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Painful Lesions in a Pancytopenic Patient

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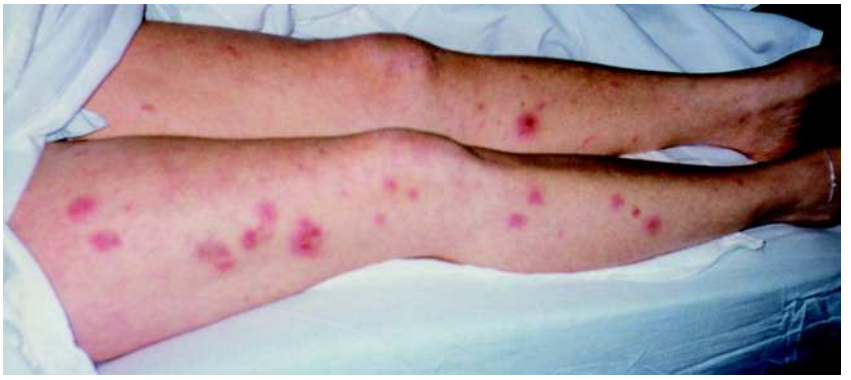
Case Study



Ms. P is a 46-year-old female who visited a walk-in clinic with a two-to-three week history of flu-like symptoms that included a fever higher than 38.5° C (102° F), chills, and night sweats. She also was experiencing anorexia and fatigue and reported a 15-pound weight loss. She added that her children had been sick with the flu during this time. She was placed on a seven-day course of antibiotics and told to return to the clinic after completion of the antibiotics. One week later, the symptoms persisted and she developed shortness of breath and increasing fatigue. At the clinic, a chest x-ray and complete blood count were performed. An elevated white blood count (109,000/mm^3) prompted the physician to immediately refer her to an oncologist in the area. She then was transferred to the medical center with a tentative diagnosis of acute leukemia.

During the hospital admission interview, Ms. P denied any significant past medical history other than knee surgery 10 years prior and scarlet fever as a child. Her mother died of lung cancer at age 67, and her father had died of a cerebral vascular accident at age 72. She had no known allergies and was only taking ibuprofen as needed. Noted on physical examination were small erythematous papular lesions on both cheeks, which Ms. P noticed as a "rash" several days earlier. Her tongue was coated with a white film with a blister on its tip, and her gums were swollen (gingival hypertrophy). No other oral or cutaneous lesions were noted. Her admitting laboratory work revealed the following: white blood count = 109,000/mm^3; blast cells = 86%; hemoglobin = 8.1 g/dl; platelets = 116,000/mm^3; lactic dehydrogenase = 1,103 IU/L; uric acid = 15.9 mg/dL. Pathologic analysis of leukemia cells was positive for Auer rods. A bone marrow biopsy was performed, and a diagnosis of acute myeloid leukemia, French, American, British classification subtype of M2, acute myelogenous leukemia, was confirmed. On day two, as part of a standard treatment course, induction chemotherapy was initiated with a "3 + 7" regimen consisting of an IV push anthracycline daily for three days with seven days of continuous infusion cytarabine. Per the institution's leukemic protocol, Ms. P also was started on infection prophylaxis with fluconazole and acyclovir. A course of oral allopurinol and IV fluids with sodium bicarbonate was initiated to alkalinize the urine and reduce the risk of tumor lysis syndrome.

On day three, Ms. P developed a temperature of 38.7° C and was started on broad-spectrum antibiotic coverage with imipenem/cilastatin sodium per hospital protocol. Within 48 hours, she became afebrile, and on the fifth day, she developed diarrhea. Her stool then was tested for *Clostridium difficile* toxins. On day seven, the fever returned and was persistently above 38.5° C, with a temperature spike of more than 39.0° C. Empirically, metronidazole hydrochloride was started, although cultures were negative. Over the course of the next two days, the fever persisted and IV amphotericin B was started. On physical examination, a 4 x 4 cm erythematous area tender to palpation was noted on Ms. P's right elbow. Tape from a previous IV site had been removed near this area, so it was first thought to be a reaction to the tape. However, subcutaneous nodules were discovered on the lower extremities. The following day, lesions were seen over the tunnel track of Ms. P's central venous catheter. Although only one set of blood cultures had grown gram-positive, coagulase-negative *Staphylococcus,* the recommendation of the infectious disease service was to start vancomycin. Ms. P's laboratory reports included the following results: white blood count = 400 cells/mm^3; bands = 2%; segmented neutrophils = 12%; lymphocytes = 85%; no blasts; and absolute neutrophil count (ANC) = 56.

What clinical condition could best describe these lesions, seen in the photos, based on the patient's diagnosis, physical findings, and diagnostic test results?

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