Mistakes in cases on call and how to avoid them

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It is a difficult task and a great responsibility to evaluate and manage patients with acute—and potentially life-threatening—clinical presentations. It is even more complex to achieve high standards of care for cases on call. Indeed, on-call gastroenterologists, hepatologists and endoscopists are faced with a wide and protean range of gastrointestinal, liver and pancreatic emergencies. The decision-making process for cases on call is mainly based on information received over the phone, on medical knowledge and clinical experience, and on the resources available. As the degree of confidence in any information given on call may vary, it is of tremendous importance to note, and to document, with precise timing, what has been communicated by, proposed to, and eventually decided with, multiple caregivers (i.e. nurses, emergency physicians, intensive care physicians, surgeons, radiologists etc.).

Here, we discuss 10 mistakes that are often seen when managing GI cases on call. Most of the proposals are based on medical evidence, but others are formed from our own clinical experience.

Mistake 1 Overlooking general anaesthesia and airway protection for emergency upper GI endoscopy

In most nonurgent cases, upper GI endoscopy can be managed without conscious sedation, or with conscious sedation but without airway protection. Patients may be lying on their left side, with the head slightly lowered, to reduce aspiration risks. In the setting of an emergency, the need for therapeutic procedures and the risk of aspiration often call for general anaesthesia with airway protection during upper GI endoscopy. The ESGE recommendation (weak recommendation, low-quality evidence) is that any patient with haematemesis, who is agitated or who has encephalopathy should have general anaesthesia with endotracheal intubation before endoscopy for upper GI bleeding. General anaesthesia and airway protection should also be strongly considered when extracting a foreign body, in case of poor patient tolerance, and particularly in young children, and/or when multiple, sharp or pointed foreign bodies must be extracted. In any patient who has a full stomach (due to eating recently, active bleeding, ingesting a foreign body etc.) endotracheal intubation with a rapid sequence induction technique is recommended. Overall, in the emergency setting, general anaesthesia with endotracheal intubation for airway protection is appropriate in most cases for upper GI endoscopy, and must, therefore, be anticipated when on call.

Mistake 2 Deciding to perform surgery for esogastric caustic injury on the basis of emergency upper GI endoscopy alone

In adults, the ingestion of caustic agents is usually undertaken with suicidal intent. Most patients present with mild lesions that recover without sequelae; however, some will be at risk of oesophageal stenosis in the long term, and others will have early esogastric extensive and/or transmural necrosis with a high mortality rate. The therapeutic algorithm in this setting has long relied on clinical signs of perforation or on endoscopic signs of transmural necrosis (grade IIIb according to the Zargar classification) during emergency upper GI endoscopy performed 3–6h following admission. Nonetheless, in a series of 120 patients who had endoscopic grade IIIb gastro-oesophageal caustic lesions, 16% of patients referred for oesophagectomy based on endoscopy findings had no transmural necrosis present in their surgical specimen.

Transmural necrosis was correctly predicted via a CT scan, in most patients, by blurring of the oesophageal wall or periesophageal fat, or by absence of postcontrast enhancement of the oesophageal wall. Upper GI endoscopy did not rectify any wrong decisions that were made based on the CT scan. Overall, CT scan examination had an excellent negative predictive value (NPV) for the presence of transmural necrosis in patients with caustic oesophageal injuries, and it outperformed endoscopy when making the decision to perform urgent surgery for ingestion of caustic agents. Moreover, CT scans are far more readily available and less invasive than endoscopy.

In our experience, evaluation by CT scan alone has become the mainstay of management protocols followed after ingestion of caustic agents. In our experience in this setting, emergency endoscopy is now performed only when interpretation of the CT scan is difficult. No decision to perform surgery for esogastric caustic injury should be based on endoscopy alone. If an upper GI endoscopy is indicated in addition to the CT scan, it should be performed within 12–24h after caustic ingestion.

