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COMBINED INTRAOPERATIVE NAVIGATION FOR RFA ROBOTIC SURGICAL SYSTEM
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Background and purpose: Modern research shows that robotic systems for minimally invasive surgical operations significantly increase their quality and efficiency. In particular, this is due to the fact that modern robotic systems are able to achieve higher accuracy parameters than are allowed by natural human systems. Methods of minimally invasive diagnostics and local destruction of the affected tissues, such as radiofrequency ablation (RFA), require high precision at the operation stage. The movement and deformation of the organs in the abdominal zone, caused by breathing and other processes, leads to a deviation of the target neoplasm’s position from the preliminary

Purpose: Formation in surgery and, more specifically, in hepatobiliary and pancreatic surgery is demanding and time-consuming for medical students and residents. Lots of surgeries complemented with teaching resources and mentoring must be followed to be able to understand and perform them.

Nevertheless, current pandemic condition complicates existing conventional academic training as presence of students/residents in operating rooms is highly limited.

Method: To ensure and improve medical formation in current conditions a novel formation plan has been proposed. Students and medical residents were invited to follow online live surgeries assisted with augmented reality, not having to physically be in the operating room. As first experiences, an open cephalic duodenopancreatectomy and a robotic left lateral hepatic sectionectomy were performed. Later, an online survey was delivered.

Results: Both surgeries were performed and streamed for 120 minutes using the surgical field camera and the robotic platform camera. Augmented reality resources such as patient’s CT, MRI, explanatory pictures and videos and 3D virtual models were presented using Hololens 2 smart glasses.

More than 70 medical students and residents followed the surgeries, being able to discuss the cases with one of the surgeons. We received 39 answers from the online survey. 32 of them considered that these online lessons were useful and complementary virtual teaching resources made surgery understanding easier. Moreover, 18 attendees preferred this kind of teaching model to an in-person one.

Conclusion: Online surgical formation complemented with augmented reality resources seems an interesting complementary tool for university hospitals.

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AUGMENTED REALITY AND ONLINE LIVE SURGERY TO TEACH HPB PROCEDURES DURING COVID-19
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MANAGEMENT OF TUMOURS OF THE 3RD–4TH DUODENAL PORTION AND TREITZ ANGLE
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Purpose: Tumours located in the 3rd–4th duodenal portion and Treitz angle are a rare entity. GIST, neuroendocrine and carcinomas are the most frequent subtypes, however, due to the extremely low incidence there is not a strong evidence regarding which surgical approach is best. Local resection and Whipple procedure are the surgical approach most used but evidence is still lacking. Our purpose is to analyze the oncological and surgical outcome of each technique.

Methods: From 2010 to 2020, 6 patients with tumours in these locations were operated. Histology showed 3 adenocarcinomas, 1 GIST, 1 leiomyosarcoma and 1 neuroendocrine. Medium age was 67.5 years, sex distribution included 4 males and 2 females.

Results: Local resection and anastomosis were performed in 4 patients while Whipple procedure was performed in 2 patients. Tumour resection patients presented one IIIA, two II and one 0 Clavien-Dindo complications while Whipple patients presented one IIIA and one V (exitus) Clavien-Dindo complications.

Among patients with duodenal adenocarcinoma, one was T4 and a Whipple procedure was performed, the other 2 patients were T3 and T2, N0 and local resection was performed. All the local resection patients are still alive and disease free. Both Whipple patients died, one due to surgical complications and the other one died because of brain metastases.

Conclusion: Duodenal resection seems to be a suitable approach for local tumours (T1-T3, N0) independently of the pathologic type while advanced (T4) or lymph nodes positive (N1) should be submitted to a Whipple procedure.

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