



Sultanate of Oman
Ministry of Health
The Royal Hospital
Department of Surgery

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Title: Policy for the management of esophageal perforations

Policy for the management of esophageal perforations

Notice: this policy is meant to act as a guide without indicating the detailed specifics of management. It cannot replace the clinical judgement of the involved medical and surgical teams.

Section A: Esophageal perforation (including spontaneous perforations)

Suspected esophageal perforation → general surgery on call team to assess the patient → proceed with CT neck, chest, and abdomen with IV and on-table PO contrast

Diagnosed esophageal perforation:

Is the patient a candidate for non-operative management? (Criteria for non-operative management: hemodynamically stable patient, absence of sepsis, minimal symptoms, contained perforation on upper GI contrast study with return of contrast into the esophagus, no significant pleural contamination, no distal obstruction). Remember that non-operative management is considered the exception, not the rule.

If yes → admit to ICU for further treatment and monitoring. Discuss alternative feeding access.

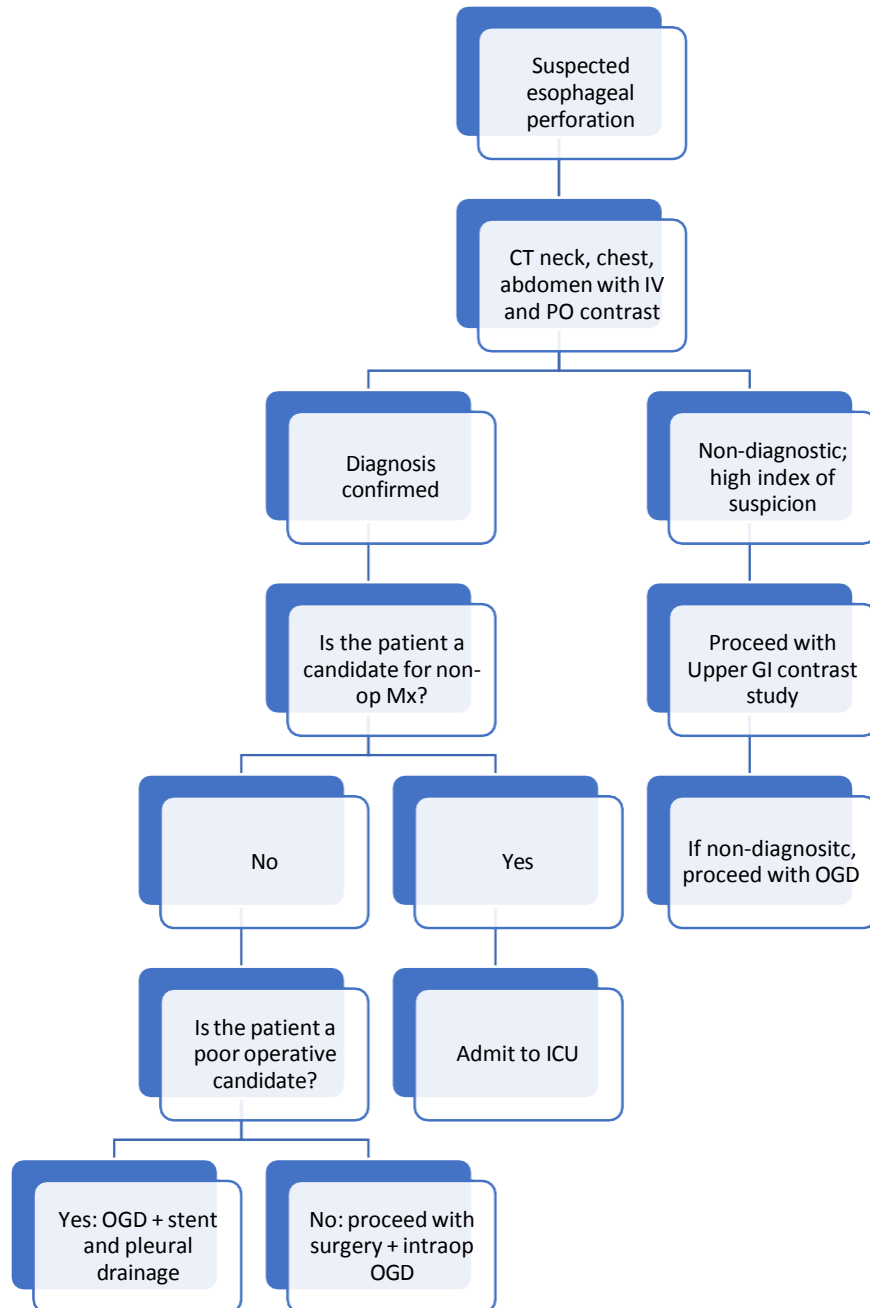
If no → Is the patient a poor operative candidate?

