Esophageal Perforation

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Algorithmic Approach

A. Esophageal perforation is a medical and surgical emergency. One meta-analysis of 75 studies reported a pooled mortality of 11.9% [1]; a 12-year national study from England reported a 30-day mortality of 30% among 2564 patients [2]. Mortality rate is doubled if the diagnosis is delayed for more than 24 h [3]. The etiologies of esophageal perforation include iatrogenic instrumentation, foreign body ingestion, trauma, malignancy, or forceful emesis, also known as Boerhaave's Syndrome, when a transmural esophageal tear occurs after retching. This is different from Mallory-Weiss tear, which is a mucosal tear that does not result in esophageal perforation.

B. Due to its high mortality, esophageal perforation must be considered in patients presenting with neck, substernal, or epigastric pain, with a history of instrumentation, trauma, foreign body ingestion, malignancy, or vomiting. Fever, tachycardia, tachypnea, subcutaneous emphysema, diminished breath sounds, and abdominal tenderness might be present on physical exam. Hemodynamic instability occurs as a result of mediastinitis or pleuritis [4].

C. Once suspected, workup for esophageal perforation should be promptly undertaken. Leukocytosis and elevated amylase level is consistent with esophageal perforation. Electrolytes, coagulation panel, and type and screen should be obtained in anticipation of need for surgical or endoscopic intervention. Extravasation of contrast in an esophagram is diagnostic; the contrast of choice depends on location of suspected perforation to minimize inflammatory response from contrast extravasation. Gastrografin swallow evaluation should be utilized first as the most useful initial test, as it will not cause mediastinitis, unlike barium [5]. Mediastinal air and/or fluid on CT scan helps localize the site of perforation [4].

D. Supportive measures, namely, fluid resuscitation, broad-spectrum antimicrobials, NPO status, close hemodynamic monitoring, and support in an ICU setting, are critical in the initial management of esophageal perforation. A 12-year retrospective study in England advocated for centralization of care at high-volume centers where multidisciplinary approach led to improved outcomes [2]. In a hemodynamically stable patient with contained perforation, conservative management is acceptable. Esophageal stenting with

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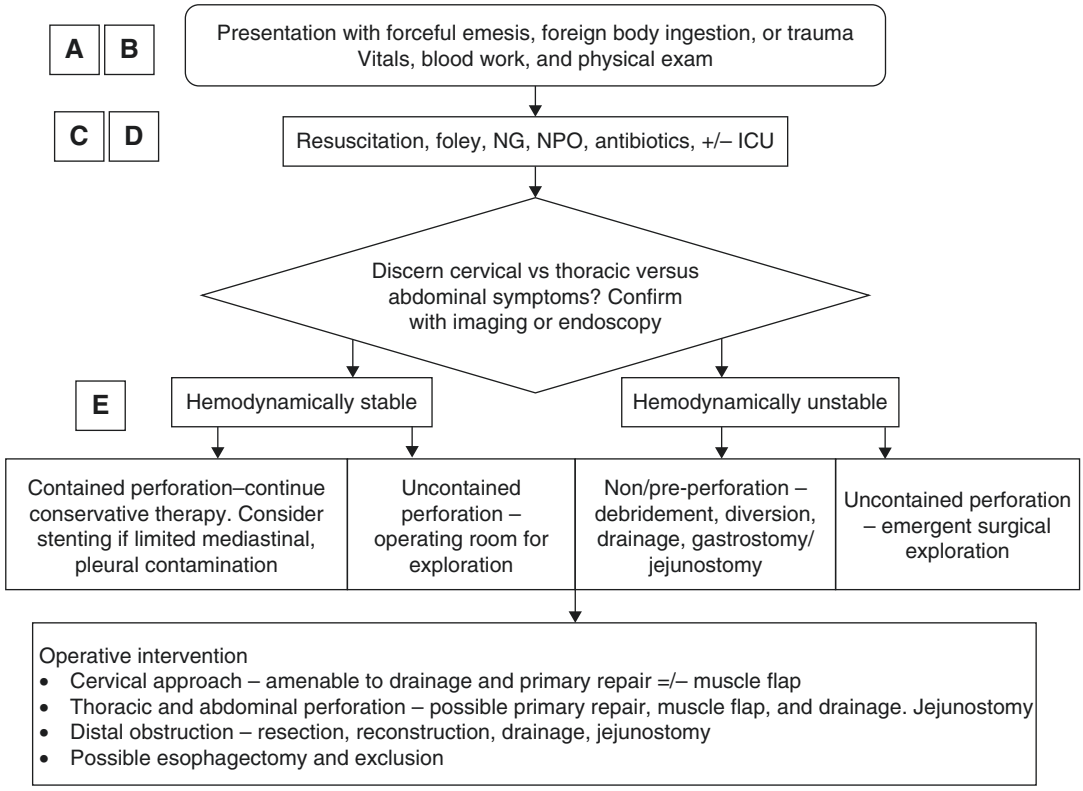
mediastinal and pleural drainage is a treatment option for stable patients with limited mediastinal or pleural contamination, though its efficacy has not been compared with surgical intervention [6].

E. Surgical intervention is indicated for patients who are hemodynamically unstable or show no improvement on nonoperative management. The operative approach is guided by the location of perforation, whether it is contained or not, and underlying pathology. A cervical incision is made for a high esophageal perforation: a right thoracotomy for the upper 2/3 and a left thoracotomy for the lower 2/3 perforation. The possibility of primary repair is dictated by the degree of tissue inflammatory which often depends on timing from onset of symptoms. Muscle flap has been established as a safe approach for intrathoracic or cervical esophageal perforation when primary repair is impossible or risky [7]. In the face of severe inflammation, devitalized tissue should be debrided and esophageal diversion should be considered if primary repair is deemed high risk for anastomotic leak. Temporary feeding access, such as gastrostomy or jejunostomy, and wide drainage should be established.



Algorithm 37.1

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