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Fortis

Clinical Connect

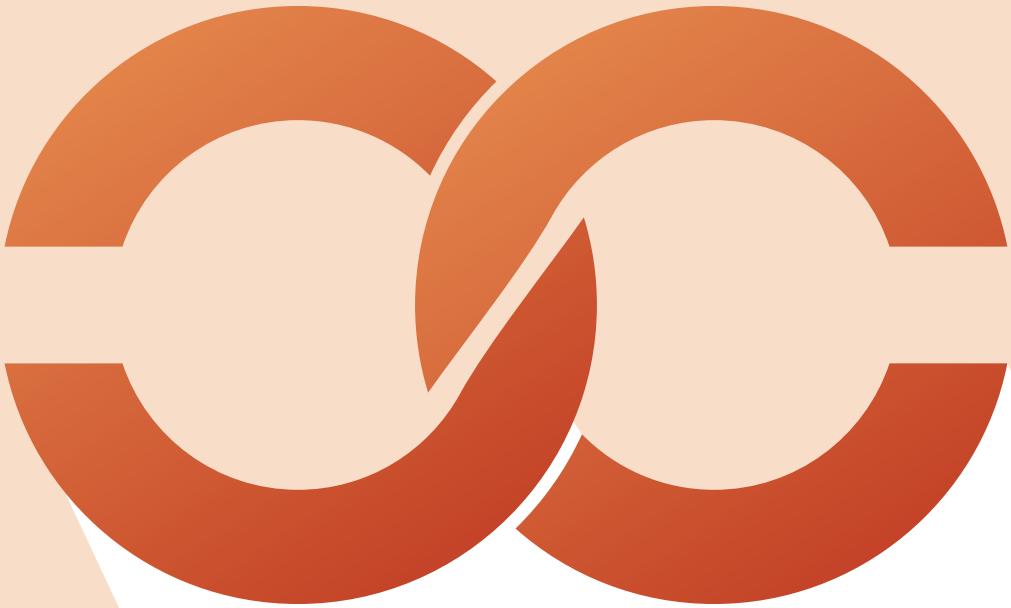
Fostering a culture of innovation and excellence

Liver & Hepatobiliary Sciences Special

Hepatobiliary & Pancreatic Disorders- Strategies & Success Stories

IN THIS ISSUE

CONTENTS



INSPIRATION

Message

Dr Subrat Kumar Acharya
Executive Director – Gastroenterology
Dean Research – Fortis Healthcare
Fortis Escorts Digestive &
Liver Institute, Okhla, New Delhi

Dear Colleagues,

'Clinical Connect' is a laudable effort by the editorial team of Fortis Healthcare to provide a platform for dissemination of novel information, ideas and progress on innovations, techniques, diagnostic as well as therapies in all medical disciplines.

The second issue of the 'Clinical Connect' specifically deals with 'Hepato-Biliary' ailments. The Gastroenterology services across all Fortis hospital is vibrant, dynamic and include wisdom with hard working young well trained specialists. The 'Gastroenterology Forum' of Fortis hospital chaired by Prof. Gourdas Choudhuri is regularly meeting to disseminate and discuss on contemporary approach and evolutions on various expanding armamentarium in Gastroenterology as well as in Hepato- Biliary Sciences.

Gastroenterology, over recent years, has seen wide and rapid expansion such as advanced therapeutic endoscopic surgical interventions, or Transplant Hepatology, Non-transplant Hepatology, newer pharmaceutical interventions and radiological interventions. Therefore, Gastroenterology has developed into a multidisciplinary teamwork.

The 'Clinical Connect' on hepato-biliary sciences provides glimpses of such services, knowledge and capabilities in Fortis Hospitals.

I am sure the present issue 'Clinical Connect' on Hepatology sciences will provide enthusiasm and spirit to further the progress of Gastro-enterology and Hepatology- Biliary sciences in Fortis Hospital.

Message

Dr Vivek Vij
Chairman - Advanced Surgical GI, HPB
& Liver Transplant Fortis Healthcare

Dear Colleagues,

I congratulate, the editorial team of the 'Clinical Connect' for taking on the Herculean task of starting this newsletter at Fortis. This long awaited and well received endeavour will become a great platform to showcase and share advanced clinical work being done at Fortis Healthcare. Publications shared in the 'Clinical Connect' will help clinicians of other specialities to understand and absorb advanced work done in any given department.

The third issue of the 'Clinical Connect' is aimed at "Hepato-Biliary" diseases and procedures. The liver along with the biliary system is an

extremely fascinating organ and is at the centre of clinical and molecular level research all across the globe. From Liver Transplant to artificial liver support to 3D-printing of livers - all new advancements are fast becoming a reality to benefit patients.

The surgical treatment of Hepato-biliary disorders like liver and biliary cancers, benign masses and portal hypertension are extremely complicated and require a multi-disciplinary (MDT) approach. Liver Transplant and Hepato-Biliary surgical services at Fortis Healthcare offer both surgical and MDT maintaining the highest of standards. End stage liver disease including acute liver failure affect almost every organ system (brain, kidneys, lungs, heart, skin, endocrine, reproductive etc.) in our body. Management of liver diseases is the best example of team work between various departments.

Many of the hepatobiliary diseases culminate in end stage liver disease (ESLD) requiring Liver Transplant. Because of extremely good outcomes, Liver Transplant has become the most sought-after treatment, globally. We, at Forts hospitals perform more than 250 liver transplants every year with a

remarkable success rate in the high nineties, this with minimum biliary and other complications. We have become the most sought-after destination for medical value travel. Fortis is the only active centre in India and amongst the few in the world to offer pure laparoscopic donor liver surgery. With more than 120 such procedures till date, we have established ourselves as pioneers in field, globally. This is fast becoming as procedure of choice for all the donors (especially younger donors) as it offers faster recovery, decreased complications and a scarless abdomen. We are also a preferred destination for oncological surgeries of liver and biliary tract and perform between 50-100 complex liver and biliary tract surgeries every year including laparoscopic liver resections.

The present resent issue of the 'Clinical Connect' will provide insight into Hepatobiliary ailments and treatments. I am sure that, this will extremely benefit the readers!

Message

Dr Gourdas Choudhuri
Chairman, Department of
Gastro & Hepato-biliary Sciences,
FMRI, Gurugram

Dear Colleagues,

GI and Liver disorders are among the commonest of ailments, making Gastroenterology and Hepatology services somewhat ubiquitous across all hospitals. The spectrum of services provided at Fortis Health care spans from basic clinical and endoscopy services to the mid-level ones such as ERCP, EUS and manometry to the highly subspecialized advanced forms such as liver transplantation.

1) Cutting edge clinical services are of course essential, but what about exploring new frontiers that only research can help explore? FMRI has been conducting phase 3 global clinical trials on a variety of diseases.

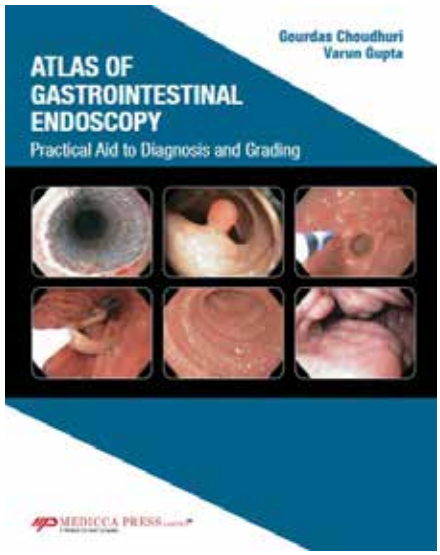
   One of the challenging clinical problems faced by clinicians is moderately severe Inflammatory bowel disease (Ulcerative Colitis and Crohn's disease) where patients are forced to recourse to injectable biologicals (Infliximab, Adalimumab) for achieving and maintaining disease remission. Apart from the inconvenience of being injectable, they prove expensive for Indian pockets.

   Global research is throwing up new oral molecules that could achieve similar results in sick patients. FMRI is part of global multicentric phase 3 clinical trials for two such molecules: Filgotinib (Gilead Galapagos) and Etrasimod (Arena Pharmaceuticals). Two years down the line, many of the patients on long term therapy are benefiting immensely from these new ventures.

2) Gastroenterology Speciality Council: This platform periodically brings together GI and Liver specialists from Fortis hospitals to discussion board for policies that can be adopted across centers such as Covid testing strategies for patients undergoing endoscopy during the different phases of the recent pandemic.

   This platform is useful for sharing insights in to rare and challenging clinical cases, learning and sharing of expertise (Dr BS Ravindra's on spiral enteroscopy, Dr Debashish Dutta's research and publications in Non-alcoholic Fatty Liver Disease, Dr Ajay Bhalla's study on Patient Outcome Reporting in the OPD setting, and so on)

3) Sharing of Knowledge and Creating Common Training platform. FMRI's DNB program, now about 4 years old, is going well with its first candidate passing DNB gastroenterology in the first attempt last year. To share the training inputs, a weekly tele-teaching program every Tuesday at 7 to 8 PM is now available for all residents and consultants across the network.

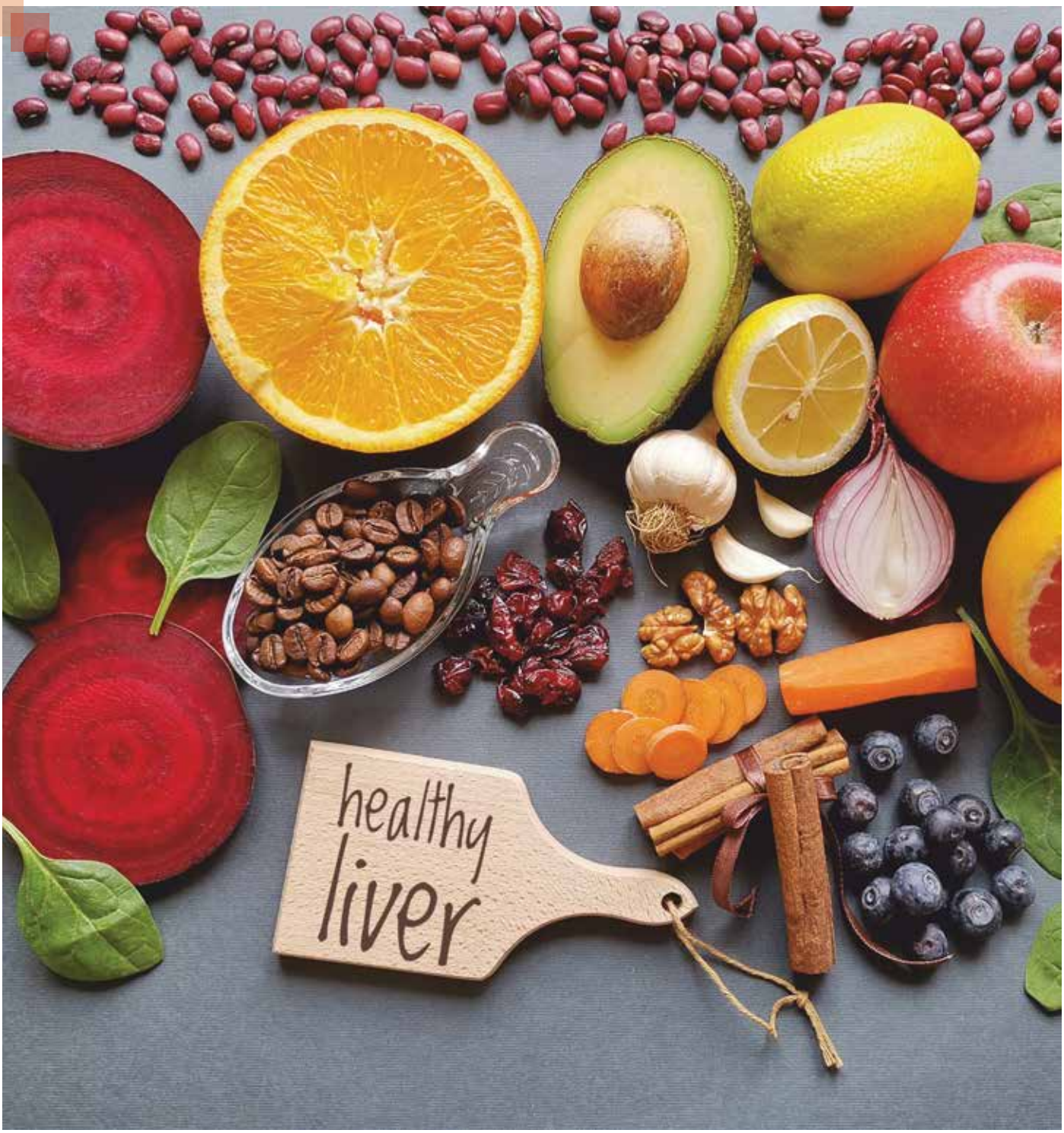


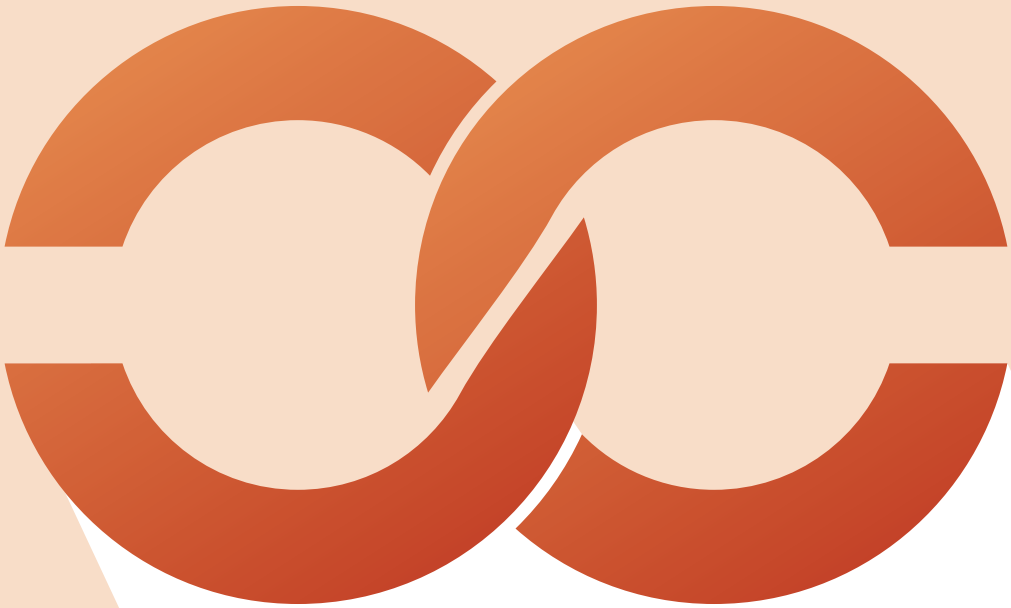
4) The department has published 4 books: Alcoholic Liver Disease (Kontentworth), GERD (Knowledge Bridge), Atlas of Gastrointestinal Endoscopy: Practical Aid to Diagnosis and Grading (Medicca Press). Another one on Gastroenterology and Hepatology: Basics to Bedside (Springer Nature) is in press.

It was encouraging to note that Gastroenterology and Hepatology services at FMRI were recently rated as one of the best in northern India by an independent reviewer.