If yes → endoscopic stent insertion and pleural drainage

If no → proceed to surgery with on-table gastroscopy to assess the exact location of the perforation and to rule out distal obstruction. Operative approach will depend on the location of the perforation.

If the CT chest and abdomen does not show clear esophageal perforation and the index of suspicion is high, proceed with upper GI contrast study.

If the upper GI contrast study is non-diagnostic and the index of suspicion is high, proceed with EGD (to be done by experienced surgeon/gastroenterologist).



Section B: Iatrogenic esophageal perforation

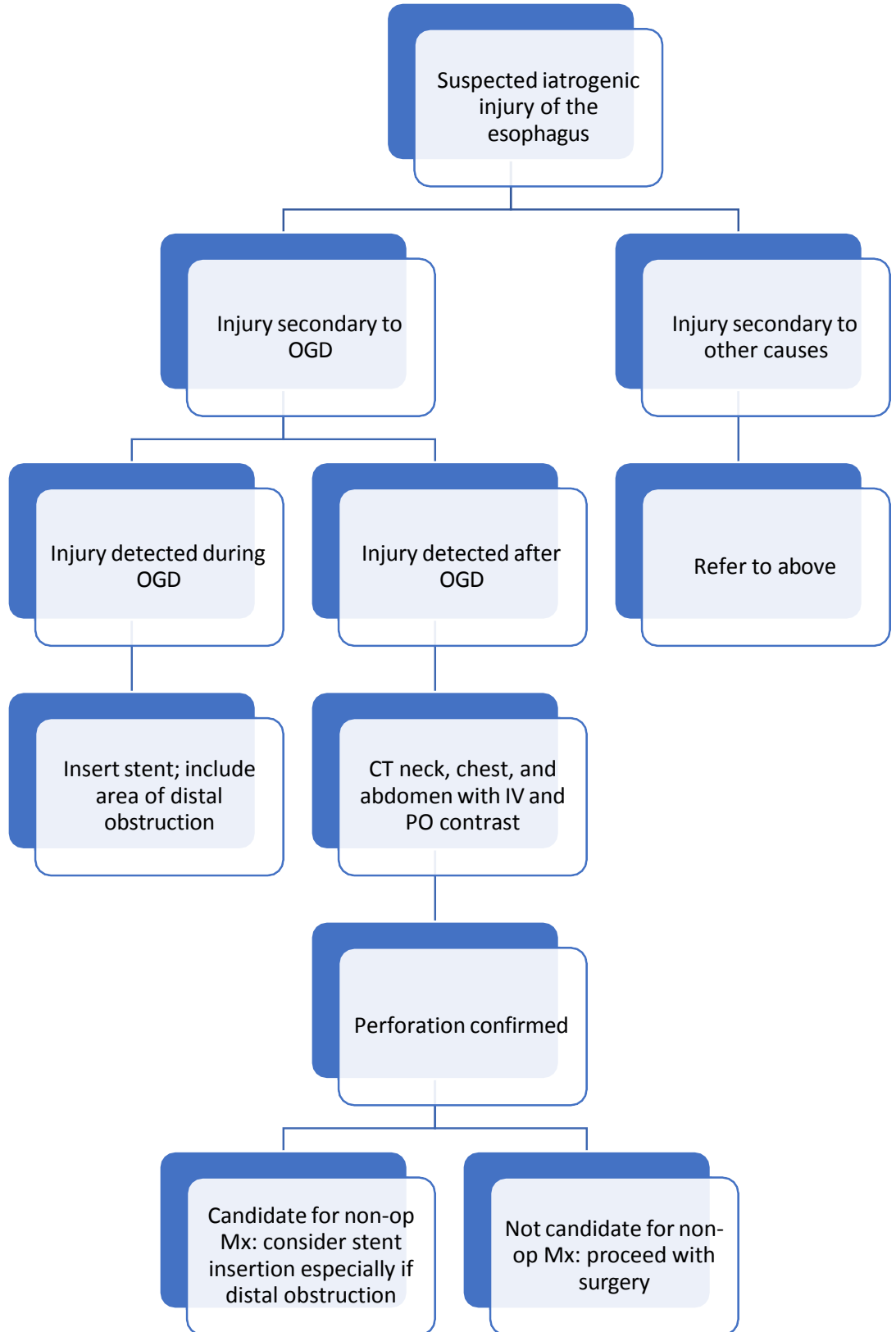
Suspected iatrogenic perforation not during esophagogastrosocopy (e.g. from NGT insertion): follow the pathway above.

