An 84-year-old woman who resides in an assisted living facility is brought to the emergency department because of fever and cough for 1 week. The cough has been productive of foul-smelling, yellow-green sputum for 24 hours. She has a 2-year history of dementia, Alzheimer type. Her temperature is 38.5°C (101.3°F), pulse is 80/min, respirations are 20/min, and blood pressure is 116/66 mm Hg. Coarse inspiratory crackles are heard over the right lung field. Laboratory studies show a leukocyte count of 13,500/mm³ (72% segmented neutrophils, 8% bands, 1% eosinophils, 16% lymphocytes, and 3% monocytes). A CT scan shows a cavitary lesion in the superior segment of the right lower lobe. The lesion has a thick wall and an irregular peripheral margin; there is no displacement of the adjacent bronchovascular bundle. Which of the following is the most likely cause of the lung lesion in this patient?

(A) Antecedent viral pneumonia
(B) Aspiration of gastric contents
(C) Bronchial obstruction by metastatic carcinoma
(D) Lung infarction secondary to arterial thrombosis
(E) Primary carcinoma of the lung
(F) Secondary infection of a congenital lung cyst
(G) Septic embolism from an extrapulmonary site
# Learning Objectives

**The listener should be able to:**

1. Identify a major risk factor of aspiration of gastric contents.
2. Describe the clinical manifestations of aspiration of gastric contents.
3. Differentiate between clinical manifestations seen with aspiration of gastric contents and those caused by other conditions such as viral pneumonia, metastatic cancer, lung infarction secondary to arterial thrombosis primary cancer, secondary infection of congenital lung cyst, and septic embolism.

## Key Teaching Points

- Aspiration is common in patients with diminished neurological status, such as patients with dementia.
- Aspiration of gastric contents most often leads to a single lung abscess in the superior segment of the right lower lobe or posterior segment of the right upper lobe. Mixed bacterial flora, which includes anaerobic bacteria that cause foul-smelling sputum, are often cultured from lung abscesses due to aspiration of gastric contents.
- In patients with viral pneumonia, a CT scan would show diffuse interstitial pattern rather than single cavitary lesion, and they present with non-productive cough.
- The presentation of metastatic cancer in the lung most commonly includes multiple foci scattered throughout the lung, more at the periphery, but can also be seen as a solitary nodule usually with smooth margins. These lesions can present within the bronchiole, in the pleura, the thin covering protecting the lung, or with pneumonic consolidation.
- The signs and symptoms of a patient with a lung infarction secondary to arterial thrombosis include a sudden onset of shortness of breath or rapid breathing, fever, pain upon inspiration, pleural effusion, and some wheezing. Most lung infarctions involve the lower lobe and can show up on a chest x-ray as a wedge-shaped infiltrate.
- Coughing from a primary carcinoma would be more likely to produce bloody sputum rather than yellow-green.
- Lung cysts are generally thin-walled, well-defined and well-circumscribed lesion, greater than 1 cm in diameter.
- A septic embolus is a type of embolism that is infected with pus-forming bacteria that can coalesce mimicking a lobar or bronchopneumonia.

## USMLE Test source:


## Keywords

Geriatrics, USMLE step exam, gastric aspiration, lung lesion

## References