The challenge for the future would be to

1) Groom and retain talent
2) Provide a mix of cutting edge and trustworthy clinical service
3) Encourage new research so as to remain a step ahead of routine services
4) Be recognized amongst peers as being knowledge-based "thought cum action" leaders with a high degree of trustworthiness across tiers.





FROM THE EDITORIAL TEAM

Theme of World Liver Day 2022- 'Keep your liver healthy and disease free'

Dr S. Narayani
Head - SBU, Mulund

As COVID recedes to take a back seat, the healthcare focus is back on the rest of the disease burden we carry, especially the non-communicable diseases.

One of the major areas of concern is the incidence of liver disease. Globally liver diseases accounts for over two million deaths per year. The Indian scenario too resonates with the global situation.

While a lot of advances are happening in the care of hepatitis (infective) with tremendous focus on prevention too, one of the major developments is liver transplant as a treatment for end stage liver disease arising due to different etiology.

Our organisation is one of the leading centres for liver transplant, being able to provide excellent long-term outcomes for both fulminant failures and chronic pathologies.

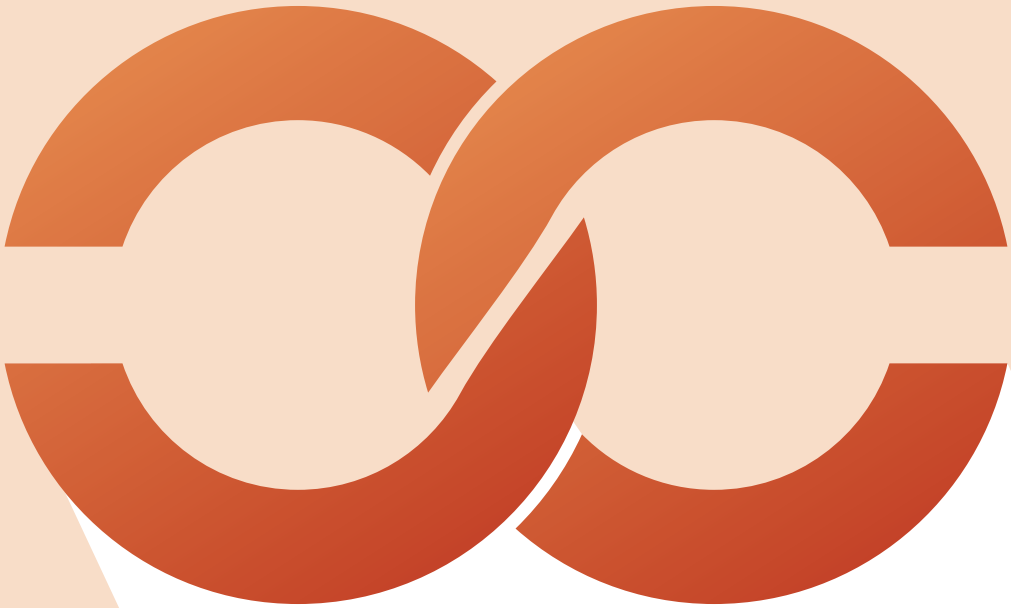
The Centres of Excellence are sought after by both national and international patients. We offer a multidisciplinary approach of care; the teams comprise of hepatologists, critical care teams specialised in managing transplant cases, specialised transplant anaesthesia teams, supported by skilled state of the art imaging and lab diagnostics backed by infectious disease specialist and of course, led by the transplant surgeon.

At Fortis, the liver transplant programme is adopting newer approaches to both enhance outcome and speed up recovery. These include using robotic and minimally invasive approach with the donor. The program includes both adult and paediatric cases.

A special dimension of the liver transplant program in Fortis is the active contribution to deceased donor transplants. Fortis leads from the front in creating greater awareness on organ donation and truly walks the talk.

This issue of the Clinical Connect focuses on the diagnosis and management related to the Liver and Hepatopancreatobiliary system. In line with the theme for this year's World Liver Day, celebrated on April 19 every year, let us focus on not just treating with skill to cure but contribute to preventive care through awareness education and screening to actually shrink the disease burden and make for healthier living for all.

Please send your comments, feedback and suggestions to clinical.connect@fortishealthcare.com



THE WAY WE DO IT AT FORTIS

Hepatology Update

Dr Chandra Prakash Tanwar
Consultant - Gastroenterology
Fortis Escorts Hospital, Jaipur

While the last two years has seen everyone facing the catastrophic COVID 19 pandemic, medical science has seen some practice changing updates in Hepatology. Here are some of the recent updates:

Model for End-stage Liver Disease (MELD) score updated

In February 2022, the Model for End-stage Liver Disease (MELD) score has been updated to MELD 3.0. The Model for End-stage Liver Disease (MELD) score is used to predict short-term mortality and thereby inform allocation of livers for transplantation. The updated score, termed MELD 3.0, includes new variables such as the female sex and serum albumin, while lowering the serum creatinine cut-off. MELD 3.0 has relatively high predictive accuracy and slightly outperforms the MELD-sodium (MELD-Na) in predicting 90-day waiting list mortality. MELD 3.0 has reassigned 9 percent of decedents to a higher score category, possibly giving them a greater chance of transplantation.

Ursodeoxycholic acid (UDCA) is first line therapy for biliary cholangitis patients

Ursodeoxycholic acid (UDCA) is the first line therapy for patients with primary biliary cholangitis (PBC). However, the benefits for PBC complicated by cirrhosis have been uncertain.

In a recent study of patients with PBC and compensated cirrhosis, an adequate biochemical response to UDCA was associated with a lower risk of decompensation, all-cause mortality and liver related mortality or transplantation. These data support the value of UDCA for patients with PBC and cirrhosis who show an adequate biochemical response to therapy.

Updated guidelines on Spontaneous Bacterial Peritonitis (SBP)

Patients with cirrhosis complicated by ascites are at an increased risk of spontaneous bacterial peritonitis.

The American Association of Liver Diseases (AASLD) updated practice guidance on SBP emphasizes performing diagnostic abdominal paracentesis when SBP is suspected, promptly initiating empiric antibiotic therapy and infusing albumin when the diagnosis is established.

It also emphasizes on tailoring antimicrobial therapy based on fluid culture results.

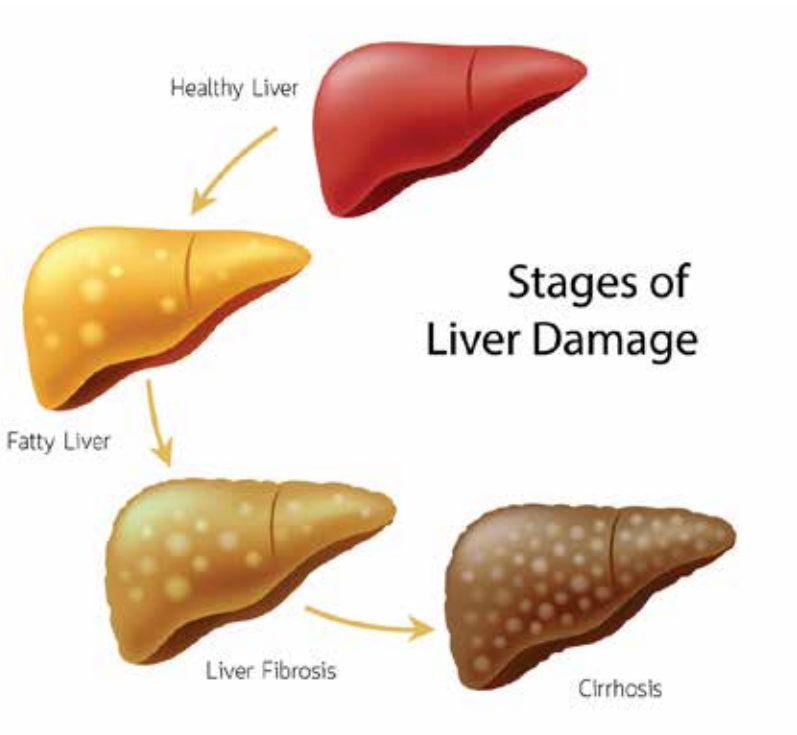
Plasma not helpful for mildly elevated PT/INR

A new trial has documented the lack of benefit from using plasma to "correct" an increased Prothrombin time (PT) and international normalized ratio (INR).

In this trial 57 hospitalized adult patients with an INR of 1.5 to 2.5 (approximately 60 percent with cirrhosis) who were undergoing a procedure outside the operating room to receive or not receive plasma was evaluated.

There was little to no difference in post procedure hemoglobin, hospital length of stay or adverse events.

Although small, this trial adds further evidence that plasma should not be used to treat a mildly elevated PT INR.



Advances in Liver & Pancreatic Surgery for Neoplasia

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Director & Head-GI, GI Oncology, HPB,
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LIVER SURGERY

Over the last few decades there has been a significant evolution in the field of hepatic surgery in terms of surgical techniques, anaesthesia management, radiology and improved surgeon's experience [1].

Following are the important advances in the field of liver surgery:

1) **Parenchyma preserving liver resections & Glissonian's approach (Figure-1a, b)**

Glissonian's approach is a useful technique with the advantages of lesser operating time, blood loss and preservation of liver parenchyma [2]. In cirrhotic liver this approach reduces the post-operative risk of liver failure due to inadequate remnant liver volume.

2. **Liver resections for secondaries in liver**

Metastases from colorectal, esophageal, gastric, NET & breast cancers with no extra hepatic metastases can be resected with curative intent with up to 30-40 % 5-year survival.

3. **Liver resections with enbloc vascular resection with reconstruction (Figure-1c)**

This is a feasible operation in select group of patients. In expert hands it has got a comparable morbidity and mortality as that after regular liver resections.

Figure 1a: Remnant cirrhotic liver after right hepatectomy & PV resection / reconstruction for HCC with portal venous tumor thrombus

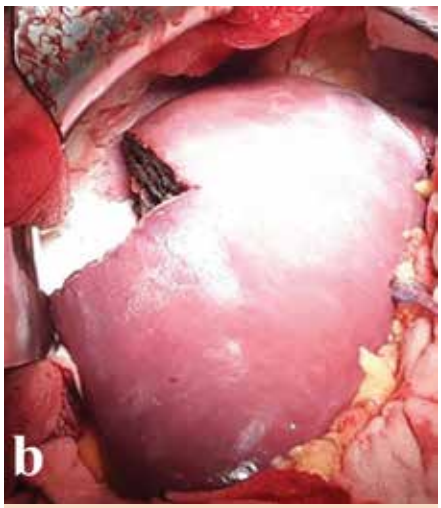

Figure 1b: Liver after segment VII resection using Glissonian's approach

Figure 1c: Postoperative CT scan after left hepatic & caudate lobe resection with enbloc hepatic artery resection / reconstruction (end to end), for hilar cholangiocarcinoma

4) Meso-/central hepatectomy (Figure- 2b, c)

It is a complicated procedure involving resection of tumour located in segments IV, V, VIII.

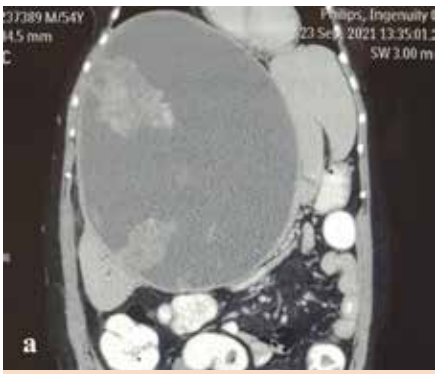

Figure 2a:
Preoperative CT scan showing large tumor in segments IV, V, VIII

Figure 2b:
Postoperative CT scan after segment IV, V, VIII resection (mesohepatectomy)

5) Laparoscopic liver resections (Figure- 3a)

It provides patients less pain, faster recovery and better cosmetic result due to smaller incisions.

Our experience includes more than 250 liver resections with mortality rate of less than 5 % and blood transfusion rates of around 10% mainly in cirrhotics. This include hemi-hepatectomies, extended hemi-hepatectomies, mesohepatectomies, mono- & bi- segmentectomies, sectorectomies, laparoscopic liver resections, hepatopancreato-duodenectomies (HPD) and liver resections with enbloc portal vein & hepatic artery resection & reconstructions. For liver parenchyma transection we used our innovative

Figure 3a: Abdominal scars after laparoscopic left hepatic resection

Debakey forceps crushing technique [1] with its ergonomic advantages.

PANCREATIC SURGERY

Radical surgical resection is the mainstay of treatment for pancreatic cancers. For tumours in the periampullary region and pancreatic head the curative treatment is Whipple's procedure. Tumours in the body and tail of the pancreas are treated with distal pancreatectomy (with or without splenectomy) and median pancreatectomy.

The latest advances in pancreatic surgery have been mainly on two fronts:

1) Extensive resections with vascular resection & reconstructions (Figure-4a-c)

Vascular resections (venous & arterial) with PD are associated with morbidity, mortality and overall survival comparable to that after standard resection [3].

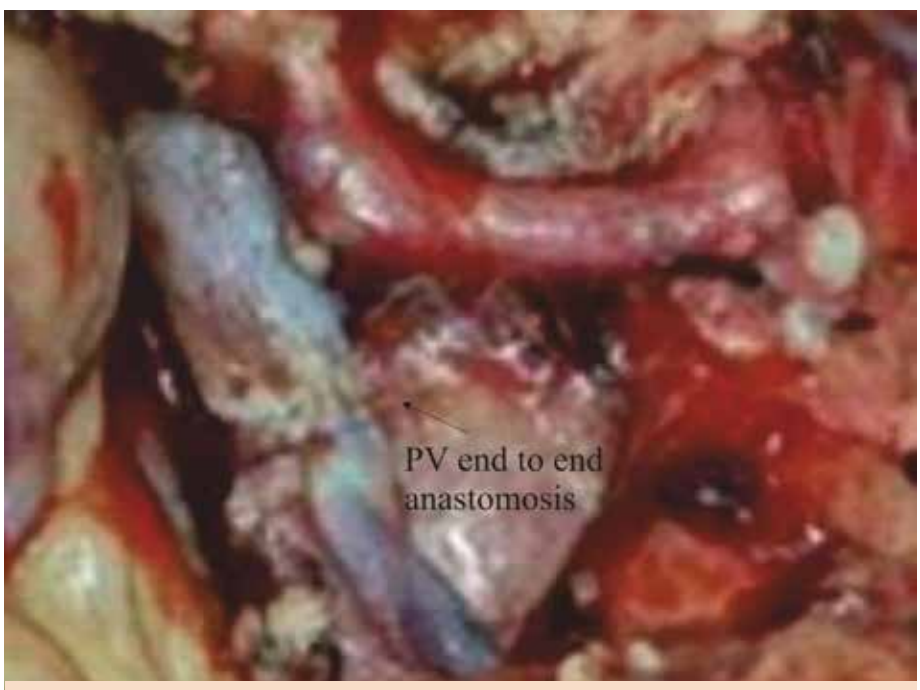

Figure 4a: Portal vein (PV) segmental resection with end to end anastomosis

Figure 4b:
Reconstructed portal vein segment using polytetrafluoroethylene (PTFE) graft

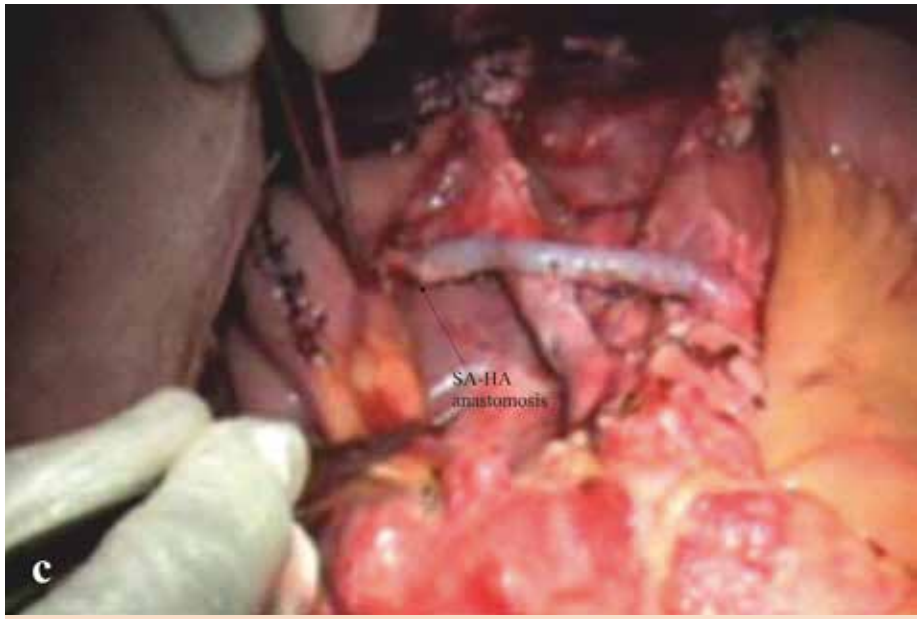

Figure 4c: Transposed splenic artery (SA) anastomosed with the distal end of hepatic artery (HA) proper

2) Laparoscopic pancreatic resections (Figure- 3b)

Laparoscopic pancreatic resections are proven to be safe and feasible including Whipple's pancreatico-duodenectomy and distal pancreatectomy with or without splenectomy [5].