Mistake 3 Performing endoscopy for body packing of illicit drugs

Body packing is the packaging of illicit drugs within latex condoms or balloons and then swallowing them. Any endoscopic attempt to remove these foreign bodies is contraindicated, because the outcome can be fatal in case the package ruptures or there is leakage of the contents. Surgery should be performed when drug packets have stagnated in the...
bowel (when there are symptoms of intestinal obstruction or stagnation is visible during radiographic monitoring), or there is suspected leakage.\(^6\)

**Mistake 4 Delaying endoscopic removal of food bolus impaction beyond 12–24h**
Most food impactions occur in the oesophagus and meat is responsible for most cases of impaction in the Western world.\(^2\) Hypersialorrhoea, or hypersalivation, is a sign of complete oesophageal obstruction that requires urgent endoscopic removal. In any other case, food impactions should be endoscopically removed within 24h.\(^5\) However, based on our experience, we would even recommend a time frame of 6h because of the risk of fistula and perforation, and for the patient’s comfort and discharge.\(^6\) Radiographs are of little help when trying to confirm the presence, and determine the location, of a non-bony radiopaque food bolus in the oesophagus. In the absence of any clinical sign of complications, radiological evaluation has a low diagnostic yield and a low impact on therapeutic strategy—it is not necessary in most cases, and it should not inappropriately delay endoscopy.\(^5,7\)

While awaiting endoscopy, pharmacological treatment of an impacted food bolus can be attempted; however, these treatments should not delay urgent or semi-urgent endoscopy. There is controversy about the efficacy of glucagon (1 mg, given intravenously, alone or in combination with benzodiazepine or nitroglycerine) to ease the passage of a food bolus into the stomach. Two large open series have shown that the impacted food bolus passed in 33% of 125 patients, and 39.5% of 440 patients, who received glucagon, respectively, whereas it passed spontaneously in 16.8% of patients in the second series.\(^6,9\)

A randomized controlled trial failed to demonstrate that glucagon given in combination with benzodiazepine had any significant benefit compared with placebo, but it lacked statistical power.\(^10\) As yet, no study has demonstrated any significant efficacy of buscopan. Overall, ASGE guidelines support the idea that glucagon is a safe and acceptable pharmacological option, as long as it does not delay endoscopy beyond a reasonable length of time.\(^11\)

**Mistake 5 Delaying endoscopic removal of pointed or sharp objects**
For obvious reasons, pointed or sharp foreign bodies should be extracted without delay. As mentioned previously, in this setting, a recently ingested meal is not a contraindication to urgent endoscopic removal. General anaesthesia performed with a rapid sequence induction technique and with endotracheal intubation must be anticipated in such patients who have a full stomach to reduce the risk of pulmonary aspiration. A radiological work-up is not mandatory in this setting, and should not delay urgent endoscopic removal of a pointed or sharp foreign body. When absolutely necessary (and only when possible to perform in a timely manner), biplane neck, chest or abdominal radiographs are often sufficient to assess the presence, number, size, shape and location of radiopaque foreign bodies.\(^5,7\) A CT scan is sometimes needed, to determine if an obstruction or perforation is present, or to assess the presence and number of nonradiopaque objects. An X-ray contrast study should not be performed for several reasons.\(^11,12\) First, such a study may delay endoscopic treatment. Second, the viscous agents used may interfere with endoscopic visualisation. Third, hypertonic solutions can cause acute pulmonary oedema when aspirated, and barium is contraindicated when a perforation is suspected.

**Mistake 6 Planning an emergency lower GI endoscopy for removal of a rectal foreign body**
The vast majority of rectal foreign bodies should be manually retrieved by surgeons under direct visualization via the anal route, or during laparotomy in case of a complication (impaction, perforation). Lower endoscopy will be of little help to remove large rectal foreign bodies; however, it can inform the surgeon about whether the object to be retrieved is sharp. Endoscopy may also have a role, together with a CT scan, when a complication is suspected after transanal retrieval of a rectal foreign body. Any attempt to remove packets of illicit drugs from the rectum endoscopically is contraindicated.\(^14\)

**Mistake 7 Overlooking extradigestive causes of acute, severe abdominal pain**
Acute, severe abdominal pain often originates from an acute illness of the GI tract or biliary tree and surgical emergencies have to be considered. However, there are extradigestive causes of acute, severe abdominal pain that can require urgent diagnosis and specific treatment. The physician on call should not forget about them!

