

Toxic Epidermal Necrolysis

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Case Study: M.J. is a 57-year-old man diagnosed with stage IIb squamous cell carcinoma of the left tonsil. At the time of diagnosis, he underwent a radical neck dissection. Two months later, he started radiation. Amifostine was administered via IV 30 minutes prior to radiation for the purpose of decreasing the incidence of xerostomia and mucositis. M.J. also was using artificial saliva and Aquaphor® (Eucerin) as needed. In the outpatient infusion area, M.J. received 500 ml 0.9% sodium chloride IV infusion over 60 minutes, ondansetron 8 mg IV piggyback over 15 minutes, and amifostine 440 mg (200 mg/m²) IV piggyback over 15 minutes.

M.J. tolerated radiation and amifostine without significant side effects until the fourth week of therapy, with only two radiation and amifostine treatments left. During that week, the RN in the outpatient infusion area noted erythema and a maculopapular rash on M.J.'s scalp, forehead, back, and abdomen. M.J. complained of pruritus and tenderness in those areas. He stated that he had felt malaise and myalgias and had a low-grade fever (99.3°F oral) for two days. Because his symptoms occurred over the weekend and he did not have a temperature greater than 100.4°F, he did not notify his oncologist. His current temperature was 99.3°F, and other vital signs were within normal limits. Other assessment findings included erythema and dryness in the radiation fields, grade 2 stomatitis, dysphagia, and thick, ropy secretions—all expected findings while receiving radiation to this site.

Concerned about the rash, the RN held the amifostine and sent the patient to the radiation oncologist, who then sent the patient to the hospital's emergency department with the diagnosis of suspected drug reaction. The patient was admitted to the inpatient oncology unit four hours after his initial presentation to the outpatient infusion area. By this time, his temperature had risen to 102°F. His pulse was 90, respirations 16, blood pressure

120/70 mmHg, and pulse oximetry 98%. The following were ordered.

- Dextrose 5% and 0.45% normal saline via IV at 100 ml per hour
- Levofloxacin 500 mg IV piggyback every day
- Acetaminophen 650 mg by mouth every four hours as needed (PRN)
- Hydromorphone 1 mg IV push every three hours PRN
- Diphenhydramine 25 mg IV push every four hours PRN
- Promethazine 25 mg IV push every six hours PRN
- Aquaphor topically PRN

Diagnosis and Treatment

The patient's differential diagnoses on admission included radiation skin and mucous membrane reaction, allergic drug reaction, and infectious process (e.g., herpes, chicken pox). Blood cultures and a complete blood cell count with differential were drawn. The results were within normal limits. Dermatology

and surgery were consulted. The surgeon performed a 4 mm punch biopsy.

On the second day of the hospital admission, the erythema and number of bullae on M.J.'s body increased, spreading down his torso (back and front), arms, and legs. Some bullae had rubbed off, leaving weeping, raw, reddened areas. Grade 3 mucositis was present in his oral cavity and pharynx. M.J. complained of oral and pharyngeal pain, rating it as a 7 on a scale of 0–10. He had difficulty eating and drinking. His temperature increased to 103°F. His other vital signs were within normal limits. Clindamycin 600 mg IV piggyback every six hours was added to M.J.'s antibiotic regimen.

The biopsy results came back suggesting toxic epidermal necrolysis (TEN), a life-threatening skin disorder that is most commonly drug induced. The biopsy showed subepidermal bullae formation and necrosis of the epidermis involving the basal layer. Pathology showed separation between the dermis and epidermis. To differentiate TEN from erythema multiforme (EM) and

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