Figure 3b:
Abdominal scars after laparoscopic Whipple's PD procedure

In our experience of total 325 Whipple's procedures (including 20 laparoscopic resections, 32 with enbloc portal vein and 7 hepatic artery resection reconstructions), 50 distal and median pancreatectomies combined (including laparoscopic and spleen preserving ones) and a few total spleno-pancreatico-duodenectomies (Figure-4d), the post-operative mortality rate has been around 5 % with <5 % blood transfusion rates.

The portal vein was reconstructed using any of the venorrhaphy, end to end anastomosis and PTFE graft techniques. Hepatic artery was reconstructed using transpositioned splenic artery and gastroduodenal artery stump.

Conclusions

Advances in the field of liver and pancreatic surgery have made these operations much safer and extended this option of curative treatment to a broader range of patients with advanced stage disease. These surgeries can be performed with best possible outcomes by an experienced team of experts in well-equipped hospitals.

References

Jain S, Sharma B, Kaushik M, Jain L. Debakey Forceps Crushing Technique for Hepatic Parenchymal Transection in Liver Surgery: A Review of 100 Cases and Ergonomic Advantages. Volume 2014 (2014), HPB Surg. 2014;2014:861829. doi: 10.1155/2014/861829. Epub 2014 jun 9.

Jain S. et al. Mo2034 Glissonian approach in hepatic resections: Its feasibility, Safety and efficacy. Gastroenterology, volume 158, Issue 6, S-1585 –S-1586

Jain S, Sharma GS, Kaushik M, Upadhyayula RS. Venous resection for adenocarcinoma of head of pancreas: Does extent of portal vein resection affect outcomes? The Surgeon (2019). Journal (year). DOI: 10.1016/j.surge.2019.07.004.

Jain S, Jangir N. Emerging role of laparoscopy in surgery for pancreatic cancer. Gastroenterol Hepatol. 2016; 4(4): 00110. DOI:10.15406/ghoa.2016.04.00110.

Figure 4d: Resected specimen of total splenopancreaticoduodenectomy (SPD) for carcinoma of pancreatic head with chronic pancreatitis involving hepatic artery proper and portal vein and ruptured main pancreatic duct with stent in situ

Difficult to Treat CBD Stone – Role of Spyglass Laser Lithotripsy

Dr Adil Farooq Malik, Dr Prayas Vats, Dr Rayies, Dr Bimal Kumar Sahu, Dr Saurabh Argal, Dr Sanjay Khanna
Department of Gastroenterology & Hepatobiliary Sciences,
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71-year-old female, a known case of hypertension on treatment was referred from a tertiary care centre due to repeated failure to remove common bile duct stones endoscopically (ERCP). Patient had history of recurrent abdominal pain (upper abdomen) for the past 6 months. USG abdomen revealed gallstones with large CBD stones (>2cm). CBD was dilated about 22mm. MRCP was done which revealed dilated CBD with multiple large stones in the CBD.

In our centre patient underwent ERCP with spy glass assisted laser lithotripsy. All the stones were successfully pulverized by laser and removed by balloon and basket. CBD was cleared completely and CBD stent was placed. Patient underwent cholecystectomy in the same admission. CBD stent was removed after 4 weeks of surgery. On follow up patient is doing well with no symptoms.

Spy glass cholangioscopy is an advanced endoscopic procedure which allows direct visualization of common bile duct lumen and pancreatic duct. It is very helpful in the diagnosis of bile duct strictures and intraductal tumours. It allows direct visualization of the intraductal lesions and aids in taking direct biopsies. Spy glass assisted laser lithotripsy is done to remove large impacted stones in the bile duct/Pancreatic duct, which earlier needed surgery. It is an advanced procedure available in few centres and is very safe in expert hands. This procedure is routinely done in our centre.

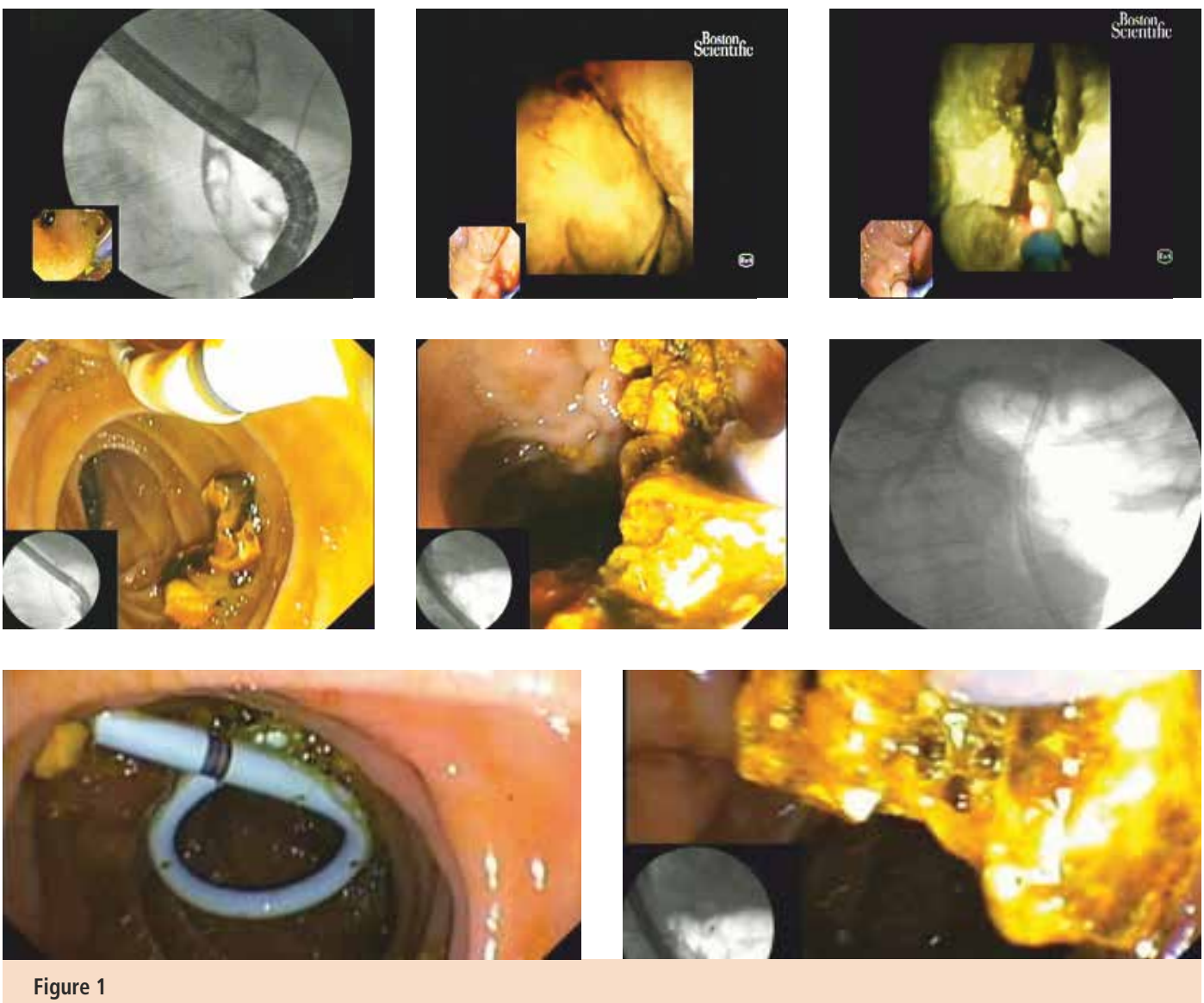


Figure 1

Hepatopancreaticobiliary Cancers

Dr Kapil Kumar
Director & HOD - Surgical Oncology
Fortis Hospital, Shalimar Bagh

The Hepato-pancreatico-biliary cancers include the cancers of the liver, biliary ducts, gallbladder, and pancreas. This is a specially challenging subset of oncology as the cancers often present in advanced stages and surgeries are complex and associated with high morbidity. The symptoms of specific cancer depend on the organs involved, the extent of involvement and invasion and that of distant spread. Although groups at high risk for these malignancies are recognized, screening and early-detection strategies have often not been successful. For each neoplasm, surgery represents the only practical curative treatment option. Radiation and chemotherapy have been helpful only in selected clinical circumstances. Neuroendocrine and some other rare tumours are often seen in these. Here let us overview the common cancers of this system.

Hepatocellular carcinoma is the most common primary liver cancer. It is commonly associated with Hepatitis B and C Virus infection, Wilson's disease, and some metabolic diseases. More common after 50 years of age and in males. It may spread via blood, lymphatics and peritoneal spread in case of rupture. The most common symptoms in patients with HCC are abdominal pain (91%), ascites (43%), weight loss (35%), weakness (31%), fullness and anorexia (27%), vomiting (8%), and jaundice (7%). About one third of patients are asymptomatic. Metastatic disease can present as malignant ascites, skeletal pain, dyspnea with pulmonary involvement, and neurologic abnormalities due to brain metastases. Among the physical signs present in patients with HCC, hepatomegaly is the most frequent, occurring in 50% to 90% of patients. Signs of cirrhosis such as spider angiomas and gynecomastia are common. Alpha fetoprotein (AFP) and alpha-1-globulin are the tumour markers usually associated with HCC. Hepatocellular carcinomas are best visualized on CT scans. Surgery is the only curative modality for HCC, but its use depends mainly on tumour size and location and the condition of the uninvolved liver. Hepatic resection and liver transplant are surgical options. Chemotherapy, Cryotherapy, Trans arterial chemoembolization and Radioembolization are other treatment modalities.

Pancreatic cancer is a common gastrointestinal cancer and one of the top five leading causes of cancer deaths. The incidence of pancreatic cancer is exceeded only by that of lung, colorectal, skin, prostate, and breast cancers. The median survival of patients with this disease is 3 to 4 months, and the 5-year survival rate is only 3%. The cause of pancreatic carcinoma remains uncertain, but several factors have been implicated. Cigarette smoking has been associated with an increased risk of pancreatic carcinoma. Besides smoking, diet, and prior gastrectomy, certain disease states, including chronic pancreatitis and diabetes mellitus, also have been associated with pancreatic carcinoma. Jaundice secondary to biliary obstruction can present as either an early or a late symptom, depending upon the tumour location.

Associated symptoms of dark urine and pale stools occur. Gastric outlet obstruction and duodenal obstruction can occur in as many as 25% of pancreatic head cancers and are usually secondary to local tumour invasion and motility problems from infiltration of the splanchnic nerves. Computed tomography (CT), ultrasonography, endoscopic retrograde cholangiopancreatography, and fine-needle aspiration biopsy have all been used successfully to diagnose pancreatic cancer. The approach to therapy differs in patients with pancreatic carcinoma depending on the stage of their disease at presentation and whether it is resectable or not as per clearly defined criteria. Whipple's operation is a well-established surgical resection procedure.

Chemotherapy and Radiotherapy before or following surgery is often used. Pain is a symptom experienced by virtually all patients with pancreatic carcinoma at some time in the course of their disease. It is often what motivates the patient to seek medical attention. Pain may arise when the tumour infiltrates into the retroperitoneum or the splanchnic nerve plexus. It is typically burning and severe, and if there is nerve compression, it may be accompanied by dysesthesia and hyperesthesia in the area of innervation. Anticonvulsants and tricyclic antidepressants are useful in treating this type of pain. Nerve blocks maybe used.

Carcinoma of the gallbladder is a disease of older people. Incidence peaks in the seventh decade, with three times as many women as men affected. Gallstones, porcelain

gall bladder. Gallbladder carcinoma is usually detected at an advanced stage, when the prognosis is poor. Many gallbladder carcinomas are discovered by pathologists as an incidental finding after the removal of the gallbladder for chronic cholecystitis. Gallbladder cancer can be found as a polypoid projection into the lumen of the gallbladder or as a diffuse thickening of the wall of the organ, with or without extension into the liver and other adjacent organs.

The liver and the regional lymph nodes are the most common sites of involvement, followed by peritoneal carcinomatosis. Patients with gallbladder carcinoma may be asymptomatic or may present with abdominal pain, jaundice, weight loss, anorexia, or nausea and vomiting. Others may present with a right upper quadrant mass or complications such as gastrointestinal hemorrhage. Surgical resection is the primary treatment modality for carcinoma of the gallbladder.

Cholecystectomy may be all that is required for stage I and some stage II disease. Some authors believe that patients with gallbladder carcinoma invading beyond the mucosal layer may benefit from more radical procedures such as extended cholecystectomy with regional lymph-node dissection and resection of the gallbladder bed. Once the lesion invades the gallbladder serosa it is considered incurable. After cholecystectomy or radical surgery, the 5-year survival rate is 10% to 30%, with locoregional recurrences seen in about 80% of the cases.

Cholangiocarcinoma is a group of cancers that begin in the bile ducts. Cholangiocarcinoma is classified by its location in relation to the liver. Intrahepatic cholangiocarcinoma begins in the small bile ducts within the liver. This is the least common form of the disease, accounting for less than 10 percent of all cases. Perihilar cholangiocarcinoma (also known as a Klatskin tumour) begins in an area called the hilum, where the right and left major bile ducts join and leave the liver. It is the most common form of the disease, accounting for more than half of all cases. The remaining cases are classified as distal cholangiocarcinoma, which begin in bile ducts outside the liver.

