Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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Approach to upper GastroIntestinal cancer surgery during the COVID-19 pandemic – Experience from a UK cancer centre

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Coronavirus Disease 2019 (COVID-19) caused by SARS-CoV-2 is a novel rapidly spreading infectious disease that has significantly impacted upon the delivery of oncological treatments. Early published case series and guidance from Public Health England identified several patient groups that are at risk of severe disease including those with active cancer [1]. During the COVID-19 pandemic in China, a nationwide network analysis demonstrated a significantly higher risk of severe adverse events in the Intensive Care Unit (ICU) including death in patients with cancer [2]. During the early phase of the pandemic in London, three of our patients undergoing Hepato-Pancreatico-Biliary (HPB) intervention developed COVID-19 pneumonia. Although these patients all recovered from their COVID-19 infection, we utilised this early experience in combination with the NHS England Speciality Guide for Cancer & Coronavirus and the Association of Upper GastroIntestinal Surgeons (AUGIS) guidance to inform our clinical prioritisation strategy for patients with Upper GI cancers [3,4]. This plan was expanded and the strategy refined when our centre became the designated Specialist 'Cancer Hub' for West London. This clinical model was established to allow time-critical oncology surgery to be delivered to all patients from across our cancer network. All elective surgical cancer patients were requested to self-isolate for 14 days before surgery, complete a COVID-19 symptom questionnaire and undergo mandatory pre-operative COVID-19 swab testing and CT thorax immediately prior to surgery. Every patient case was reviewed in our Specialist Upper GI Multidisciplinary (sMDT) meeting and treatment plans were personalised taking account of patient comorbidities, tumour biology and availability of alternative oncological treatments. Our decision-making for the surgical prioritisation also incorporated individual patient performance status/perioperative risk and potential resource implications. All patients were requested to complete a COVID-risk consent form. Our strategy focused on clinical cases considered priorities 1 (i.e., Emergency/Urgent) & 2 (i.e., surgery that can be deferred up to 4 weeks). It was compulsory for theatre teams to wear full Personal Protective Equipment including surgical masks or filtering face piece respirators.

Patients presenting with bleeding gastric tumours or gastric outlet obstruction not amenable to endoscopic/interventional radiological control were considered for surgical intervention. Oesophageal cancer emergencies (bleeding/perforation) were deemed for endoscopic/radiological intervention during the pandemic period given the poor prognosis associated with this presentation and the need for prolonged Level 3 care when surgery is undertaken. All T1a & T1b oesophageal/gastric tumours were evaluated by a specialist Upper GI gastroenterologist and considered for endoscopic resection. Oesophageal or gastric cancer patients on an intention-to-cure pathway, who had completed their neoadjuvant chemotherapy and had undergone post-chemotherapy assessment of resectability/treatment response in the sMDT, were considered for resection. Patients with stable Gastrointestinal Stromal Tumours (GIST) continued on imatinib treatment or surgery was deferred until all priority 2 cases had been completed. Our institution undertook a safety-first approach and minimally invasive surgery was not feasible during the early phase of the pandemic – we agreed to postpone staging laparoscopy for newly diagnosed patients until completion of neoadjuvant treatment.

With limited endoscopy resources, patients presenting with painless jaundice, radiological evidence of both pancreatic and biliary duct obstruction and associated pancreatic mass were prioritised for resection. Patients presenting with a pancreatic mass and gastric outlet obstruction not amenable to endoscopic stenting were also considered for surgery. Our rationalised Upper GI endoscopy service was utilised to investigate patients with single duct obstruction or isolated pancreatic masses. In the absence of effective neoadjuvant chemotherapy regimens, patients with primary liver cancer (Hepatocellular Carcinoma (HCC) and Intrahepatic Cholangiocarcinoma (ICC)) were considered for hepatic resection. We considered liver resection of ≤3 Couinaud segments or right/left hepatectomy appropriate during this period. Extended liver resections and Associating Liver Partition with Portal Vein Ligation (ALPPS) were not undertaken due to the known higher patient morbidity and mortality. Patients requiring extended resection were considered for alternative oncological treatments. In patients

Abbreviations: COVID-19, Coronavirus Disease 2019; SARS-CoV-2, Severe Acute Respiratory Syndrome Coronavirus 2; HPB, Hepato-Pancreatico-Biliary; AUGIS, Association of Upper GastroIntestinal Surgeons; sMDT, Specialist Upper GI Multidisciplinary; GIST, Gastrointestinal Stromal Tumour; HCC, Hepatocellular Carcinoma; ICC, Intrahepatic Cholangiocarcinoma; ALPPS, Associating Liver Partition with Portal Vein Ligation.

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with colorectal liver metastasis, where multiple atypical/non-anatomical liver resections were required and future liver remnant volume was satisfactory, patients were considered for hepatectomy. Extensive bilobar liver metastasis were not considered for surgical intervention. Pancreatic/liver cysts and neuroendocrine tumours were deferred in line with our priority guidance.

This framework has allowed us to triage Upper GI cancer patients in a resource-limited environment and safely deliver the maximum number of potentially curative operations during the COVID-19 pandemic.

Declaration of competing interest

Nothing to report.

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