RPV; 4-Ligation RPV (tie and/or clips); 5- Partial parenchymal transection 50% preserving Middle Hepatic Vein (MHV) outflow. Postoperative imaging confirmed desired hypertrophy of the remnant liver volume within 9-11 days and the stage 2 ALPPS was carried out 14-16 days after stage 1. Three out of the four stage 2 cases were initiated with laparoscopy and intentionally converted to open extended right hepatectomy following a planned learning curve.


Conclusion: Each case is presented with a short video clip highlighting the technical steps of the Laparoscopic Partial ALPPS during Stage 1, which were overall carried out without intraoperative difficulties and with satisfactory recovery and prompt discharge in all cases, while achieving the FLR hypertrophy within the expected timeframe. An additional video clip presents the laparoscopic findings during stage 2 prior to converting to open procedure, illustrating the amount of inflammation that challenged the laparoscopic completion of Stage 2 during this initial experience.

P 185
ROBOTIC SEGMENT V LIVER RESECTION, PORTAL LYMPHADENECTOMY, CHOLECYSTECTOMY, AND VENTRAL HERNIA REPAIR
L. G. Melstrom, J. P. De Andrade* and C. L. Stewart
*Corresponding author. James De Andrade, City of Hope Cancer Center, United States

Background: In this video, we present a patient who developed a metachronous colorectal liver metastasis in segment V as well as suspicious portal lymphadenopathy. We demonstrate our technique in performing this liver resection and portal lymphadenectomy, as well as cholecystectomy and ventral hernia repair with mesh. We highlight the use of indocyanine green (ICG) to help delineate a margin around the metastasis as well as identification of biliary anatomy.

P 186
ROBOTIC EXTRAHEPATIC BILIARY RESECTION WITH ROUX-Y HEPATICOJEJUNOSTOMY
S. B. Ross*, I. Sucandy, A. Giovannetti, T. J. Bourdeau and A. S. Rosemurgy
*Corresponding author. Sharona Ross, Florida Hospital, United States

Background: The incidence of cholangiocarcinoma is increasing but the treatment outcomes remain poor. Chemotherapy offers limited survival benefits without surgical resection. Complete surgical resection is the only hope for a cure. Minimally invasive techniques, specifically robotic surgery has proven to be safe and feasible in the field of hepatobiliary surgery. We report our technique of robotic extrahepatic biliary resection with Roux-en-Y hepaticojejunostomy for type 1 Klatskin tumor.

Methods: A 69 year old woman presented with fatigue and obstructive jaundice. After preoperative workup, including right upper quadrant ultrasound, CT scan, MRCP/MRI and ERCP, a diagnosis of type I Klatskin tumor was made. She was taken to the operating room and general anesthesia was administered. Diagnostic celioscopy was undertaken with no evidence of metastatic disease. The remaining 3 robotic trocars were placed under direct visualization and the robot was docked. The operation began with the placement of a liver retractor to expose the porta hepatic structures. The common hepatic artery was identified and followed distally towards its bifurcation.

Results: The common bile duct was identified and isolated. Further dissection was undertaken cephalad towards the hepatic duct bifurcation. The gallbladder was dissected off the liver bed but left attached to the bile duct. The distal common bile duct was transected at the level of the pancreatic head. Proximal bile duct transection was undertaken removing part of the bile duct bifurcation with attention not to injure the crossing right hepatic artery. Frozen section confirmed the absence of malignant cells in the area of thickened bile duct wall. Intraoperative liver ultrasound examination did not show evidence of intrahepatic mass. Exploration of intrahepatic biliary ducts was undertaken with 3 Fr Fogarty catheter. Roux-en-Y hepaticojejunostomy was constructed with a 60 cm jejunal Roux limb. A side to side jejunoojejunostomy was constructed with 60 mm robotic...
A good long term disease control. A minimally invasive approach was successful and had led to selected patients. The use of the DaVinci Robot and the conclusion: The use of robotic technology in hepatobiliary operations is increasing but is still limited to a few specialized high-volume centers and in the hands of experts. Superior three-dimensional visualization and increased maneuverability with ease of suturing are only few of many advantages of the robotic technology.