The perihilar and distal forms of the disease, which both occur outside the liver, are sometimes grouped together and called extrahepatic cholangiocarcinoma. The three types of cholangiocarcinoma do not usually cause any symptoms in their early stages, and this cancer is usually not diagnosed until it has already spread beyond the bile ducts to other tissues. Symptoms often result when bile ducts become blocked by the tumour. The most common symptom is jaundice. Other symptoms can include extreme tiredness (fatigue), itching, dark-coloured urine, loss of appetite, unintentional weight loss, abdominal pain, and light-coloured and greasy stools. MRCP and ERCP often aid and confirm the diagnosis. Surgery may be a definitive treatment option for resectable disease. Adjuvant therapy is often required.

To sum up, the treatment of hepatopancreaticobiliary cancers depends on the clinical stage, tumour type, patient's overall performance status, associated medical problems, and patient preference. In general, most of the early stage (stage I) cancers, surgery is the treatment of choice. For most of the higher stage cancers with limited spread (stage II, III), combined modality treatment with chemotherapy, radiotherapy, and surgery ensuring better outcomes when compared to a single modality treatment.

Peri-Hilar Biliary Tract Tumours: Challenges and Future Prospects

Dr Kapil Kumar
Director & HOD - Surgical Oncology
Fortis Hospital, Shalimar Bagh

Scan QR Code for more

The Peri-Hilar biliary tract tumour or cholangiocarcinoma (pCCA) develops anywhere from the second order biliary ducts to the common bile duct above and at the site of cystic duct origin. Klatskin's tumours occur at the confluence of right and left hepatic ducts.

Most common clinical presentation is with jaundice and cholangitis. Systemic symptoms include malaise, abdominal discomfort, nausea, anorexia and weight loss.

Diagnosis

The diagnosis of pCCA is challenging and a multimodality approach is essential. Imaging is critical in diagnosis and management of pCCA. The role of modern imaging, after excluding metastatic disease, is to determine the T stage.

Ultrasound followed by CT are often the initial imaging study in patients presenting with obstructive jaundice. But diagnosis of the periductal infiltrating CCA can be difficult owing to the infiltrative nature of the tumour and absence of a mass-like lesion. Typically, the main imaging features are biliary duct obstruction as evident by proximal ductal dilatation, periductal thickening and enhancement.

MRCP is an accurate method for anatomically mapping of biliary tree. MRCP is now considered the radiological modality of choice for evaluating patients with suspected CCA.

Both ERCP and PTC are invasive techniques that assess biliary ducts. The possibility of obtaining biopsy and brush cytology is promising but is not a successful tool in many patients as desmoplastic reaction limits the number of cells obtained by cytology.

Recently, EUS has emerged as an important modality in the diagnosis of CCA especially for assessing the nature of biliary strictures, extent of periductal disease and the presence of lymph node metastases.

Experience with PET in extrahepatic CCA is limited. In patients with areas of inflammation along the bile duct associated with PSC (primary sclerosing cholangitis), interpretation can be difficult as areas of inflammation may have increased uptake.

Treatment

Surgery remains the mainstay of curative therapy. Complete resection of pCCA generally involves resection of the extrahepatic bile ducts in combination with (extended) hemihepatectomy and segment I, including lymphadenectomy of the hepatoduodenal ligament and biliary reconstruction.

The following complications preclude curative resection: involvement of the right or left main hepatic duct to the level of the secondary biliary radicals, vascular encasement or invasion (proper hepatic artery, bilateral hepatic arteries, main portal vein) and metastases to peritoneal cavity or distant organs.

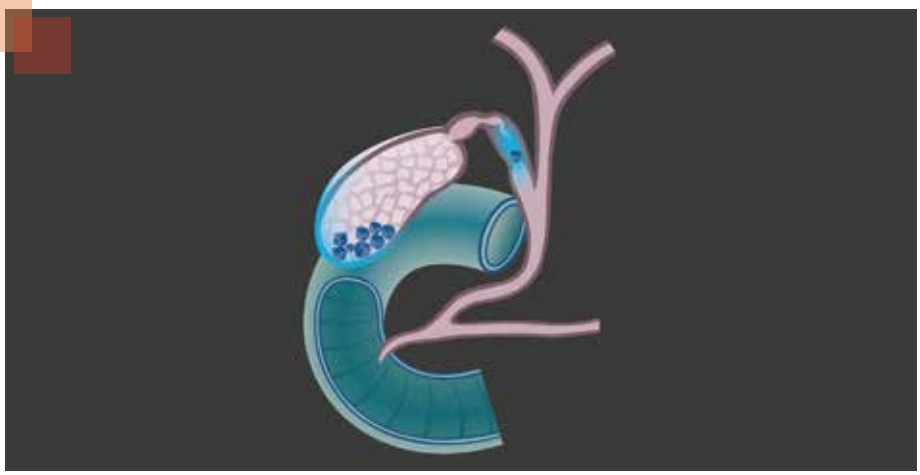
Staging laparoscopy should be considered prior to explorative laparotomy to exclude peritoneal metastasis or positive N2 lymph nodes.

Liver transplantation is not routinely performed for pCCA but can increase survival in selected patients wherein resection is not an option secondary to locally advanced disease.

Future Perspectives

Over the years, more complex surgeries including vascular reconstructions are being undertaken. Selection of patients should therefore be done judiciously, aiming at improving postoperative outcomes.

Preoperative biliary decompression should be decided according to the volume of FLR and control of cholangitis. PVE should be liberally applied when the volume of the FLR is insufficient. In addition, if there is any doubt about the resectability and oncological outcome of a patient, preoperative chemotherapy should be considered. Besides, a possible tumour response or progression could provide a "test of time" determining further therapy.



Treatment for Hepatocellular Carcinoma in South Asia

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Hepatocellular carcinoma (HCC) frequently occurs in patients with cirrhosis and chronic liver disease due to any aetiology and is associated with increased liver-related mortality globally, as well as in India. The accurate prevalence of HCC in India is unclear, but the incidence seems to be is rising. Chronic hepatitis B virus (HBV) infection, hepatitis C virus (HCV) infection, alcoholic liver disease, non-alcoholic fatty liver diseases are the most frequently recognized association in causing HCC. Advances in identifying the aetiology, molecular pathogenesis, staging of HCC, and treatment have been impressive and beneficial. In addition, the advent of nucleoside or nucleotide analogue for HBV and directly acting antivirals (DAAs) for treatment against HCV have been associated with reduced incidence of HCC in those with such chronic infections. Further, various specific molecular targeted therapies in HCC since 2008 have resulted in remarkably improved treatment outcomes even in advanced HCC, previously not amenable to treatment.

Management of HCC depends upon its clinical staging. Specific treatment is recommended for different clinical stages of HCC. Although many staging systems have been described in HCC, two of them have been extensively used globally, including in India. They are Barcelona Clinic Liver Cancer (BCLC) staging and Hong Kong Liver Cancer (HKLC) staging systems. Both these staging systems assess the burden of the liver cancer restricted to the liver (size and number of tumours) and outside liver (extrahepatic metastasis), their intrahepatic, as well as extrahepatic vascular invasion status, underlying liver function reserve, and the performance status (PST).

These assessments are derived based on the clinical parameters, biochemical tests to assess liver function, and imaging techniques to assess tumour burden, vascular invasion, and extrahepatic spread. Both these staging systems, therefore, include specific treatment options for each stage based on the possible overall survival (OS) rates, progression free survival (PFS), recurrence rate, and overall clinical benefits.

Essentially, these staging systems classify the patients into three main groups:

a) Patients with an "early-stage HCC" in whom treatment is aimed to provide a complete cure.

b) Patients with an "intermediated stage HCC" in whom the therapy is directed either to down-stage or to the "early-stage HCC" status so that they can avail curative therapy. Alternatively, if downstaging is not possible, one aims to keep the disease under control to improve survival.

c) Patients with advanced HCC in whom the effort is directed to keep the disease under control to improve survival durations.

The stage-based treatment in HCC providing all presently available treatment options:

BCLC staging-based treatment allocation

Barcelona Clinic Liver Cancer (BCLC) staging with treatment allocations as per recent advances and results. [PST: Performance Status as per Eastern Cooperative Oncology Group (ECOG) - Score 0: Asymptomatic and fully active - Score 1: symptomatic, restricted to strenuous activity but can do light work and ambulatory - Score2: Symptomatic and < 50% of the time in bed during the day but ambulatory and can do self-care -

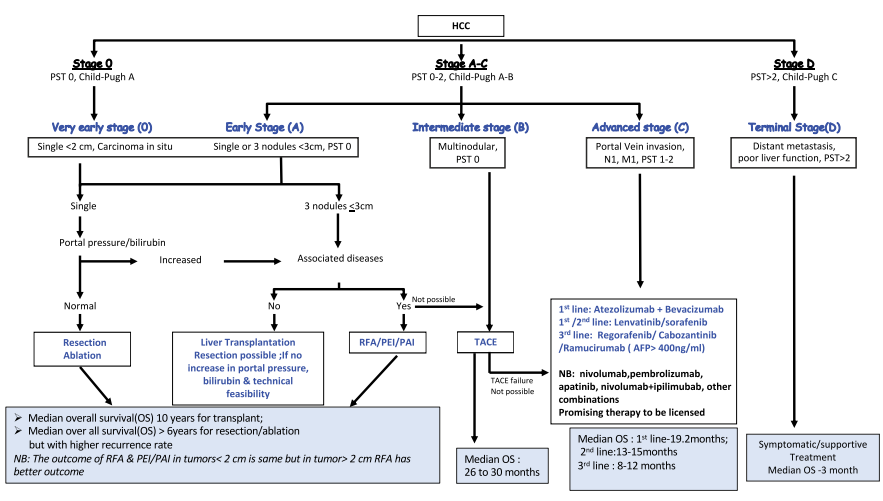

Figure 1

Score 3: Symptomatic, >50% in bed in the day time, limited self-care - Score 4: Bedbound completely - Score 5: Death; N: Nodule, M; metastasis RFA: Radio Frequency Ablation; PEI: percutaneous Ethanol Injection; PAI: Percutaneous Acetic (40%) injection; TACE: Transarterial Chemoembolization using Epirubicin/Doxorubicin; TARE; Transarterial Radioembolization using Yttrium-90 or Rhenium 188. OS: Overall Survival: Child-Pugh Score base on Serum bilirubin, albumin, INR, severity of ascites and encephalopathy status – Each variable have sores from 1 to 3/Total score 15/Child Pugh A: Score ≤6, Child-Pugh B: Score 7 to 9, Child Pugh C: Score 10–15].

HKLC staging-based treatment allocation

Hongkong Liver Cancer staging (HKLC) and stage-based treatment allocation. [PST: Performance Status as per Eastern Cooperative Oncology Group (ECOG) - Score 0: Asymptomatic and fully active - Score 1: symptomatic, restricted to strenuous activity but can do light work and ambulatory - Score 2: Symptomatic and < 50% of the time in bed during the day but ambulatory and can do self-care - Score 3: Symptomatic, >50% in bed in the daytime, limited self-care - Score 4: Bed bound completely - Score 5: Death; EVM: Extrahepatic vascular invasion or metastasis].

Summary of all treatment allocations

Summary of HCC Therapy. [SR: Surgical resection; LT: Liver Transplant; TACE: Transarterial Chemoembolization; DEB: Drug Eluting beads used in TACE; TARE: Transarterial Radioembolization; SBRT: Stereotactic body radiotherapy; Drugs: Systemic therapy].

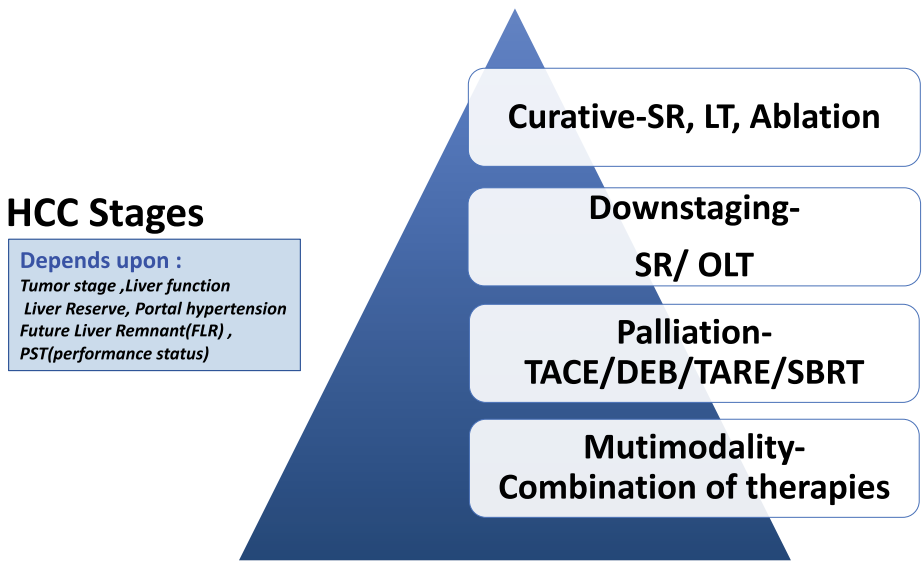

Figure 3

Step 1: Tumor in the liver is first categorized to early, intermediate and locally advanced based on presence of 0, 1 or ≥ 2 intrahepatic tumor characteristics indicating adverse prognosis(indicated in red)- like size, number and vascular invasion status as follows:

Intrahepatic tumor characteristics	Size	Number	Vascular Invasion
Early	≤ 5cm	≤3	No
Intermediate	≤ 5cm	≤3	Yes
	≤ 5cm	>3	No
	>5cm	<3	No
Locally advanced	≤ 5cm	>3	Yes
	>5cm	≤3	Yes
	>5cm	>3	Any vascular invasion
	Diffuse	Any umber	Any vascular invasion

Step 2: Staging of Liver Cancer and Treatment allocation

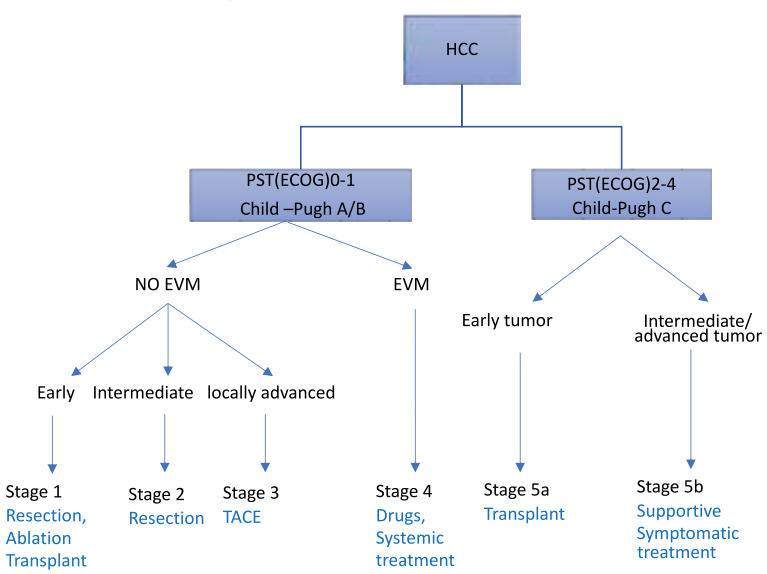

Figure 2

Overt hepatic encephalopathy is an independent risk factor for de novo infection in cirrhotic patients with acute decompensation

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The occurrence of overt hepatic encephalopathy (OHE) is associated with increased mortality. HE is commonly precipitated by infection, but whether HE predisposes to new infection is unclear. This study aimed to test if OHE predisposes to de novo infection during hospitalization and its association with short-term mortality.

