An usual cause of progressive hair loss

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A 42-year-old man presented to the emergency department (ED) with progressive hair loss. He had no medical problems, and did not take any medications. He was homosexual with multiple partners, and he denied alcohol or illicit drug use. He reported having had a penile lesion 4 months prior, which was painless and resolved on its own. The vital signs were normal. The physical examination revealed a patchy distribution of hair loss over his entire scalp (Fig. 1), without broken hairs or signs of excoriation or irritation.

Discussion

Acute onset hair loss is a relatively uncommon presentation in the ED. It is a phenomenon with a multitude of potential etiologies that range in severity from the innocuous to life threatening. These include several endocrine disorders, autoimmune disease, fungal and bacterial infections, self-induced trichotillomania, chemical mistreatment of hair, a medication related side effect, and far more, rare and dangerous poisoning and radiation exposure.

Though the differential diagnosis is broad, an assessment of patients' medical history, along with their symptoms and signs, may help clinicians narrow the list of possible etiologies. Alopecia associated with radiation exposure or poisoning with a compound like thallium, for example, will also be associated with acute gastrointestinal toxicity, muscle weakness, and altered mental status. Chemotherapy related hair loss has an estimated incidence

of 65%, and is associated with particular cytotoxic agents including paclitaxel, doxorubicin, and cyclophosphamide, to name just a few [1]. Tinea capitis, a fungal infection of the hair shafts or cuticles, will lead to brittle hair prone to breakage. Similarly, trichotillomania may be identified by an examination of the hair and scalp that may demonstrate broken hairs of various lengths or torn away follicles with exudates or hemorrhage. Alopecia areata is defined as sudden onset, well demarcated, localized hair loss, usually on the scalp. If this pattern of hair loss is observed, laboratory evaluation is warranted as this entity is associated with several thyroid and autoimmune disorders [2].

The patient illustrated in the photograph, however, had a peculiar moth-eaten pattern of hair loss that did not fall into one of the categories of disorders already discussed. Upon learning of the patient's sexual history, however, a rapid plasma regain (RPR) was ordered with confirmatory treponemal antibody testing—both of which proved reactive. The patient was called back to the ED for treatment, once the results became available.

Diagnosis

Alopecia syphilitica. The first reported case of syphilis occurred in the year 1494 in Naples, Italy, and was subsequently called the Great Pox as the infection spread throughout Europe over the following decades [3]. After a precipitous decline in incidence with the discovery of penicillin, there has been a re-emergence of syphilis among individuals of all sexual orientations [4].

The spiral-shaped bacteria *Treponema pallidum* inoculates an individual through mucosal surfaces or abraded skin. Primary syphilis represents localized replication, and manifests itself as a painless, ulcerated lesion, 9–90 days

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Fig. 1 Patient at presentation, demonstrating a pattern of diffuse “moth-eaten” patchy hair loss

after infection, and then resolves. Secondary syphilis marks systemic spread up to 6 months after inoculation, and may result in a range of potential signs and symptoms including lymphadenopathy, rash on the palms and soles, condylomata lata, and alopecia. The alopecia associated with syphilis is non-inflammatory and non-cicatricial, and may present in a moth-eaten patchy pattern [2]. Tertiary syphilis occurs after initial infection and 20–40 years of latency, and may lead to CNS and solid organ dysfunction

as Treponemes further replicate and invade the body’s tissues.

Sufficient treatment for primary and secondary syphilis is a single dose of 2.4 mU of intramuscular (IM) Penicillin G benzathine. In infections of unknown duration, a lumbar puncture should be performed. If cerebrovascular fluid (CSF) analysis is normal, the patient should receive 2.4 mU IM Penicillin G benzathine once a week for 3 weeks. If CSF fluid is positive, the patient should receive aqueous penicillin G given as 3–4 mU every 4 h or by continuous infusion for 10–14 days [5].

Conflict of interest None.

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