



Stomatitis

Ruth Van Gerpen, RN, MS, CNS, OCN®

Definition

An acute inflammation or ulceration of the oral mucosa

Incidence

- A. About 40% of patients receiving chemotherapy. Modification of chemotherapy is required because of severity of lesions in 50% of these patients.
- B. 80%–100% of patients receiving radiation therapy for head and neck cancers
- C. 80% percent of patients undergoing hematopoietic stem cell transplantation

Risk Factors

- A. Direct: from damage to oral mucosa secondary to chemotherapy
 - 1. Age
 - a) Younger than 20 years
 - b) Elderly
 - 2. Nutritional status
 - a) Protein or calorie malnutrition
 - b) Vitamin deficiencies
 - c) Dehydration
 - 3. Oral health
 - a) Preexisting periodontal disease
 - b) Poor dentition
 - c) Poorly fitting dentures
 - 4. Tobacco and alcohol use
 - 5. Oxygen therapy
 - 6. Mouth breathing
 - 7. Tachypnea
 - 8. Type of malignancy
 - a) Hematologic
 - b) Colorectal
 - c) Head and neck
 - 9. Chemotherapy-related (dose and schedule)
 - a) Alkylating agents
 - (1) Busulfan
 - (2) Carboplatin
 - (3) Cisplatin
 - (4) Cyclophosphamide
 - (5) Ifosfamide

- (6) Mechlorethamine
- (7) Melphalan
- (8) Thiotepe
- b) Anthracyclines
 - (1) Daunorubicin
 - (2) Doxorubicin
 - (3) Idarubicin
- c) Antimetabolites
 - (1) Cytarabine
 - (2) Fluorouracil
 - (3) Hydroxyurea
 - (4) Methotrexate
 - (5) Mercaptopurine
 - (6) Thioguanine
- d) Antitumor antibiotics
 - (1) Bleomycin
 - (2) Dactinomycin
 - (3) Daunorubicin
 - (4) Doxorubicin
 - (5) Mitomycin
 - (6) Plomicamycin
- e) Miscellaneous agents (e.g., procarbazine)
- f) Taxanes
 - (1) Docetaxel
 - (2) Paclitaxel
- g) Vinca alkaloids
 - (1) Etoposide
 - (2) Vinblastine
 - (3) Vincristine
 - (4) Vinorelbine
- 10. Radiation therapy
 - a) Total body irradiation
 - b) Head and neck
- 11. Xerostomia (i.e., dry mouth)
 - a) Anticholinergics
 - b) Antidepressants
 - c) Antihistamines
 - d) Antihypertensives
 - e) Diuretics
 - f) Opiates
 - g) Phenothiazines
 - h) Sedatives

- B. Indirect: from disease- or treatment-induced myelosuppression
 - 1. Infections
 - a) Gram-negative bacilli

- b) Gram-positive cocci
- c) Fungi (e.g., *Candida* species)
- d) Viruses (e.g., herpes simplex)

Normal Physiology

- A. Oral mucosa is composed of squamous epithelial cells.
- B. Undergoes renewal every 10–14 days
- C. Serves as a first line of defense against bacterial, fungal, and viral infections
- D. Normal oral flora includes gram-positive and gram-negative bacteria, fungi, and viruses.

Pathophysiology

- A. Direct effect from destruction of proliferating mucosal cells
 - 1. Occurs 7–10 days after initiation of chemotherapy
 - 2. Continues for about two to three weeks after cessation of that therapy
 - 3. Occurs five to seven days after initiation of radiation therapy
 - 4. Cells with a high proliferative rate are especially vulnerable.
- B. Indirect effect from myelosuppressive action of chemotherapy
 - 1. Usually occurs 10–14 days after chemotherapy administration
 - 2. Corresponds to the white blood cell count nadir

Signs and Symptoms

- A. Normal, healthy oral mucosa is pink and moist.

Ruth Van Gerpen, RN, MS, CNS, OCN®, is a clinical nurse specialist in oncology at BryanLGH Medical Center in Lincoln, NE.

Key Words: stomatitis, analgesics

Digital Object Identifier: 10.1188/03.CJON.471-474