumin < 2.8 g/dl, transferrin < 150 mg/dl or total iron binding capacity < 200mcg/dl.[1]

Regarding cutaneous manifestations, generalized cutaneous dermatitis is compared to flaking enamel paint with a skin fissure pattern, suggesting a cracked or "crazy" pavement. Large erosion areas may be present in the most severe cases.[3]

Increased cutaneous pigmentation can be observed in extensors surfaces of arms and legs or in irritated areas and not necessarily in sun-exposed areas (which contrasts with pellagra). Depigmentation after desquamation may occur in these areas or it may be generalized. Hair alterations typically include development of a reddish coloration, which may evolve to a white-gray color. The flag sign occurs due to moments of nutritional improvement and worsening. Edema, a consequence of hypoproteinemia, is present in the lower limbs, but may also affect hands and face (moon facies). It is already present in internal organs before being detected in the limbs and face. In adults the symptom complex may be less pronounced, being manifest mainly as acquired xerosis or ichthyosis and may result from decreased secretion of sebaceous glands or associated deficit of micronutrients.[3,4,5]

Figure 5: After three months of treatment, important improvement of cutaneous and hair pigmentation can be verified

Histopathology findings include superficial perivascular infiltrate with lymphocytes, pale keratinocytes in band-like form along the upper part of epidermis and confluent parakeratosis. The most specific findings are paleness, ballooning degeneration and keratinocyte necrosis in band-like form along the upper part of epidermis; they are considered almost pathognomonic of dermatitis, due to nutritional deficit. However, these findings are not pathognomonic of kwashiorkor and may be found in other conditions that have nutritional deficit as causal factor.[6,7]

The diagnosis of energy-protein malnutrition with predominant characteristics of kwashiorkor was confirmed in our patient, based on ectoscopic alterations found on physical examination corroborated by laboratory tests. It was related to a secondary form of energy-protein malnutrition due to anatomic alterations imposed on abdominal visceral organs by the surgical procedure performed, since structures that are fundamental for nutrient digestion and absorp-

tion, such as the stomach, duodenum, gall bladder and pancreas were partially or entirely removed. Therefore, not only protein and lipid intake was compromised, but also hydro- and liposoluble vitamins and oligoelements such as iron and calcium (both absorbed in the duodenum), indispensable for human body homeostasis. Thus, it is understood that, in an already weakened body, an intercurrent infection such as tuberculosis in the described case would unbalance and aggravate the picture, leading to the onset of energy-protein malnutrition of the Kwashiorkor type. ❑

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