Overt hepatic encephalopathy (OHE) complicates the course of cirrhosis occurring in up to one-third of patients at some point during their clinical course. HE is also a major contributor to repeated hospital admissions in this cohort and has a massive impact on health-related quality of life for both the patients and their caregivers and is associated with high mortality (36% survival rate at 1 year and 15% at 5 years).Even higher mortality is observed in patients with acute-on-chronic liver failure (ACLF).Overt HE may occur spontaneously or because of other precipitating events such as infection, gastrointestinal bleeding, dehydration, constipation, hypovolemia, shock, high dietary protein intake, hypokalaemia, alkalosis or medications such as opiates and benzodiazepines.

Seven hundred and fifty-nine consecutive patients were identified at two institutions from prospectively maintained clinical databases of cirrhotic patients admitted with acute decompensation (AD). Infection and HE data were collected on the day of admission, and the occurrence of de novo infections was assessed for 28 days after admission. EASL-CLIF organ failure criteria were used to determine the presence of organ failures. Multivariable analysis using the logistic regression model was used to assess predictors of 28-day mortality and de novo infection.

Results: Patients were divided into four groups:

1) No baseline OHE or infection (n = 352)
2) OHE with no baseline Infection (n = 221)
3) No OHE but baseline infection (n = 100)
4) OHE with baseline infection (n = 86)

On multivariate analyses, OHE (OR, 1.532 [95% CI, 1.061–2.300, P = 0.024]), and admission to ITU (OR, 2.303 [95% CI, 1.508–3.517, P < 0.001]) were independent risk factors for de novo infection. 28-day mortality was 25.3%, 60.2%, 55.0% and 72.1% in the 4-groups respectively. Age, INR and creatinine were independently predictive of mortality. The presence of overt HE, infection, coagulation, kidney, circulatory, respiratory and liver failures were significantly associated with higher mortality.

Acute Liver Failure: Indian Perspective

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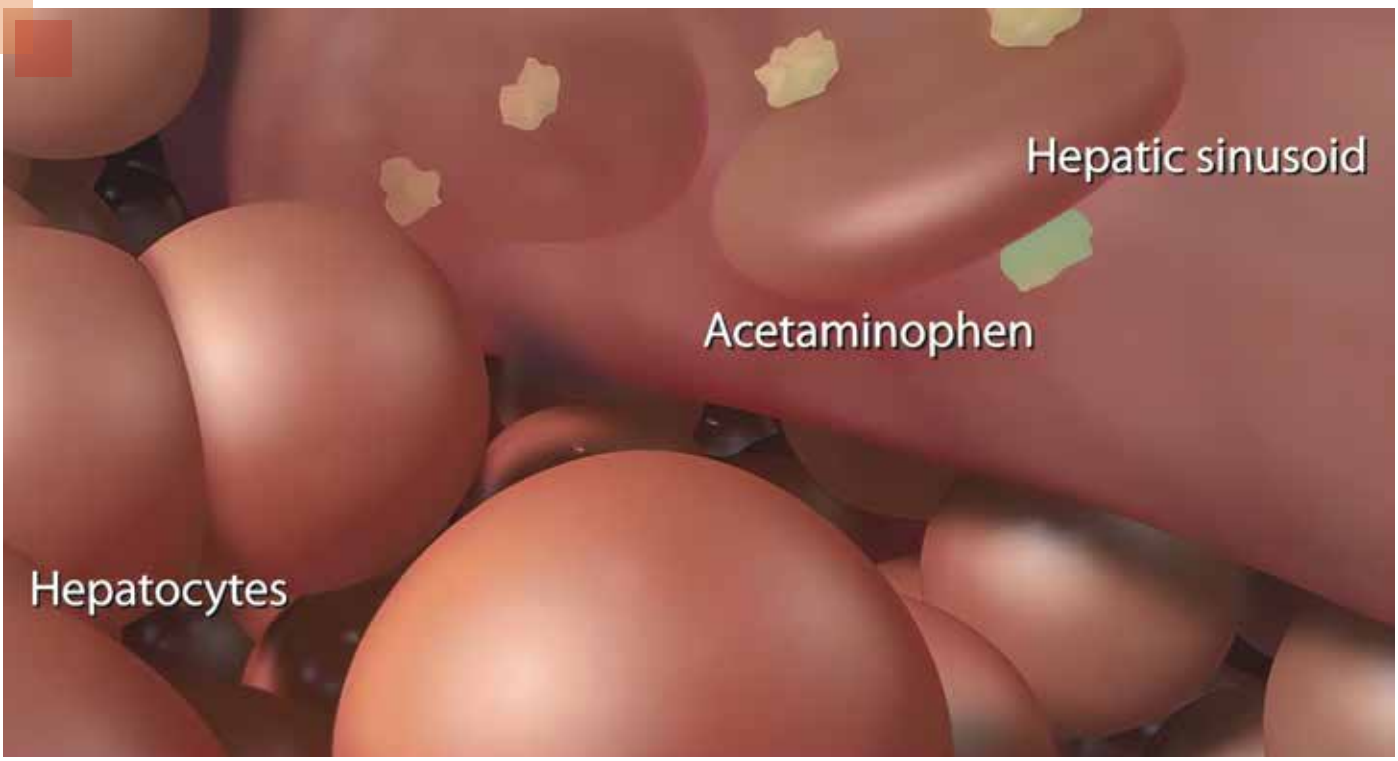
Acute Liver Failure (ALF) is an infrequent, unpredictable clinical sequela of Acute Liver Injury (ALI) in an individual without any previous history of liver disease and is associated with a mortality rate of 50% to 75%. Encephalopathy subsequent to ALI (icterus) is the usual presentation in ALF, and coagulopathy (international normalized ratio [INR] >1.5) is frequent.

The etiology of ALF is geographically distinct with varying icterus-encephalopathy interval (IEI), from 4 weeks in India to 26 weeks in the United States. In the United Kingdom, United States, and Europe, ALF etiology is heterogeneous (paracetamol, nonsteroidal anti-inflammatory drugs [NSAIDs], autoimmune hepatitis [AIH], and metabolic diseases). In India, ALF has a homogeneous etiology (hepatitis virus in 90%). Etiology influences phenotypic presentation.

In the United Kingdom, Japan, and France, ALF with IEI of 1 week or 10 days had significantly higher survival than with IEI of longer than 1 week or 10 days, leading to sub classification in ALF as hyperacute (IEI ≤ 7 days), acute (IEI > 7 days to ≤4 weeks), and subacute (IEI of 5 to ≤12 weeks). In India, as a result of homogenous etiology, rapidity of encephalopathy does not influence survival, and all ALF cases have IEI of ≤4 weeks. Therefore, the Indian National Association for the Study of Liver (INASL) consensus in ALF defines it "as a clinical syndrome characterized by encephalopathy, jaundice, and prolonged prothrombin time (international normalized ratio >1.5) developing in a patient without pre-existing liver disease within 4 weeks of the onset of symptoms.

ALF in India is predominantly due to hepatitis virus(es). ATD and CAM are important causes of DILI-ALF. These patients are young with a female preponderance. Pregnant females with viral hepatitis are at high risk for development of ALF.

Survival frequency with expectant management as per INASL guideline is about 50% to 60%, with lower mortality in HEV and HAV ALF than other causes. A recently described dynamic prognostic model, ALFED, has been recommended to be suitable in Indian patients. Liver transplant is offered to patients with ALF in India, and deceased donor liver transplantation is the predominant modality with a reported 1-year survival rate of 80%.



Acute Liver Failure and Acute-On-Chronic-Liver Failure in India: How They Are Different from West

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Acute Liver Failure (ALF) and Acute-on-Chronic-Liver Failure (ACLF) are the severest forms of liver failure with high short-term mortality. Their definition and diagnosis depend upon the clinical phenotypic presentation and global consensus on each of these entities are lacking due to differences in regional etiologies of liver injury, which is considered to be important determinants of the natural course and clinical manifestations of such liver failures. While hepatitis virus(es) are the major causes of ALF and to some extent in ACLF India, etiologies of ALF in the West is heterogeneous with Paracetamol overdose as the major causes. Pregnant females in India are more prone to contact hepatitis virus(es), particularly hepatitis E virus and develop more severe hepatitis leading to more frequent ALF than similar patients in males and non-pregnant females. Such events in west is infrequent. Cerebral edema and infections are major complications in ALF leading to high mortality. Prognostic models in ALF are important to identify patients for liver transplant which is associated with significant improved survival in those who are likely to die with expectant therapy. The prognostic models in ALF described from west have been found to perform less efficiently than the recently described ALF-Early Dynamic model (ALF-ED) from India. At present Alcohol has emerged as a major cause of ACLF globally. Hepatitis virus(es), drugs, complementary alternative medicines induced acute hepatic insult over pre-existing chronic liver disease are other major causes of ACLF in India while infection, variceal bleed, and alcohol are the major causes of ACLF in west. Occurrence of sever systemic inflammatory response in such patients leading to multiorgan dysfunction results in high short-term mortality. Within 3–7 days of onset of ACLF the prognostic models described both from Asian Pacific region and west predicts mortality assisting in providing to liver transplant to such patients.

ACLF is a syndromic condition that occurs in patients with underlying chronic liver disease (CLD) irrespective of the cause of CLD. These patients develop intense systemic inflammation, organ failure, and high short-term mortality and ensue in close temporal relationship with a precipitating event, which is regionally variable. Whether extrahepatic organ failure is an integral part of the syndrome or consequence is the difference in defining the syndrome in the West and Asia. Bacterial infection is frequent in these patients and in the West it is considered as a precipitating event, but in Asia it is considered as a frequent association in ACLF. However, irrespective the differences between the West and Asia the syndrome is seen across the world and about half of them need liver transplant. Mortality assisting in providing to liver transplant to such patients.

Role of Laparoscopic Surgery in Hepato-pancreato-biliary Malignancy

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Laparoscopic surgery has gained popularity in the recent decade. It has multiple benefits like less pain, shorter hospital stays, fewer wound related complications, smaller scars and rapid return to normal function as compared to open surgical procedures due to reduced tissue trauma and inflammatory response. Use of laparoscopy is becoming increasingly important and is considered as standard procedure for cholecystectomy and other benign abdominal surgeries.

With improvement in laparoscopic techniques and vessel sealing devices, use of Laparoscopy in curative cancer surgeries became popular. Multiple landmark trials showed equivalent or superior results of laparoscopy in oncological surgery. The COST trial (Clinical Outcomes of Surgical Therapy) randomized 872 patients with colonic adenocarcinoma to open versus laparoscopically assisted colectomy demonstrated that there was no significant difference in terms of local recurrence and overall survival at three years. For Colorectal cancer, laparoscopy has now become the gold standard management for resection. In HPB cancers, staging laparoscopy plays a crucial role and laparoscopic resection shows similar oncological outcome with reduced wound related complications.

There are two main applications of laparoscopic surgery in managing hepato-pancreatico-biliary (HPB) malignancy: accurate staging of disease and surgical resection. The role of staging laparoscopy has become routine in HPB cancer surgery as it helps to correctly stage the disease, to identify metastatic disease not visible on preoperative imaging. It helps in preventing unnecessary laparotomy in metastatic disease thus, associated with decreased hospital stay and early administration of systemic chemotherapy. Laparoscopy enables direct inspection of intra-abdominal organs to facilitate biopsy, cultures and aspirates, and allows the use of intra-operative ultrasound to make therapeutic interventions.

Curative laparoscopic resection is performed for small hepatocellular or cholangiocarcinomas, gall bladder cancer and pancreatic cancers. But the role in large liver tumours, locally advanced carcinoma gall bladder, hilar cholangiocarcinomas and pancreatic cancer with vascular involvement is still controversial. As laparoscopic resection for HPB malignancy is still in developing phase, it should be performed by experienced surgeon in a high-volume centre with a dedicated team to maximize the good outcome. With the addition of robotic surgery, minimally invasive HPB cancer surgeries will improve and may become standard of care in the near future. At our centre, we are routinely performing liver wedge resections, radical cholecystectomy, Whipple's procedure and distal pancreatectomy using laparoscopic techniques with a conversion rate of less than 5 percent and with a good postoperative and oncological outcome.

Role of EUS in Gastrointestinal Tuberculosis

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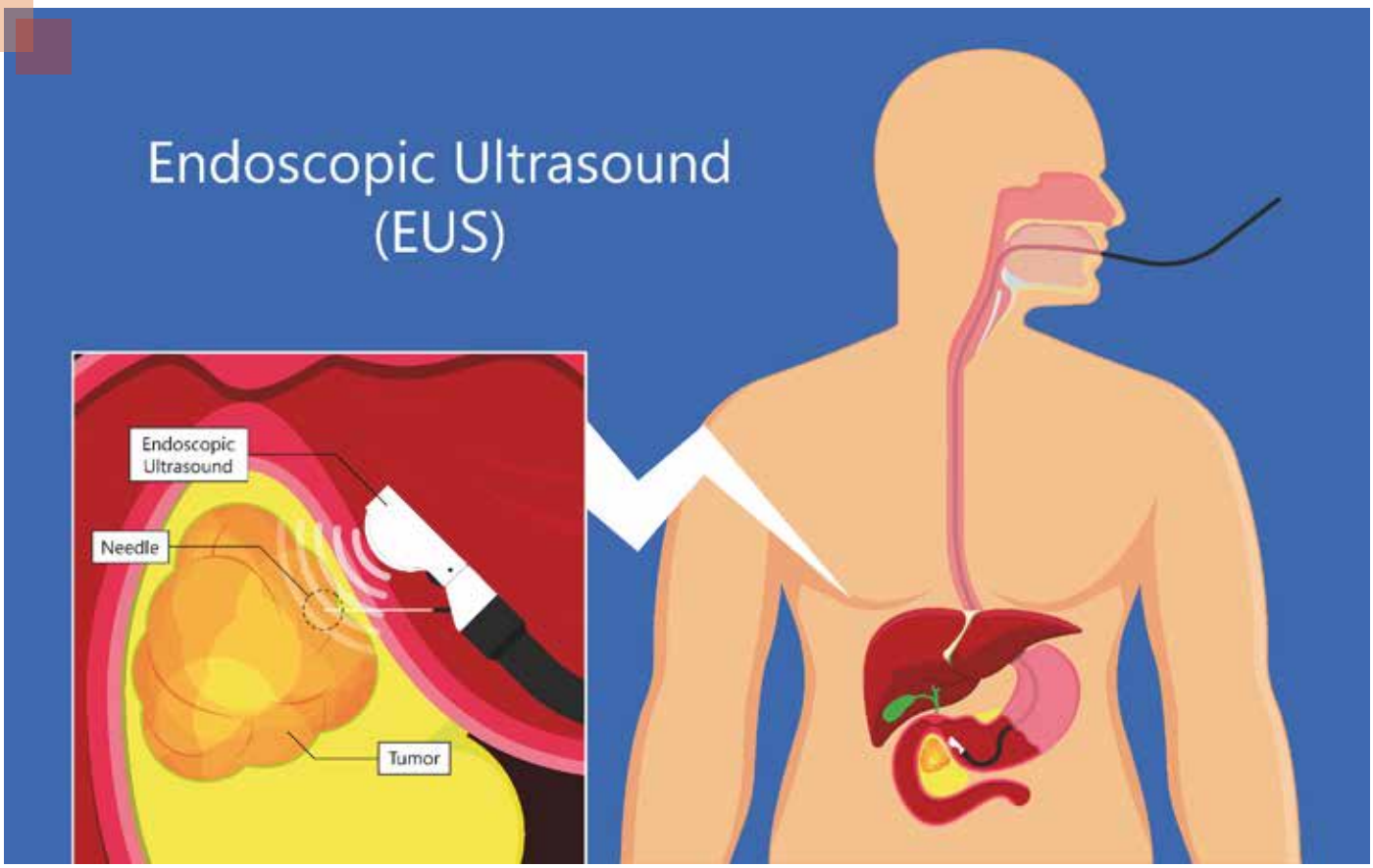
Tuberculosis is big concern worldwide, specifically in India. We have enough literature for pulmonary tuberculosis but in extrapulmonary TB specially in gastrointestinal TB (GI TB), we had very less and unorganized knowledge. Many thanks to Dr Vishal Sharma who conceptualized this burning issue and came up with a much-awaited book, 'Tuberculosis of Gastrointestinal Tuberculosis'. This book provides detailed information on the clinical presentation, diagnostic evaluation and management aspects. Each and every aspect of GI TB is covered beautifully in this book. This book is very helpful for clinicians, residents and students of medicine, gastroenterology, gastrointestinal surgery. There are some chapters which are unique, without much prior reviews, one of which is role of endoscopic ultrasound (EUS) in such patients.

