

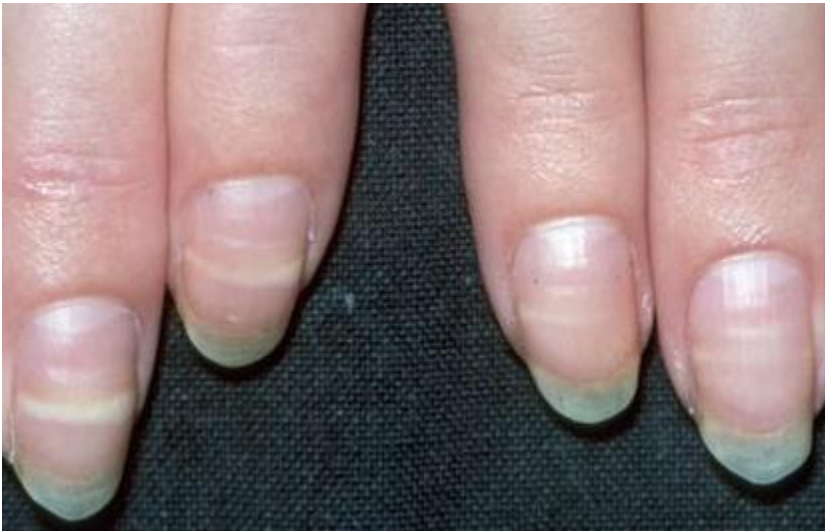
# HOLY C.O.W.!

## IT'S...

Clinical Question of the Week #12  
September 15th, 2008 through September  
22nd, 2008

Please e-mail your answers to Kuo, Tim, Wendy, and Kevin ([klian@mednet.ucla.edu](mailto:klian@mednet.ucla.edu); [tprovias@mednet.ucla.edu](mailto:tprovias@mednet.ucla.edu); [wsimon@mednet.ucla.edu](mailto:wsimon@mednet.ucla.edu); [kbreger@mednet.ucla.edu](mailto:kbreger@mednet.ucla.edu)) by 0800 on Monday, September 22nd, 2008. The resident or intern with the most correct answers at the end of each month will receive a prize!

**Case:** A 47-year-old woman presents to clinic for evaluation of tingling in her hands and feet. She can't quite recall when the symptoms came on, but she's had gradually increasing tingling and numbness of her fingertips and soles bilaterally over the past several months. Past history is notable for mild obesity and recently diagnosed hypertension, for which she is currently on dietary modification. She takes no prescription medications, but since her trip to India two years ago, she has been using a traditional herbal medicine for her aches and pains. Physical exam reveals mildly overweight middle-aged woman, with vital signs notable for BP 148/92. Examination of the skin reveals scattered pigmented patches and coarse areas on her palms and soles, which she attributes to "age spots" and calluses from working in her garden. A photo of her fingers is shown.



Bilateral 2<sup>nd</sup> and 3<sup>rd</sup> digits.

### Questions:

1. **What is the diagnosis? Name two other symptoms that are seen in this condition.**

Chronic arsenic exposure, likely from the traditional Indian herbal medications, which in several instances have been found to have elevated arsenic levels. Other sources of arsenic toxicity may stem from natural sources, such as volcanic eruptions or leaching from soil and rocks, as well as man-made sources including pesticides, metal

manufacturing, pressure-treated wood (think squatters in a run down dwelling), and interestingly, ingestion of chicken that has been given certain feed supplements with arsenic to control intestinal parasites (stick to the US grown steak).

Chronic arsenic toxicity results in a myriad of symptoms and signs including: 1) skin lesions with changes in pigmentation and thickening (hyperkeratosis); 2) neurologic changes including distal neuropathy (think stocking-glove distribution) and less frequently encephalopathy; 3) cancer of skin, bladder, lung, kidney, nose, liver, and prostate; 4) hypertension; 5) liver toxicity; 6) increased fetal mortality; and 7) diabetes.

By contrast, acute arsenic poisoning results in gastrointestinal toxicity with nausea, vomiting, diarrhea (classically with garlic breath and stool), which may be followed by dehydration, hypotension, cardiovascular collapse, ARDS, renal failure, and death. Among those who do survive, hepatitis and ascending sensorimotor peripheral neuropathy (mimics Guillain-Barre) may follow. Other symptoms include dermatologic lesions or respiratory symptoms. (1)

**2. What is the physical examination finding shown in the image?**

Mees' lines, or transverse leukonychia, which more frequently seen in acute ingestion. (0.5)

**3. What is the treatment?**

Diagnosis is made with 24-hour urine collection for arsenic, however recent ingestion of fish or shellfish may result in elevated levels (some seafood contains large amounts of organic arsenic compounds, arsenobetaine and arsenocholine, thought to be negligible in toxicity – however, that steak is sounding more enticing, isn't it?).

The hallmark of therapy is removing the patient from the source of arsenic. Supportive care is given in acute poisoning and decontamination is performed. Chelation therapy is given in acute and chronic severe toxicity in the form of dimercaprol or succimer. Consultation with Occupational/Environmental specialist should be considered. (1)

**4. In which Meryl Streep motion picture did her character likely experience this condition?**

*Out of Africa* (1985), in which Streep portrays Karen ('Isak') Dineson Blixen, a Danish woman who marries a friend to obtain the title of Baroness and moves to Kenya in 1913 to start a coffee plantation. There, she meets the love of her life, Denys Finch-Hatton, played by Robert Redford. It is also there where her husband Bror Blixen (played by Klaus Maria Brandauer) gives her syphilis (very romantic), for which she is subsequently treated with arsenic (arsphenamine), which was one of the prevalent therapies at the time. Currently, arsenic is still used in medicine today trypanosomiasis (melarsoprol) and acute promyelocytic leukemia (arsenic trioxide).

The film won seven Oscars, including Best Director (Sydney Pollack), Best Music (John Barry), Best Adapted Screenplay (Kurt Leudtke), and Best Picture. (0.5)

From *Arsenic and Old Lace* (1944 film adaptation):

**Mortimer Brewster (Cary Grant):** Look I probably should have told you this before but you see... well... insanity runs in my family... It practically gallops.

\* \* \*

**Aunt Martha (Jean Adair):** For a gallon of elderberry wine, I take one teaspoon full of arsenic, then add half a teaspoon full of strychnine, and then just a pinch of cyanide.

**Mortimer Brewster:** Hmm. Should have quite a kick.