



# Stomatitis

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## 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) Pllicamycin
- 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.

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