Recurrent Abscesses of the Neck: Scrofuloderma

Tuberculosis of the skin has become a rare disease in industrialized countries. Polymerase chain reaction (PCR) is a powerful diagnostic tool for mycobacterial infections of the skin, but it can fail, as demonstrated in this case.

Report of a Case | A woman in her 80s was referred for surgical treatment of a cervical abscess. Similar abscesses erupted in the cervical region over the course of 2 years (Figure 1A). A needle aspiration biopsy was performed on a node at the left side of the neck, which measured 2 cm. The histopathologic report described a minor nonspecific inflammatory reaction, not suggestive of infection. Findings of the Mycobacterium tuberculosis PCR were negative. A culture was not performed. Two months later, the whole nodule was excised, including the adjacent inflamed skin. The resulting defect, with a diameter of 7 cm, was closed with a rotary-transposition flap. During this intervention, the thoracic nerve was injured resulting in an elevation palsy of the left arm. The histopathologic report of the excised tissue again showed a nonspecific inflammatory reaction; no microbiological analysis was conducted.

At presentation, the patient had puckered scars scattered over the neck in addition to an unusual “cold abscess” (Figure 1B). The clinical appearance was suggestive of scrofuloderma. Results of the Mendel-Mantoux test were positive (di-ameter, 20 mm), as were those from the interferon-γ release assay. However, PCR findings from the skin biopsy specimen and abscess material were negative for M. tuberculosis. Histologically, no acid-fast bacilli could be detected by Ziehl-Neelsen staining.

Cervical sonography and magnetic resonance tomography revealed multiple abscesses in the lateral muscle lobe. Chest radiography excluded pulmonary tuberculosis. Laboratory work showed an elevated level of C-reactive protein (115 mg/L; normal, <5 mg/L) but no other pathological findings. (To convert C-reactive protein to nanomoles per liter, multiply by 9.524.)

After 19 days, M. tuberculosis was cultivated from the skin specimen (Figure 2). The strain was sensitive to isoniazid, rifampicin, pyrazinamide, ethambutol, and streptomycin.

Classic quadruple treatment with isoniazid, 300 mg/d; pyrazinamide, 1500 mg/d; ethambutol, 1200 mg/d; and rifampicin, 600 mg/d, was initiated. After 2 months, the regimen was reduced to isoniazid and rifampicin. After 4 months of the reduced regimen, all skin lesions had healed completely, leaving scars, and sonography revealed no remaining abscesses. Treatment was well tolerated, and at 24-month follow-up, no new nodules had evolved.

Discussion | From 1% to 2% of tuberculosis cases are cutaneous tuberculosis (CTB).1 Tuberculosis cutis colliquativa, also known as scrofuloderma, is the most common CTB subtype in Europe.2 Scrofuloderma is a subcutaneous form of CTB manifesting with cold abscesses most commonly on the neck that spreads from underlying lymph nodes. Infection can also involve joints, bones, and epididymis.3 The same quadruple antibiotic therapy is used as in pulmonary tuberculosis. Before treatment is begun, possible multidrug resistance should be excluded.
Cutaneous tuberculosis can be caused by consuming cow milk contaminated with *Mycobacterium bovis* or by droplet infection with *M. tuberculosis*. The correct diagnosis is often significantly delayed because CTB is not routinely considered in the differential diagnosis or because investigations fail to reveal the presence of *M. tuberculosis*.4

Our case illustrates that scrofuloderma, though a rare disease in industrialized countries, should still be considered in the differential diagnosis of unusual abscesses and nodules of the neck. Skin testing and interferon-γ release assay can support the clinical diagnosis. Since PCR has been shown to have a limited sensitivity and specificity (eg, 88% sensitivity and 83% specificity5), there is a risk of failure to detect mycobacteria in skin samples by relying solely on PCR. Therefore, PCR should always be accompanied by culture.6

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**Dermatitis and Dangerous Diets: A Case of Kwashiorkor**

Although uncommon, kwashiorkor continues to occur in developed nations. A recent case highlights the fact that such occurrences are typically the result of well-meaning dietary restriction in the setting of nutritional ignorance. Telltale skin and hair changes should prompt a thorough dietary history and appropriate dietary intervention.

**Report of a Case** | A young boy presented with a 1-year history of progressive skin, hair, and nail changes after institution of a low-protein diet recommended by an outside physician as therapy for his nonketotic hyperglycemia (NKH). Examination revealed generalized hypopigmentation with numerous erythematous and denuded patches over his trunk, arms, and legs. Desquamation in a flaking or “paint-chip” pattern was prominent on the upper and lower extremities (Figure 1). His abdomen was distended with dependent edema over the sacrum and extremities. His hair was pale yellow and brittle with patches of alopecia. Fingernails were thin and brittle with distal nail plate splitting.

Laboratory levels were measured as follows: total protein, 5.4 g/dL (normal, 5.7-8.2 g/dL); albumin, 2.8 g/dL (normal, 3.2-4.8 g/dL); and prealbumin, 8 mg/dL (normal, 10-40 g/dL). Aspartate transaminase and alanine transaminase levels were elevated at 76 U/L (normal, <11-34 U/L) and 55 U/L (normal, 10-49 U/L), respectively. (To convert total protein and albumin to grams per liter, multiply by 10; to convert prealbumin to milligrams per liter, multiply by 10; to convert aspartate transaminase and alanine transaminase to microkatal per liter, multiply by 0.0167.) Levels of alkaline phosphatase, total bilirubin, iron, phosphorous, magnesium, and stool alpha-1 antitrypsin were within normal limits. Values for zinc, vitamins A, K, and E and 1,25-vitamin D were above or within reference ranges.

Our patient’s clinical and laboratory findings were consistent with kwashiorkor secondary to dietary protein restriction intended as therapy for NKH, a rare disease of glycine metabolism causing accumulation of glycine in the cerebrospinal fluid and leading to subsequent *N*-methyl-[*D*-aspartate receptor excitotoxic effects or overstimulation of glutamate receptors in the central nervous system. These excitotoxic effects manifest clinically as intractable seizures, severe mental retardation, and permanent neurologic disease.7 Glycine is a non-essential amino acid produced via numerous catabolic pathways; therefore, dietary restriction of glycine has no therapeutic effect on NKH.8 Our patient’s skin changes improved rapidly with increased dietary protein. *Figure 2* demonstrates resolution of desquamation and erosions at 1-month follow-up.

**Figure 2. Growth of Mycobacterium tuberculosis in Liquid Culture**

Microscopic results from a liquid culture stained with Ziehl-Neelsen showing acid-fast *M tuberculosis*. The cord factor arrangement typical of *M tuberculosis* can be seen. The positive result was obtained 19 days after the specimen was collected. The arrow indicates a single bacterium.