Among the possible extradigestive causes, ectopic pregnancy has to be considered in every woman of childbearing age. Myocardial infarction and pericarditis require cardiac examination, assessment of troponin concentrations in the blood and an electrocardiogram. Pneumonia is usually diagnosed on auscultation, but can require an X-ray for diagnosis. The following medical emergencies should also not be overlooked: malaria, sickle cell crisis, hepatitis, opiate withdrawal, diabetic ketoacidosis, acute intermittent porphyria and pheochromocytoma.\(^14\)

**Mistake 8 Not considering mesenteric ischaemia in the case of acute abdomen**
Mesenteric ischaemia is a life-threatening digestive and vascular emergency. As such, this condition must be diagnosed rapidly, while the intestinal lesions are still at a reversible stage. Progression of the intestinal lesions towards infarction leads to high rates of mortality (or a high risk of short bowel syndrome in case of survival).\(^14\) A diagnosis of mesenteric ischaemia must be suspected in every case of acute abdomen, especially in elderly people and/or those who have vascular comorbidities and/or arrhythmia. While elevated lactate levels may support the diagnosis, normal levels do not rule out mesenteric ischaemia at an early stage.\(^14\) Instead, diagnosis relies on abdominal CT angiography, which discloses intestinal ischaemic injury, and the presence or absence of vascular occlusion.\(^14\)

**Mistake 9 Failing to recognize the severity of an acute colitis and not following the correct algorithm of care**
Severe colitis is a life-threatening situation and a dedicated algorithm of care must be followed. The diagnosis of severity should not be missed as patients need to be hospitalised, ideally referred to specialised medical and surgical experts, and rapidly and intensively treated. The criteria for a diagnosis of severe colitis are: passing bloody diarrhoea ≥6 times per day and any signs of systemic toxicity (pulse >90bpm, temperature >37.8°C, haemoglobin <105g/L, erythrocyte sedimentation rate >30 mm/h, or C-reactive protein >30 mg/l). Patients with comorbidities or those who are >60 years old have a higher risk of mortality.\(^17\)

We believe all patients with severe colitis should receive thromboprophylaxis.\(^17\) The response to intravenous steroids is best assessed on the third day after they are administered. For nonresponders, treatment options including ciclosporin, infliximab or tacrolimus, or surgery should be considered.\(^17\) Colectomy is recommended at any time in case of peritoneal symptoms.\(^17\)
Mistakes in...

Mistake 10 Failing to identify patients with acute fulminant liver failure properly

Acute (fulminant) liver failure is a rare syndrome that occurs in individuals who have no underlying chronic liver disease. This is a life-threatening condition that requires specific management. Algorithms for acute liver failure have recently been updated and describe the work-up to establish aetiology, the standard of care and the criteria for referral to specialized units (to discuss liver transplantation). The situation should not be mistaken for a complication of liver cirrhosis, which is more frequent but managed quite differently. The patient's medical history and clinical examination look for the presence (or absence) of symptoms of chronic liver disease are vital for correct diagnosis. As an exception, patients who have an acute presentation of chronic autoimmune hepatitis, Wilson disease or Budd-Chiari syndrome are considered to have acute liver failure if they develop hepatic encephalopathy, even if they have signs of chronic liver disease.

References

Your cases on call briefing

Online courses
• ‘Emergency Upper Gastrointestinal Bleeding’ from UEG [https://www.ueg.eu/education/online-courses/emergency-upper-gastrointestinal-bleeding].

UEG Week
• ‘Non-bleeding emergencies of the oesophagus’ session at UEG Week 2016 [https://www.ueg.eu/education/session-files/?session=16007&conference=144].
• ‘Fulminant hepatitis and liver transplantation’ session at UEG Week 2016 [https://www.ueg.eu/education/session-files/?session=15718&conference=144].
• ‘Acute liver failure and acute-on-chronic liver failure: Difficult conditions to treat’ session at UEG Week 2015 [https://www.ueg.eu/education/session-files/?session=14078&conference=109].
• ‘Management of acute severe colitis’ session at UEG Week 2015 [https://www.ueg.eu/education/session-files/?session=15058&conference=109].
• ‘Acute lower GI bleeding: Diagnosis and therapy’ session at UEG Week 2015 [https://www.ueg.eu/education/session-files/?session=13478&conference=109].

• ‘Management of GI and liver emergencies’ session at UEG Week 2012 [https://www.ueg.eu/education/session-files/?session=4058&conference=30].

Society conferences
• ‘Live endoscopy day with lectures on therapeutic endoscopy’ session at ESPGHAN Summer School Sheffield 2015 [https://www.ueg.eu/education/session-files/?session=19508&conference=137].
• ‘Upper GI Endoscopy: Indications, technique and reporting’ session at SSDG/ESGE Quality in Endoscopy 2013 [https://www.ueg.eu/education/session-files/?session=10588&conference=44].
• GI Acute Surgery Course 2012 [https://www.ueg.eu/education/conference-files/?conference=15].

Standards & Guidelines