Title: Methotrexate Toxicity Induced Pancytopenia and Oral Ulcerations

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Case: A 65-year-old male presented to the emergency department with painful oral ulcerations for 10 days and a generalized rash for 6 days. His medical history was significant for coronary artery disease, seropositive rheumatoid arthritis on MTX, and paroxysmal atrial fibrillation. Vital signs were within normal limits upon presentation. On exam he was noted to have scattered petechiae with central erosions and excoriations to the bilateral upper and lower extremities, palms, back and trunk. He had oral mucosal lesions with punched out erosions and ulcers. His left dorsal hand had a large, hemorrhagic and yellow crusted plaque. His lab workup was significant for pancytopenia.
The patient had been on MTX for four months and had undergone a dosage increase one month ago. He was initially on 15 mg weekly and had increased to 20 mg weekly approximately one month prior to presentation. The patient was incarcerated at the time, and it was discovered that he had been taking 40 mg of MTX weekly per infirmary records. The case was discussed with dermatology and it was determined that his presentation was consistent with MTX toxicity. Leucovorin rescue therapy was initiated in the hospital. Upon follow up one month after discharge, the patient had full count recovery and improvement in skin lesions.

Discussion: We present a case of methotrexate toxicity presenting with skin lesions, oral ulcerations, and pancytopenia secondary to incorrect drug administration. Methotrexate (MTX) is a folic acid antagonist that is used for the treatment of rheumatologic and neoplastic diseases. It has both anti-inflammatory and immunosuppressive effects. Common side effects associated with low-dose MTX use include nausea, stomatitis, elevated transaminases, cutaneous eruptions of the extremities, headache, fatigue, alopecia, fever, or macrocytosis. The typical dosage range for MTX when used for treatment of rheumatoid arthritis is 7.5-25 mg weekly, while our patient was taking 40 mg weekly. The most common causes of MTX toxicity include incorrect dosage, renal impairment leading to decreased excretion, or concomitant use of drugs that may inhibit excretion of MTX.