Being passionate about EUS, it was an interesting but challenging task for me to write about the role of EUS in GI TB as there was very limited literature. Luckily, we had multiple publication on EUS which includes GI TB. There is a diagnostic challenge in making of diagnosis of GI TB and its often delayed. Role of anti-tubercular treatment (ATT) therapeutic trial based on clinical suspicion alone and practised in many centres; can have adverse consequences including hepatitis and acute liver failure, should be avoided.

Endoscopic ultrasound (EUS) is a very important tool in the diagnosis of GI TB, as most of the abdominal structures are accessible for tissue acquisition except for a limited role in luminal tuberculosis. There are some typical diagnostic features on EUS suggestive of tuberculosis, however, it is always advisable to get tissue if feasible. TB is diagnosed on the basis of presence of caseating granuloma on microscopy with either acid-fast bacilli (AFB) positivity on Ziehl-Neelsen (ZN) stain or positive geneXpert or TB-PCR or a positive culture for mycobacteria. EUS can also be used as a good modality for treatment response on follow-up.



Analysis of Caudate Lobe Biliary Anatomy and its Implications in Living Donor Liver Transplantation - A Single Centre Prospective Study

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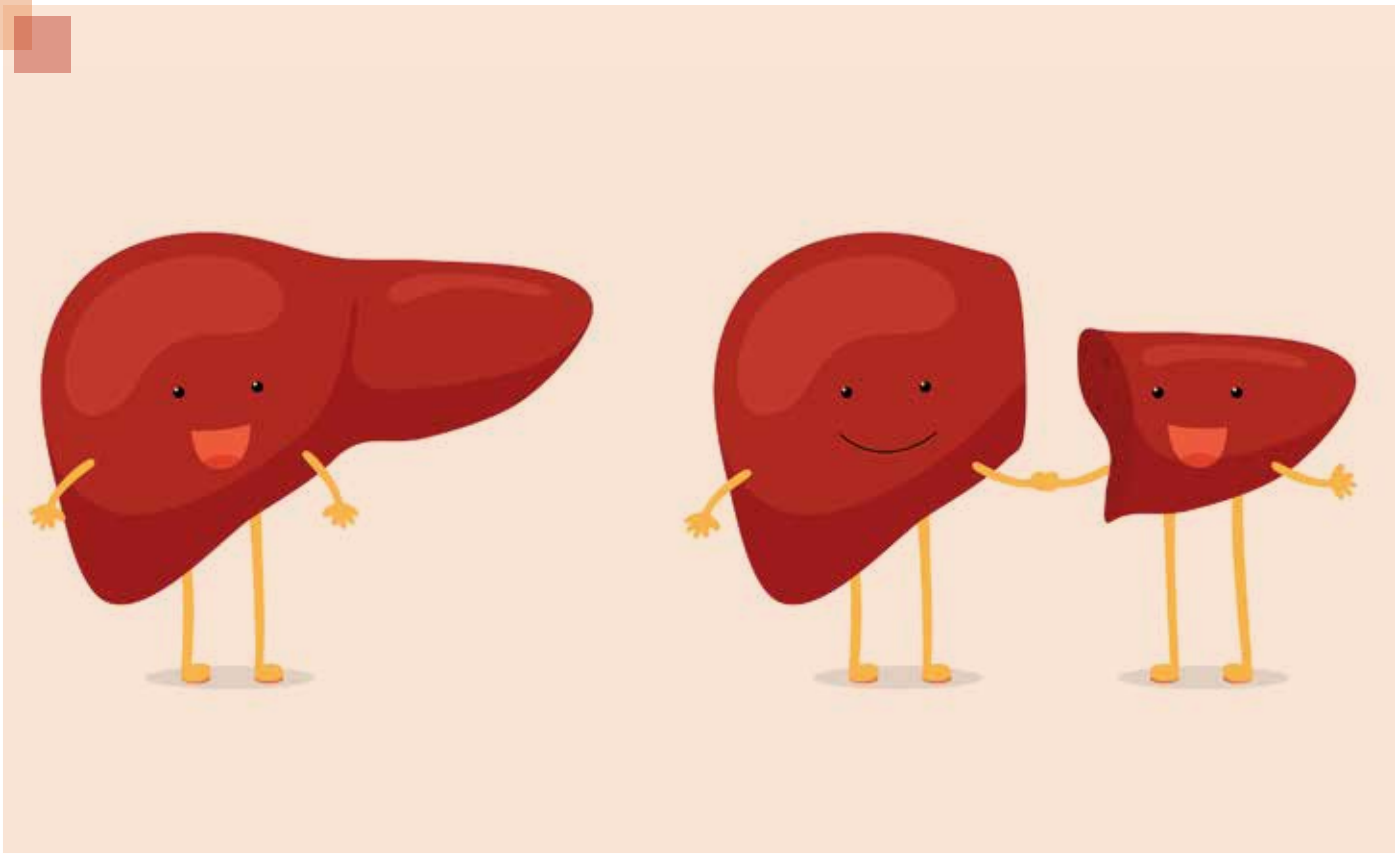
Biliary complications are a significant cause of morbidity after living donor liver transplant (LDLT). Bile leak may occur from bile duct (anastomotic site in recipient and repaired bile duct stump in donor), cystic duct stump, cut surface pedicles or from divided caudate ducts. The first three sites are amenable to post-operative endoscopic stenting as they are in continuation with biliary ductal system. However, leaks from divided isolated caudate ducts can be stubborn. To minimize caudate duct bile leaks, it is important to understand the anatomy of hilum with attention to the caudate lobe biliary drainage.

This single centre prospective study of 500 consecutive LDLTs between December 2011 and December 2016 aims to define the biliary anatomy of the caudate lobe in liver donors based on IOCs with special attention to crossover caudate ducts and to study their implications in LDLT. Caudate ducts were identified in 468 of the 500 IOCs. Incidence of left to right cross over drainage was 61.37% and right to left was 21.45%. Incidence of bile leak in donors was 0.8% and recipients was 2.2%.

Intra-operative cholangiogram provides an excellent method to study the normal caudate duct biliary anatomy. Classifying caudate ducts has many implications in living donor liver transplant which can also be extrapolated to split liver transplant and hepatectomies for other indications. It helps in minimising and managing post-operative bile leaks in living donor liver transplant. Also, proper knowledge of caudate duct anatomy may be used for reconstruction of relevant caudate ducts in recipient of left lobe graft with caudate lobe, thus increasing the functional liver volume. We have found a significantly higher incidence of crossover caudate ducts as compared to other studies. This serves to make us more vigilant in tackling the divided caudate ducts to prevent stubborn bile leaks in donors as well as recipients.



Indocyanine Green Near Infrared Technology in Demarcating Midplane During Pure Laparoscopic Donor Hepatectomy: Useful But Not Necessary

Dr Vishal Chorasiya, Dr Mohammed Qaleem, Dr Kausar Makki, Dr Arif Ali Khan, Dr Furquan Ahmed, Dr Ashish Singhal, Dr Ajitabh Srivastava, Dr Suvyl Rodricks, Dr Amit Jha, Dr Anil Agarwal, Dr Piyush Srivastava, Dr Vivek Vij

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We do pure laparoscopic donor hepatectomy (PLDH) at three Fortis Hospitals in India and did 74 cases between October 2019 – March 2021 of which 31 cases done without ICG and 43 with ICG in a random fashion because of variable availability of ICG at different centres. We routinely mark the midplane without ICG but verify and correct it with ICG whenever available.

We analysed our results in these two groups with respect to peak AST/ALT and operative times (transection time and graft out time) and analysed the data using IBM SPSS version 24. Between group analysis was performed using independent t test. The level of significance was set at $p < 0.05$.

We have noticed only subtle difference in demarcation lines marked with or without ICG (in ICG group) and that too occasionally. Whenever this happens we follow the ICG demarcation line. Our results showed peak mean AST 216.61+112.99 in ICG group versus 280.10+167.53 in non- ICG group, t -1.962, p 0.06, peak mean ALT 205.19+106.23 in ICG group versus 244.35+108.12 in non-ICG group, t -1.553, p 0.13. Mean parenchymal transection time (min) was 75.86+29.69 for ICG group versus 76.29+25.43 in non-ICG group, t -0.065, p 0.95 and mean graft out time (from first port to graft out) (min) was 344.77+101.41 in ICG group versus 364+88.80 in non-ICG group, t 0.870, p 0.39.

The difference in AST/ALT between groups in our study was not significant. Similarly, the mean transection and graft out time in both groups were also comparable. The reason for this difference could be that the data groups presented by Kim J et al were sequential unlike being random in our series and so confounding effect of learning curve could not be ruled out in their study.

To conclude, though the role of ICG for optimal duct division [2] and demarcating exact midplane is definitely superior but this may not translate into better biochemical recovery or reduced operative times for donors.

References

1) Kim J, Hong SK, Lim J, Lee JM, Cho JH, Choi Y, Yi NJ, Lee KW, Suh KS. Demarcating the exact midplane of the liver using indocyanine green near-infrared fluorescence imaging during laparoscopic donor hepatectomy. Liver Transpl. 2021 Feb 14. doi: 10.1002/lt.26019. Epub ahead of print. PMID: 33583130.

2) Hong SK, Lee KW, Kim HS, Yoon KC, Ahn SW, Choi JY, Kim H, Yi NJ, Suh KS. Optimal bile duct division using real-time indocyanine green near-infrared fluorescence cholangiography during laparoscopic donor hepatectomy. Liver Transpl. 2017 Jun;23(6):847-852. doi: 10.1002/lt.24686. PMID: 27935193.

Utility of Prothrombin Complex Concentrate as First-Line Treatment Modality of Coagulopathy in Patients Undergoing Liver Transplantation: A Propensity Score-matched Study

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Abstract

Background: Transfusion management during liver transplantation (LT) is aimed at reducing blood loss and allogeneic transfusion requirements. Although prothrombin complex concentrate (PCC) has been used satisfactorily in various bleeding disorders, studies on its safety and efficacy during LT are limited.

Methods

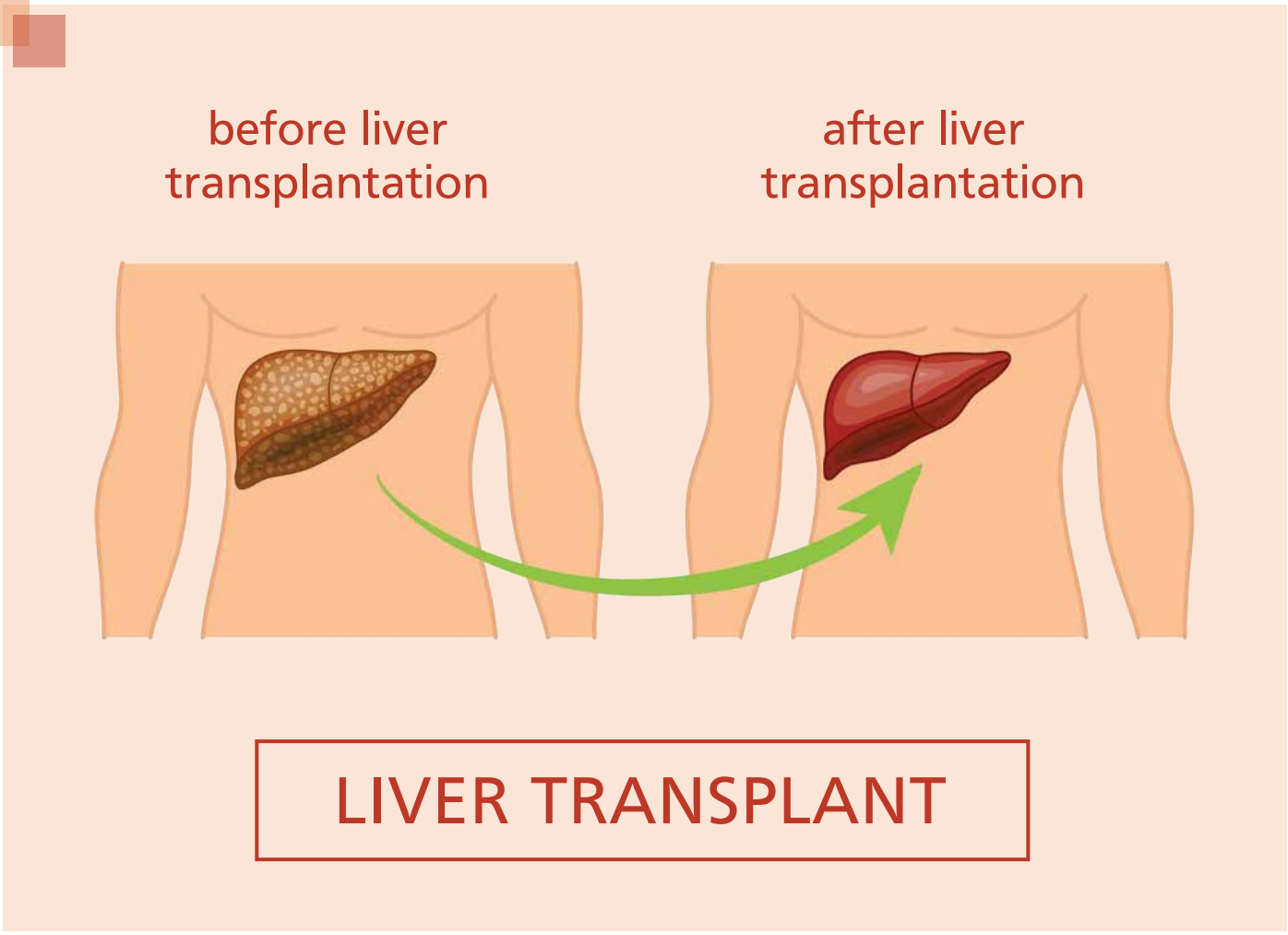
A retrospective chart review of adult patients who underwent living donor LT at a single institute between October2016and January 2018, was carried out. The safety and efficacy of PCC in reducing transfusion requirements intraoperatively in patients who received PCC were compared with patients who did not receive PCC.A propensity score-matching technique was used, at a 1:1 ratio, to remove selection bias.

