

Multiple drugs

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Various toxicities: case report

A 34-year-old woman developed rhino-orbital-cerebral mucormycosis following dexamethasone and methylprednisolone overuse (medication error). Further, she exhibited inappropriate use of vancomycin, ceftriaxone and piperacillin/tazobactam for orbital cellulitis and suspected dural (cavernous) sinus thrombosis versus optic neuritis (medication error). Additionally, she exhibited drug ineffectiveness with amphotericin B for rhino-orbital-cerebral mucormycosis.

The woman presented to the emergency department with a 3-week history of worsening severe pain on the left side of the face and loss of movement of the left side and vision. Her history was significant for COVID-19 and the symptoms started immediately following recovery from COVID-19, which lasted for 10 days. For a presumed diagnosis of facial nerve palsy, she received **dexamethasone** 4mg three times daily and **ceftriaxone** 2g once daily (medication error) 1 week prior to presentation, with no improvement. Her history also involved multiple unspecified steroid injections for COVID-19 treatment. On admission, she was oriented, alert and haemodynamically stable. Periorbital oedema, dilated non-reactive pupil, left eye ophthalmoplegia, complete left eye proptosis, loss of vision, trigeminal involvement, vesicular rash on the left cheek and decreased hearing on the left side were noted. Laboratory investigations were as follows: haemoglobin 13.2 g/dL, WBC 14.5 K/ μ L (90% neutrophils), creatinine 0.54 mg/dL, platelets count 269 K/ μ L, random blood sugar (RBS) 277 mg/dL, serum potassium 4.9 mmol/L, erythrocyte sedimentation rate (ESR) 101 mm/h and CRP 174 mg/dL. Clinical diagnosis of orbital **cellulitis and suspected dural (cavernous) sinus thrombosis versus optic neuritis** were established.

The woman was empirically treated with **piperacillin/tazobactam** 4.5g four times daily, **vancomycin** 1g twice daily, **methylprednisolone** 1g once daily (medication error) and enoxaparin-sodium [enoxaparin]. On day 3, MRI with orbital view revealed multifocal infarction, cavernous sinus thrombosis and paranasal sinus extensive mucosal disease. Serial blood sugar measurements were 469 m/dL and haemoglobin A1c level was noted to be 18%. Arterial blood gases (ABGs) and urine analysis were as follows: pH 7.21, PCO₂ 9, HCO₃ 5, PO₂ 100. Urine analysis showed traces of protein, ketone bodies +3 and glucose +2. Methylprednisolone therapy was discontinued and she was transferred to the ICU for **diabetic ketoacidosis** (DKA). She was treated with IV fluids, insulin and potassium for DKA. Based on the clinical presentation, **mucormycosis** was suspected. On day 2 of ICU, periorbital oedema, facial swelling and erythema were more prominent on the left side, black eschar was noticed in the nasal mucosa, palate and skin overlying the orbit on left side of the face along with left auditory canal involvement. Based on the radiological and clinical findings, a diagnosis of rhino-orbital-cerebral mucormycosis was made. She started receiving **amphotericin-B** [amphotericin]. However, she rapidly deteriorated (**drug ineffective**). She became **unconscious** and was found **to be haemodynamically unstable** with **refractory metabolic acidosis**. She developed **cardiac arrest** and died on day 4 of hospitalisation. It was stated that the rhino-orbital-cerebral mucormycosis was secondary to the dexamethasone and methylprednisolone misuse.