Iatrogenic esophageal perforation detected during OGD → proceed with stent insertion (should also include any area of distal obstruction). General surgery on call team to be involved immediately.

If an iatrogenic perforation is suspected after OGD → proceed with CT neck, chest, and abdomen with IV and on-table PO contrast → if negative and the index of suspicion is high, proceed with upper GI contrast study.

Iatrogenic esophageal perforation diagnosed after OGD → immediately involve the general surgery on call team → Decision with regards to stent vs. operative exploration depends on the condition of the patient:

- If there is no significant pleural contamination, the patient is otherwise stable, and symptoms are minimal, consider endoscopic stent insertion (especially if there is distal obstruction, which should also be included in the stent).
- If there is evidence of pleural contamination and/or unstable and/or septic patient, proceed with operative intervention.



Section C: Malignant esophageal perforation/fistula

Suspected malignant perforation or fistula → general surgery on call team to assess the patient
→ proceed with CT chest and abdomen with IV and on-table PO contrast

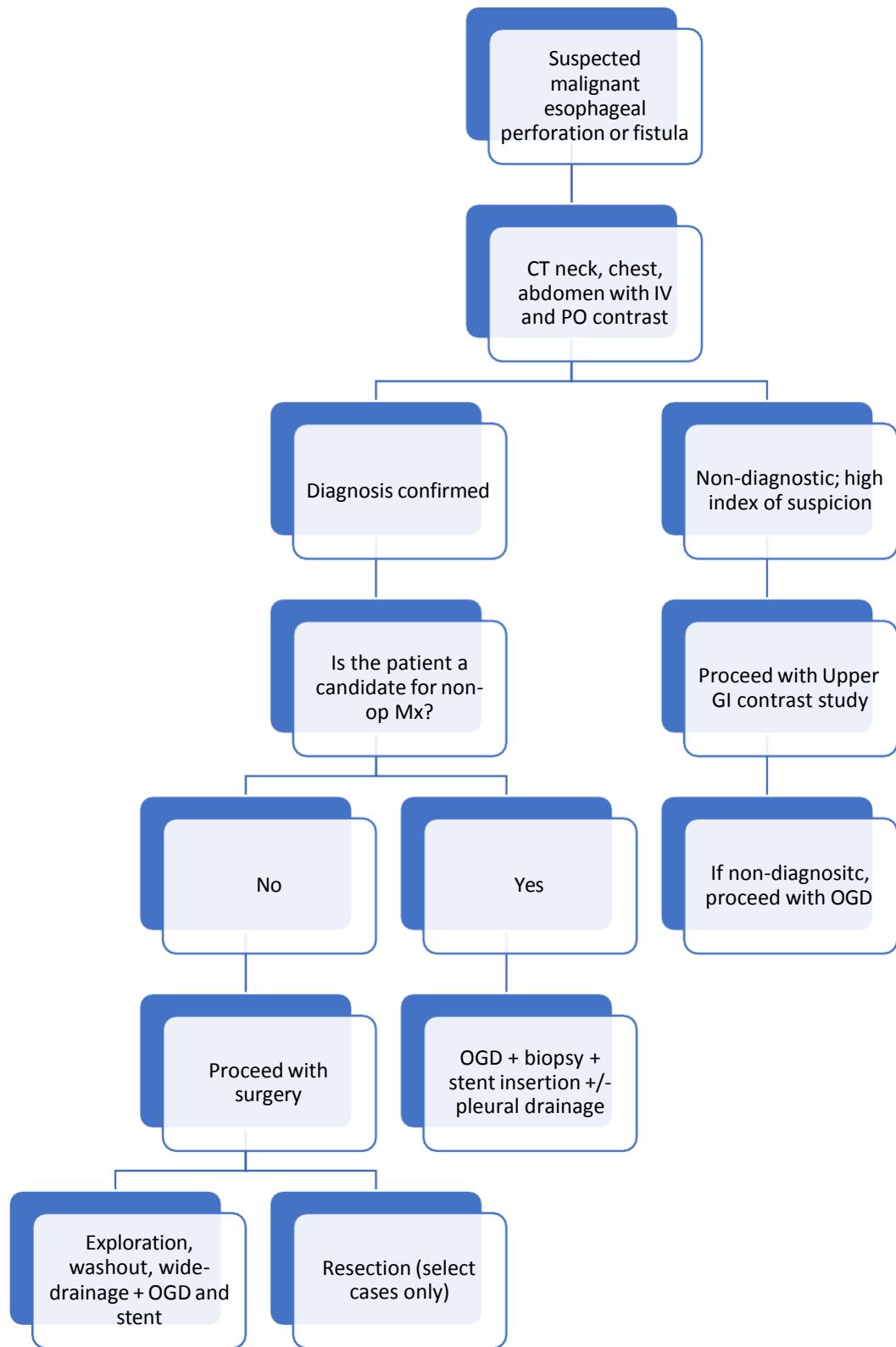
Diagnosed malignant esophageal perforation/fistula:

Is the patient a candidate for non-operative intervention (see criteria in section A)?

If yes, proceed with OGD to obtain tissue diagnosis and for endoscopic stent insertion.

If not, proceed with surgical exploration for washout and drain insertion + on-table OGD for biopsy and stent insertion OR resection (in select cases by an experienced thoracic surgeon).

Note that esophageal cancer patients with iatrogenic perforation may require different treatment than those with perforated cancer or malignant fistula, after review by experienced surgeon.



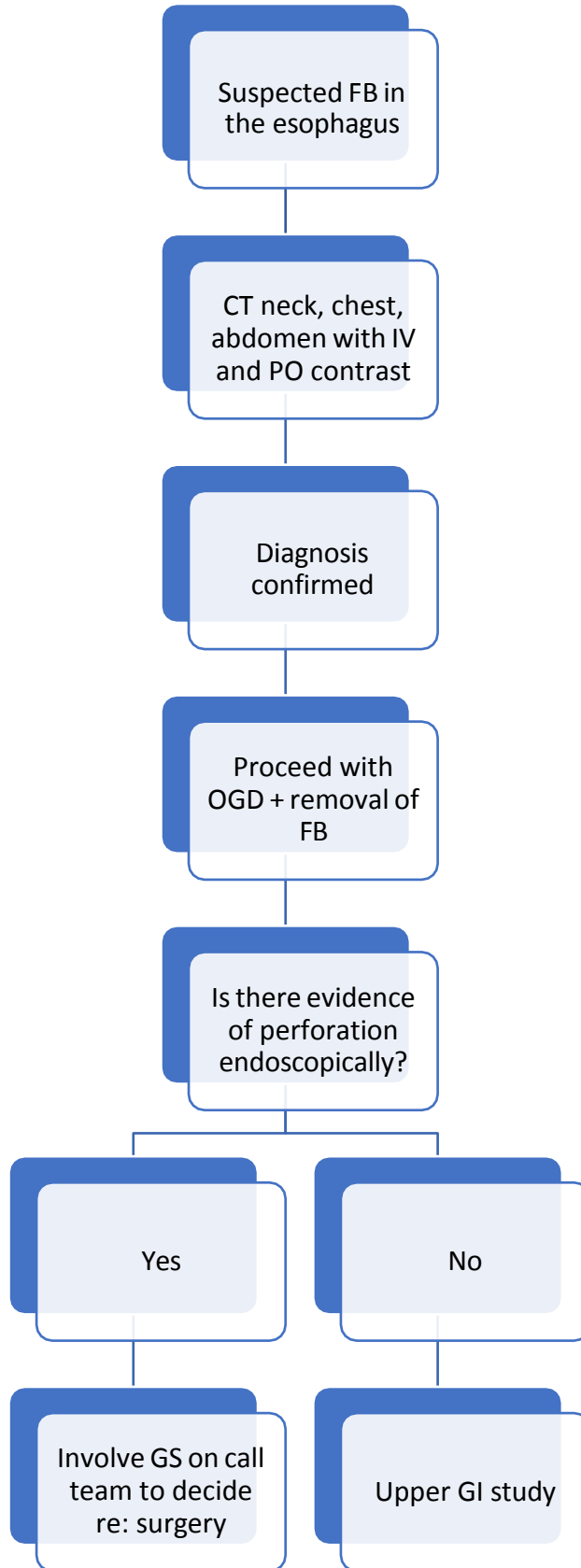
Section D: Suspected foreign bodies in the esophagus