Results

After completing the 1:1 propensity score-matched analysis, 60 pairs of patients were identified. The use of PCC was associated with significantly decreased red blood cell transfusion requirements (6.2 ± 4.1 vs. 8.23 ± 5.18,P< 0.001) and fresh frozen plasma transfusion requirements (2.6 ± 2 vs. 6.18 ± 4.1,P< 0.001).The number of patients developing postoperative hemorrhagic complications was higher in the non-PCC group.

Conclusions

During LT, the use of PCC led to decreased transfusion requirements. No thromboembolic complications related to PCC were noted in this series.



A Life of Substance

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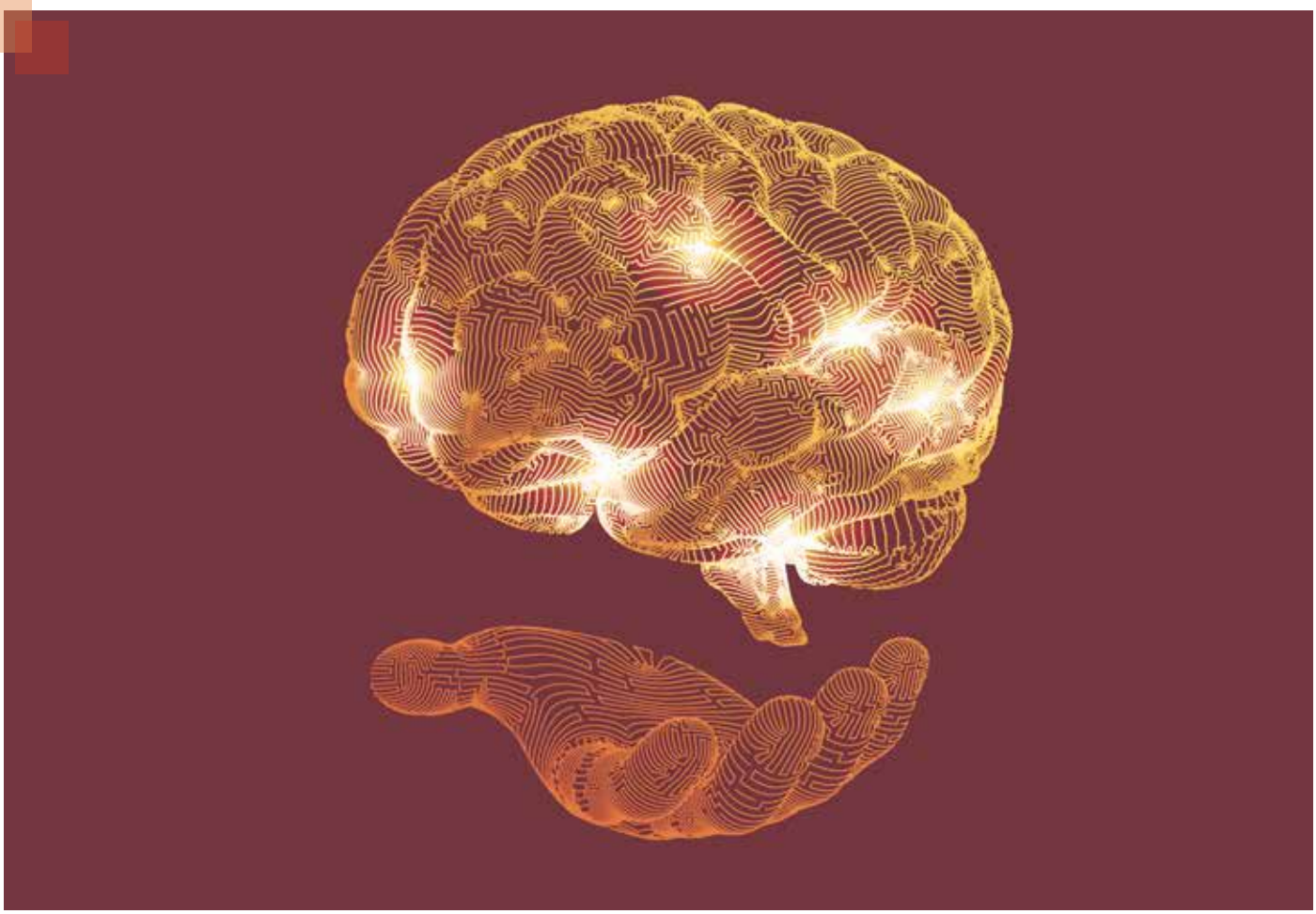
No one drinks their first glass of alcohol ever thinking it would result in an addiction. People first start using substances simply out of curiosity, because they've seen people they look up to doing it, or to fit in with their peer group.

At the same time, we are surrounded with myths about the so-called benefits of many of these substances – about how they can help us relax and cope with stress, help us focus better, sleep better, feel more energetic, be more creative, and the list goes on. Media portrayals that normalize, and at times glorify, the use of substances doesn't help either.

Unfortunately, what starts with the idea of harmless experimentation and a way of coping with the challenges of life soon turns into a cycle of chemical dependence which impacts every aspect of our life. Taking a drug for the first time is a choice but what follows, is a disease.

Think about it, as children we never needed alcohol or drugs to have a good time with our friends. Just spending time with them, talking, laughing, playing was enough. We don't need substances to cope with stress or have a good time. Learn to say 'no' to things that will be harmful to your own well-being and that of your loved ones.

As you go about day-to-day life, prioritize your health and happiness. Take time out to spend with friends and family doing the things you enjoy. Take breaks where you make time for some physical exercise or sports, engage in a creative activity to express yourself and de-stress. Learn new skills and cultivate your hobbies. Find a sense of meaning and build life around a purpose. Most of all remember, you are not alone. If you find yourself struggling, don't be afraid to reach out and ask for help.



WPSU (Wellness Programme for Substance User) - for Alcohol Relapse Prevention: A New Avenue

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ABSTRACT

Objectives

There is a large unmet need for a robust system for relapse prevention in alcohol dependent. Meditation is an emerging non-pharmacologic treatment for alcohol relapse prevention. This 16-week prospective study was done to evaluate efficacy of WPSU (a combination of meditation, motivation, coping strategies and group support) for relapse prevention.

Materials and Methods

72 adult alcohol-dependent patient were enrolled for online WPSU. 68 patients completed the seven-day online WPSU meditation course supplemented by at-home meditation and "standard of care" therapy. Outcome measures included relevant surveys.

Results

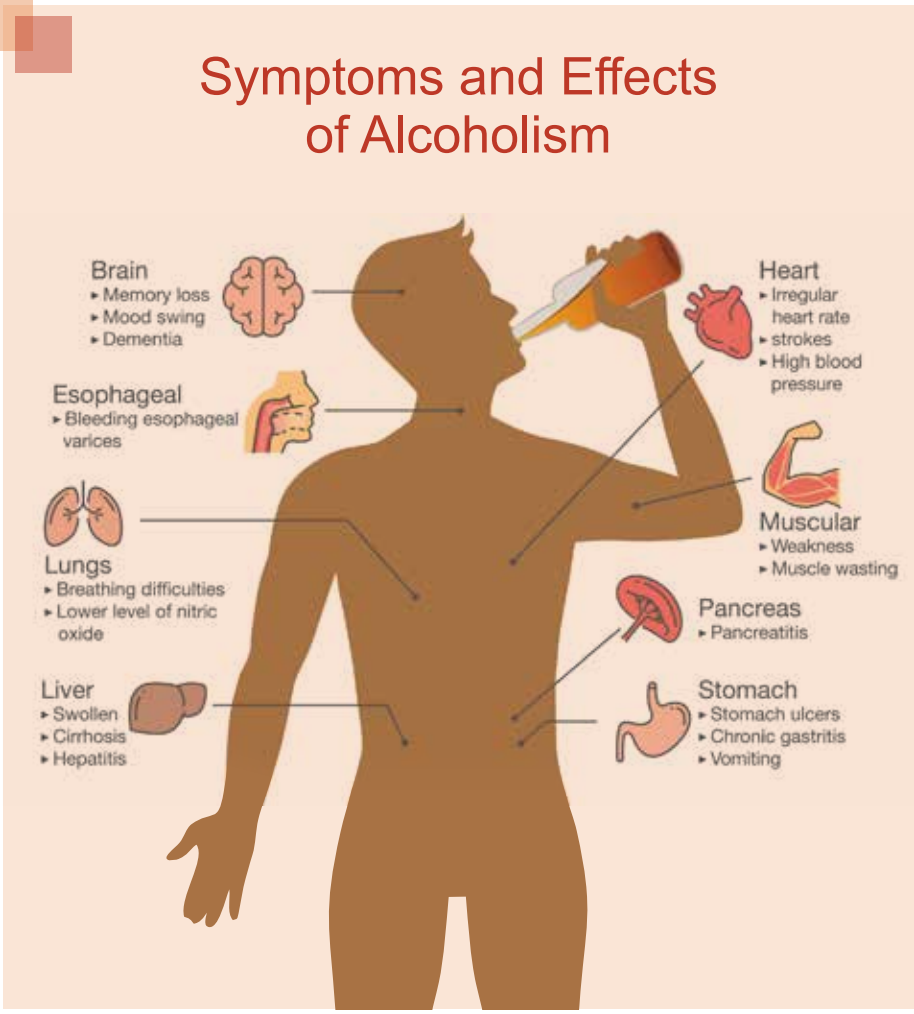
59 patients (86.76 %) were abstinent for 30.9 (SD = 22.2) days at enrolment. Completers (N = 59) attended 85% of meditation course sessions and meditated on average 4.6 (SD = 1.1) days per week; they were abstinent on 94.5% (SD = 7.4) of study days, with 49% reporting complete abstinence and 51% reporting 1 or more heavy drinking days. Their severity of depression, anxiety, stress ($P < 0.05$), and craving ($P < 0.08$), documented relapse triggers, decreased, and the degree of mindfulness increased ($P < 0.05$). The WPSU course was rated as a "very important" (8.7/10, SD = 1.8) and "useful relapse prevention tool" (8.5/10, SD = 2.1); participants reported being "very likely" to continue meditating (9.0/10, SD = 1.5). "Gaining skills to reduce stress," "coping with craving," and "good group support" were the most common qualitative comments about the course value. There were no adverse events or side effects.

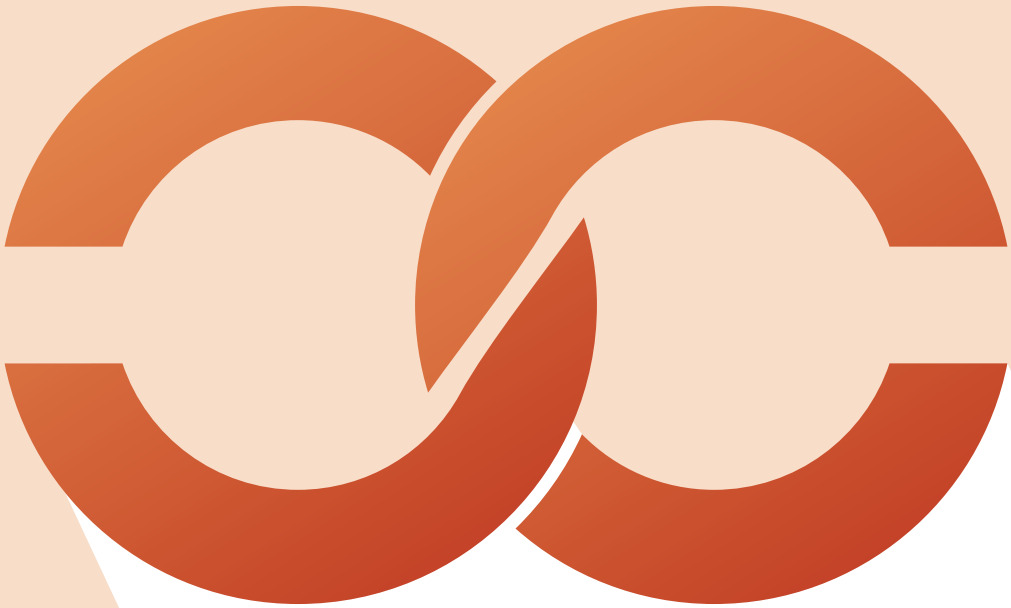
Conclusions

Meditation may be an effective adjunctive therapy for relapse prevention in alcohol dependence. Needs revalidation in larger RCT.

Keywords

WPSU (wellness programme for substance user) alcohol dependence, meditation; relapse prevention addiction; substance use disorders.





CLINICAL CONVERSATIONS

Interesting Cases

Novel Power Spiral Enteroscopy Journey from Mouth to Colon Made Faster and Unique

Dr Ravindra B S
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Dr Balaji, Dr Prasanna KS – Hepatology

Dr Gurucharan Shetty
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Fortis Hospital BG Road, Bangalore

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What is new and unique

Power spiral enteroscopy a new kid on the block in field of endoscopy, introduced in India in early 2019 to screen the small intestine which was the difficult area to see. In India, less than 20 centres are presently doing this procedure. Fortis Bannerghatta Road, Bangalore, has the unique advantage of using this new instrument in Karnataka for first time and in the Fortis group as well.

Power spiral enteroscope reaches from the oral cavity to the caecum in less than an hour, the same as double balloon and single balloon, which was time consuming and difficult to achieve. It can be used for therapeutic procedures like APC, hemoclip, hemospray in small bowel bleeding and Dilation of small Bowel strictures and stenting.

Our first case of pan enterscopy from oral cavity to caecum at Fortis BG Road was done in 45 minutes. Less than two to three cases of power spiral enteroscopy guided hepatico jejeunostomy stenting have been done in India. The first one in Karnataka was carried out at Fortis Bannerghatta Road, Bangalore.

Case

30-year-female was referred to Fortis BG Road by a Gastroenterology colleague from nearby district.

She underwent hepatico jejeunostomy for choledochal cyst (Dilated common bile duct) at a local hospital. A fortnight later she developed fever and jaundice, for which she was given intravenous antibiotics and treated conservatively. The jaundice worsened. Ultrasound and MRI with MRCP revealed block at the hepatico jejeunostomy site.

She underwent a PTBD procedure at a local hospital; this happened before the first wave of the COVID pandemic. Once the pandemic set in she did not revisit a hospital but she continued at home till 2022. In January 2022, after the third wave she developed jaundice and high-grade fever, when she revisited her doctor. The PTBD catheter which is usually kept for 3 to 4 months, was in situ for 2 year 8 months. She had formed stones in the hepatic ducts and around PTBD site. The PTBD catheter had become embedded, and it had lost its resilience and started breaking. The local Gastroenterologist attempted to reach the hepatico jejeunostomy site but could not reach it as the loop of intestine was longer. The patient was then referred to Fortis BG Road.

There were three issues to be addressed (1) the PTBD catheter was stuck, (2) there were multiple intrahepatic stones and (3) there was a long length of bowel that had to be negotiated to reach the PTBD site.

A team of Gastroenterologists led by Dr Ravindra BS and his colleagues, Dr Prasanna, Dr Balaji and Intervenional Radiologst Dr Gurucharan Shetty carried out this unique procedure of hepatojejeunostomy restenting.