P 187
ROBOTIC COMPLETION RADICAL CHOLECYSTECTOMY FOR INCIDENTAL T2 GALLBLADDER CANCER
D. E. Kleiner and A. W. McGregor*
*Corresponding author. Andrew McGregor, Danbury Hospital, United States

Background: Gallbladder cancer carries a low 5 year survival rate especially in metastatic disease. However, early gallbladder cancer if detected early can provide adequate survival benefit. T2 gallbladder cancer is managed usually with portal lymphadenectomy, resection of IVb/V segments of the liver, and cholecystectomy. Incidental specimens of T2 gallbladder cancer are indicated for further resection. We demonstrate a 74 year old female who underwent completion robotic radical cholecystectomy for incidental T2 gallbladder cancer. She remains disease free at 2 years and 8 months.

Methods: This is a video demonstrating the use of the DaVinci Robot in radical completion cholecystectomy.

Results: 74 year old female referred to our hepatobiliary center for incidentally found T2 gallbladder cancer found after elective cholecystectomy for biliary colic. She was offered robotic completion radical cholecystectomy given her affinity to have minimally invasive surgery and her BMI. Portal lymphadenectomy was performed and segments IVb/V were resected. The patient was discharged on post operative day 2 and final pathology demonstrated negative margins and 21 benign lymph nodes. She remains disease free at 2 years and 8 months.

Conclusion: Robotic Hepato-biliary surgery is feasible in selected patients. The use of the DaVinci Robot and the minimally invasive approach was successful and had led to a good long term disease control.

P 188
DEVELOPMENT OF AN INTERACTIVE VIRTUAL REALITY HEPATOBILIARY SYSTEM FOR PRECLINICAL MEDICAL EDUCATION
J. D. Chait, D. J. Carmichael*, I. Bandovic, A. Vasilyev and G. P. Saggio
*Corresponding author: Dylan Carmichael, NYIT College of Osteopathic Medicine, United States

Background: Virtual reality (VR) has been shown to improve retention and student satisfaction in the realm of medical education. Mastery of gastrointestinal pathophysiology often poses a challenge to preclinical medical students due to the complex anatomy of the hepatobiliary system. This difficulty may lead to decreased interest in the field of hepatobiliary surgery during clerkships and residency selection. In order to change this paradigm, we decided to utilize VR to “gamify” the hepatobiliary portion of the preclinical gastroenterology curriculum. This study aimed to determine the feasibility of development of an interactive, 3-dimensional (3D), VR environment involving hepatobiliary anatomy, physiology, and pathophysiology.

Methods: 3D anatomical models were edited using Blender, an open source graphics software, and Oculus Medium, a VR sculpting platform. Pathophysiologic processes were created utilizing the Unity gaming engine, which employed the C# coding language. Physiologic processes include bile synthesis and flow, gallbladder wall contraction, and Sphincter of Oddi constriction. Pathophysiologic processes include obstruction by gallstones and tumors at various portions of the biliary tree. As seen in the video, students are not only able to view the normal and pathologic disease states, but are also able to create obstructions in the anatomy, allowing them to observe the Results of their changes in real time. Additionally, virtual office visits allow students to apply their diagnostic and decision making capacities in an interactive clinical setting.

Results: Development and beta testing of our interactive VR hepatobiliary curriculum has proven the feasibility of this project. Various surgeons, clinicians, and medical education professionals have advised and oversaw the specifics of the curriculum and its goals. This model is currently being implemented into our preclinical curriculum for use by medical students and will be evaluated for construct validity against traditional teaching methods, such as didactic lectures, textbooks, and videos.

Conclusion: We propose that this novel, interactive learning environment will significantly improve student engagement and retention in hepatobiliary anatomy, physiology, and pathophysiology. The combination of enthusiasm and competence in this area of preclinical medical education may lead students to consider hepatobiliary surgery as a future career choice.

P 189
PASSIVE VENO-VENOUS BYPASS INSTEAD OF CENTRIFUGAL PUMP IS FEASIBLE AND LOW COST FOR EXPERIMENTAL PIG LIVER TRANSPLANTATION
J. A. Kalil*, M. A. Sanchez-Galvez, M. Hertl and E. Schadde
*Corresponding author. Jennifer Kalil, Rush University Medical Center, United States

Background: Pig models are increasingly common in transplantation research. Pigs tend to become hemodynamically unstable during the hepatectomy phase of orthotopic liver transplantation (OLT). Historically, veno-venous bypass centrifugal pumps are often used to complete OLT. Here, we describe a simplified method of passive veno-venous bypass in landrace pigs in the context of a pilot study to establish pig liver transplantation in our large animal lab.

Methods: Donor and recipient operations were performed sequentially. Heparin-bonded 3/8-inch diameter polyvinyl...