History and physical examination suggestive of foreign body in the esophagus → CT neck, chest, and abdomen with IV and on-table PO contrast

If foreign body is detected → OGD and removal of the foreign body

Is there evidence of esophageal perforation endoscopically?

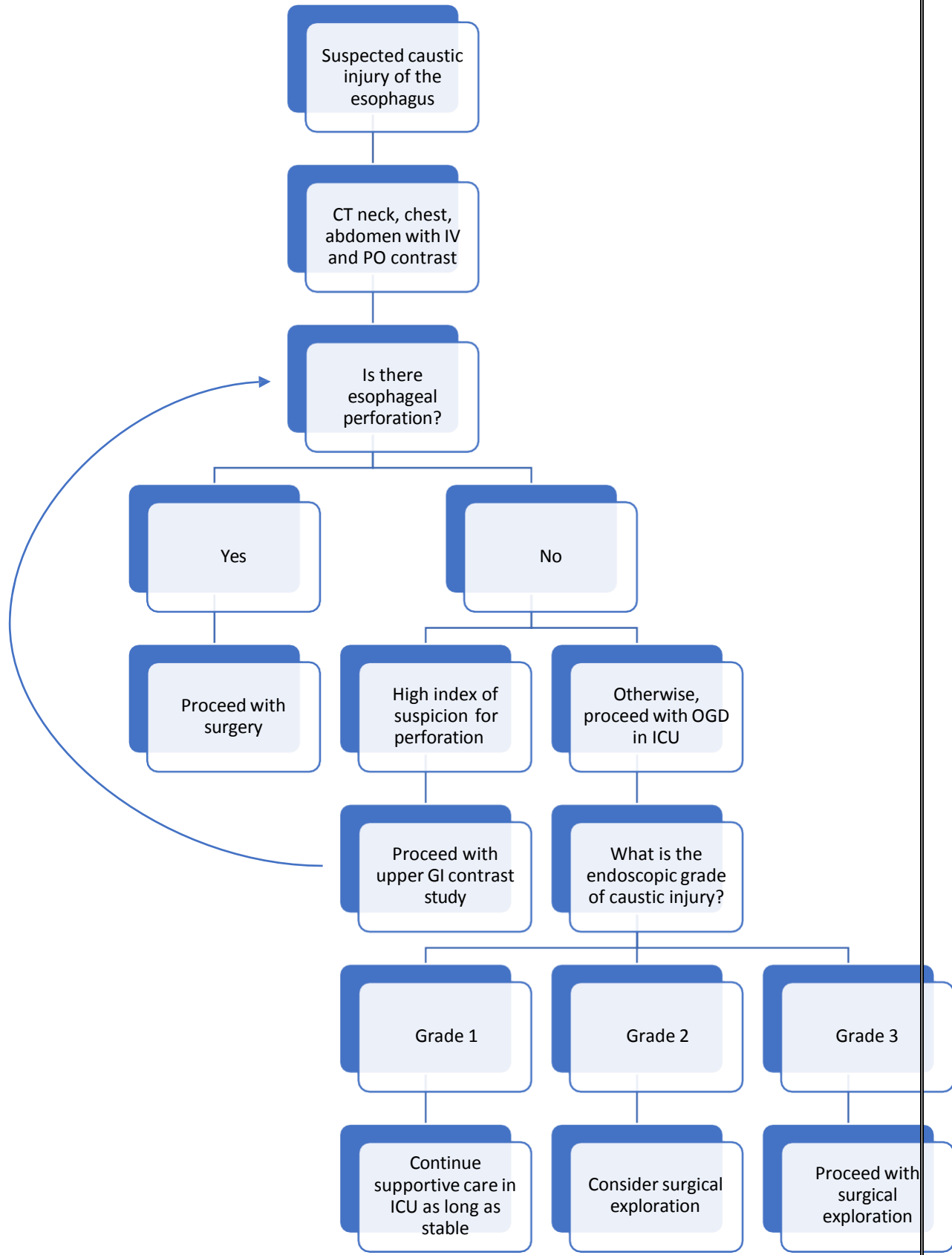
- Yes → involve the general surgery on call team to assess the patient for operative intervention.
- No → proceed with upper GI contrast study to rule out an occult perforation, especially if the index of suspicion is high. If perforation is then detected, involve the general surgery on call team to assess the patient for operative intervention.



Section E: Esophageal perforations secondary to caustic injuries

History and examination consistent with caustic injury → patient to be assessed by the on call general surgery team → proceed with CT neck, chest, and abdomen with IV and on-table PO contrast

- If diagnosed esophageal perforation → proceed with operative intervention
- If no evidence of esophageal perforation and the index of suspicion is high → proceed with upper GI contrast study.
- If no perforation is detected and patient is stable → admit the patient to the ICU for supportive treatment and monitoring → OGD by an experienced surgeon or gastroenterologist to assess the degree and extent of the caustic injury.
 - Grade 1 injury: continue supportive treatment (as long as the patient is stable)
 - Grade 2 injury: consider operative exploration to rule out full thickness necrosis
 - Grade 3 injury: operative exploration



Suspected caustic injury of the esophagus

CT neck, chest, abdomen with IV and PO contrast

Is there esophageal perforation?

Yes

No

Proceed with surgery

High index of suspicion for perforation

Otherwise, proceed with OGD in ICU

Proceed with upper GI contrast study

What is the endoscopic grade of caustic injury?

Grade 1

Grade 2

Grade 3

Continue supportive care in ICU as long as stable

Consider surgical exploration

Proceed with surgical exploration

General guidelines:

- Endoscopic stent insertion: this is a form of source control and should not be delayed for any reason other than patient-related factors. Perform CXR immediately after stent insertion to have a baseline image of its location. Perform a contrast study (CT with contrast or upper GI study) to make sure that it is sealing the perforation. Always biopsy suspicious areas before deploying the stent. Stent used are covered SEMS and should be removed or exchanged in 4 weeks.
- Options for operative intervention:

Depending on the condition of the patient (stable, unstable, functional status), the underlying status of the esophagus (necrosis, extensive destruction, caustic injury, distal obstruction), the degree of pleural and mediastinal contamination, the options for operative management include the following:

- Primary repair with buttress: should always be attempted despite the number of hours since the perforation
- Resection and diversion with cervical esophagostomy and venting gastrostomy
- Diversion only with cervical esophagostomy and venting gastrostomy
- Washout and stent insertion
- Washout and T-tube insertion
- Washout and wide drainage only

All operative patients should have the mediastinum opened and washed out with wide drainage of the area. Any area of distal obstruction (cancer, achalasia...etc) should be addressed. All patients must be assessed for the route of feeding (feeding jejunostomy, nasojejunal feeding, TPN).

- All patients with esophageal perforation must be admitted to the ICU.

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