First, the correct loop of entering hepatico jejeunostomy was done. Initially the enteroscope went in to the opposite loop which was set right using the fluoroscope. It took almost an hour as it was a post-operative procedure.

The lower end of the PTBD catheter was entangled and its clip had got stuck. With a rat tooth forcep, it was held from the jejeunal side and the interventional radiologist tried to slowly pull it but it was not moving. A guidewire was then passed inside the PTBD catheter which was held by power spiral enteroscope, it was road railed and removed through the skin.

In the second step the intrahepaic stones were cleared by a balloon sweep done from both the right and left hepatic ducts. Restenting was done from the PTBD site. The patient was discharged after a one day stay in the hospital.

The liver function tests and an ultrasound were done a fortnight later. The ultrasound revealed no stones and the PTBD was removed. Thereafter, the patient has been healthy; a repeat interventional surgery was avoided.

Learning Points

- Hepatico jejeunostomy /choledochojejeunostomy structures can be dilated with power spiral enteroscopy.
- It avoids one more surgery in selected cases.
- Team work by Gastroenterology GI and HPB surgeons and Interventional radiologists are the key for successful management.

Figure 1: Hepatico-jejunostomy site with stent in situ

Figure 2: Fluoroscope image with guide wire into the biliary system

Figure 3: HJ site with sludge material

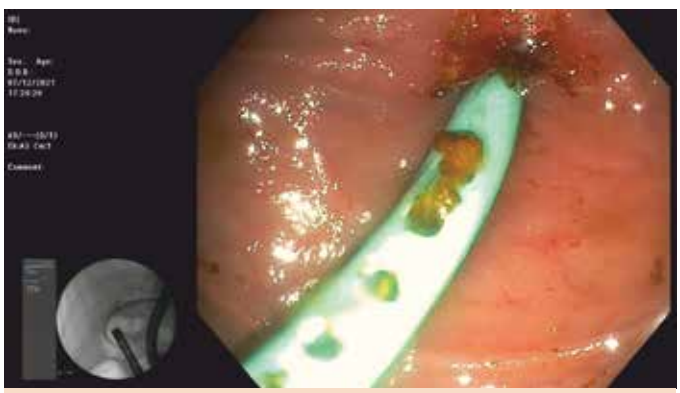
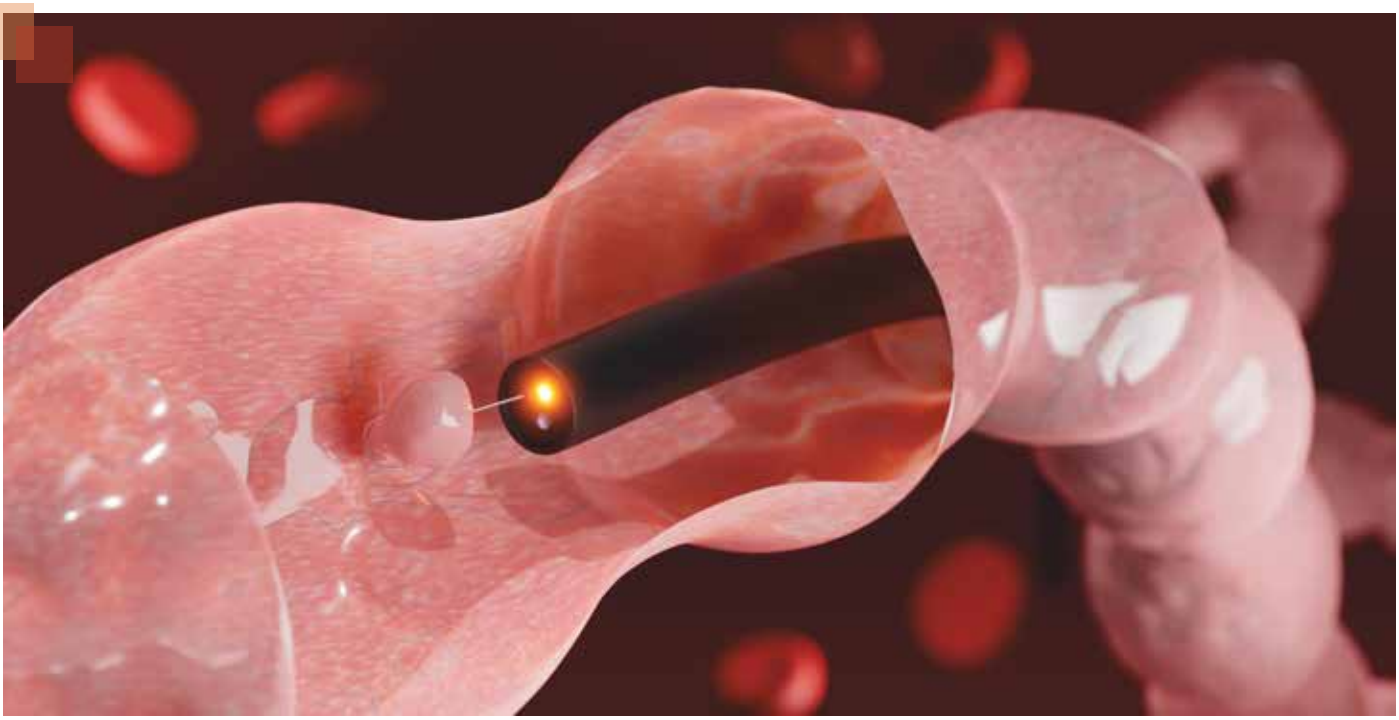


Figure 4: HJ site with plastic stent



Stereotactic Body Radiation Therapy (SBRT) for Liver Tumours

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Radiation therapy for liver tumour was usually not done till few years back for the fear of radiation induced liver damage. A recent radiation therapy technique known as Stereotactic Body Radiation Therapy (SBRT) has been a complete game changer in that respect.

SBRT involves temporarily freezing diaphragm and liver movement by using some suitable "motion management technique." Following this, the liver tumour as well as the normal part of liver is carefully marked on a radiation planning CT as well as MRI scans. And then radiation is carefully focused only on the part of liver affected by the tumour while saving the normal unaffected part of liver and other surrounding organs. Every day before starting the radiation treatment delivery, the patient and position of the liver is verified using a Cone Beam CT scan mounted on the LINAC machine.

Case Example

A 60-year-old lady, Ms. RD, was diagnosed with carcinoma endometrium in April 2019. She underwent radical abdominal hysterectomy with pelvic and

paraaortic lymph node dissection which revealed it to be stage IB grade III cancer. She underwent adjuvant pelvic radiation therapy till July 2019.

A year later in July 2020, she came for a review and follow up CT scan abdomen showed 3 cm lesion in segment VI of liver. This was also confirmed with PET CT, Triple phase MRI Liver (Figure 1 and 2) and FNAC which also confirmed that this was the only site of metastases. Patient was completely asymptomatic and well preserved.

She was offered the options of undergoing surgical resection or SBRT, as both options are equally effective. Patient opted for SBRT, and we treated her liver metastases with a

high dose focused radiation therapy to a high dose of 60Gy delivered over 5 days. (Figure 3) She tolerated treatment well and was started on adjuvant chemotherapy a week after completion of RT. After a follow up of 21 months from Liver SBRT, patient is completely disease free. (Figure 4)

Conclusion

SBRT allows us to give highly effective, precise radiation to liver lesions without any collateral damage to rest of the liver. As compared to surgery, radiation therapy is a non-invasive technique. This technique is useful for both primary liver tumours (Hepatocellular Carcinoma and Intra Hepatic Cholangiocarcinoma) as well as liver secondaries/metastases.

Figure 1: Solitary FDG avid liver metastases on PET CT scan

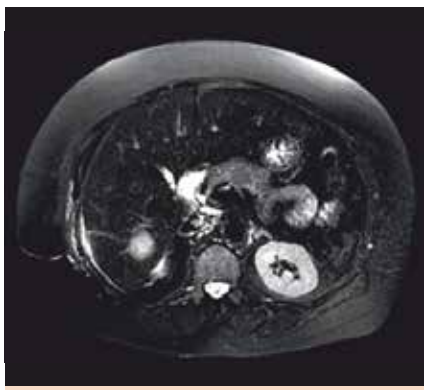

Figure 2: Solitary liver metastases on Triple phase MRI liver

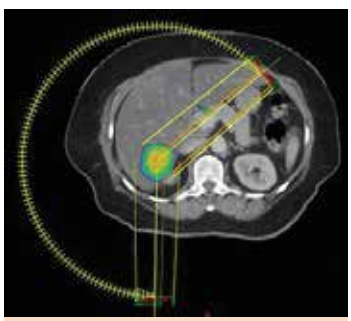

Figure 3: Liver SBRT dose on Radiation planning scan

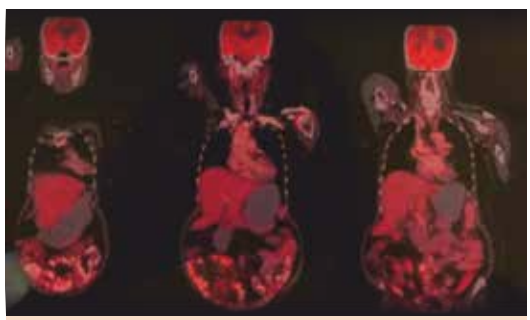

Figure 4: Follow up PET CT scan showing no evidence of disease

Transjugular Intrahepatic Porto Systemic Shunt (TIPS) in Split Liver Graft Transplant Recipient

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TIPS in transplant liver (currently under peer review in American journal of interventional radiology). This is the rare case, which was first time performed in Delhi-NCR region at FMRI.

Liver transplantation is the standard treatment for end stage liver disease and in some cases of acute liver failure. Transplant recipients are currently living longer and as a result there is an increased chance of graft failure (due to longevity) or recurrent underlying disease. TIPS creation in such cases, though technically challenging, provide symptomatic relief from portal hypertension and its complications and act as a bridge to re-transplantation.

After liver transplantation, portal hypertension may reoccur because of recurrent underlying disease, graft failure, and vascular or biliary complications. Potentially less invasive temporizing procedure like TIPS are being preferred in such clinical settings. TIPS in such cases provide a low-pressure channel between the hepatic and portal venous system, reducing the risk of variceal bleeding and problem of refractory ascites, with success rates comparable with TIPS in pretransplant patients and fill the gap to future re-transplantation. There has always been debate whether TIPS in transplanted liver is more difficult than pretransplant TIPS. Though many studies state that in TIPS the whole graft liver transplant does not possess additional difficulties, except in few cases of acutely angulated piggy back anastomosis. But in split graft patients due to under sizing in initial transplant period (especially in left split grafts) and future graft hypertrophy leading to hepatic/portal vein disorientation, as seen in our case, may possess additional technical problems.

In conclusion, TIPS procedure for patients with split graft liver transplantation presenting with refractory ascites and melena may be an effective although technically challenging, procedure which lead to improvement in abdominal ascites and no further melena in our patient during 6 months of clinical follow up. It improves quality of life particularly in patients with good hepatic reserve, however careful patient selection and thorough anatomical evaluation of transplant venous anatomy is required for clinical and technical success.

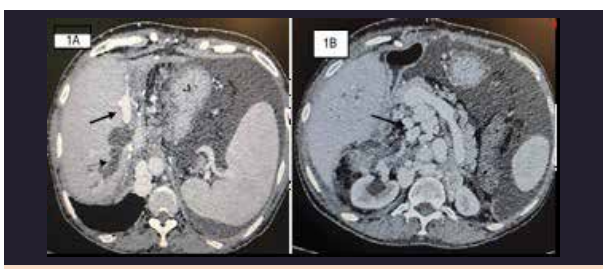


Figure 1: 1A-Contrast enhanced CT (Porto venous phase) showing dilated posterior segmental biliary duct (small black arrow) and vertical angulation of anterior segmental portal vein (black arrow) with 1B image showing dilated retroperitoneal and mesenteric collaterals (black arrow)

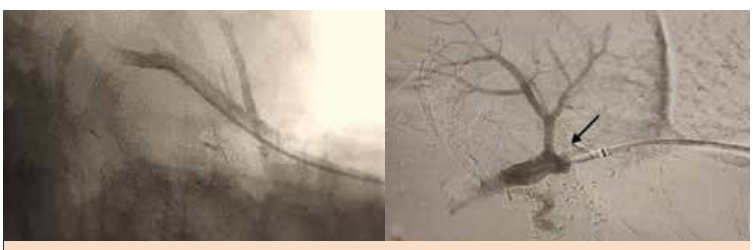


Figure 2: Fluoroscopic spots 2A showing cannulation of middle hepatic vein and surface clip used as landmark (dotted arrow) and 2B showing entry into portal vein close to clips.

Figure 4: Axial Doppler image showing good intrastent flow (PSV more than 100cm/sec)

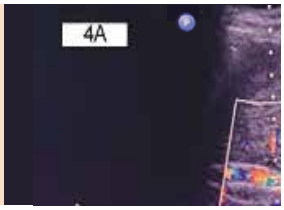
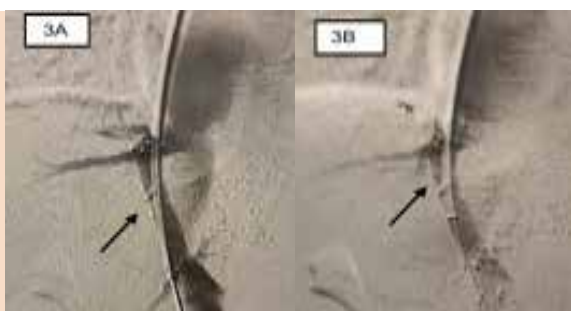


Figure 3: Fluoroscopic spots 2C and 2D showing placement of two stents



Bilateral SEMS Placement for a Case of Hilar Block in a Patient of Metastatic Carcinoma Gall Bladder

Dr Bimal Kumar Sahu, Dr Prayas Vats, Dr Rayies, Dr Saurabh Argal, Dr Adil Farooq Malik, Dr Sanjay Khanna
Department of Gastroenterology & Hepatobiliary Sciences

A 62-year-old female, known case of metastatic Ca Gall Bladder (neck) presented with jaundice, fever and pruritus (cholangitis). She had similar history of cholangitis 2 months ago, for which she underwent ERCP with CBD stenting (plastic) elsewhere. MRCP revealed GB neck mass with hilar separation and absence of pneumobilia. So, patient was planned for plastic stent removal and placement of B/L metal stents. Her blood investigations at admission were:

	21/02/2022
Hb (g/dL)	10.4
TLC (thou/µL)	21.5
Plt. Count(thou/µL)	369
DLC (%)	N88 L7 E0
Total/Direct Bilirubin(mg/dL)	13.21/11.39
SGOT/SGPT(U/L)	119/66
Al Phosphatase(U/L)	916
Alb/Glb(g/dL)	1.4/4.6
BUN/ S. Creat(mg/dL)	10/1.14
Sodium/ Potassium(mmol/L)	120/4.53
PT/INR(sec)	19.3/1.63
APTT(sec)	29.7

	05/03/2022
Hb (g/dL)	8.1
TLC (thou/µL)	16.90
Plt. Count(thou/µL)	203
DLC (%)	N83 L10 E2
Total/Direct Bilirubin(mg/dL)	4.60/3.63
SGOT/SGPT(U/L)	620/23
Al Phosphatase(U/L)	577
Alb/Glb(g/dL)	2.1/2.9
BUN/ S. Creat(mg/dL)	10/1.30
Sodium/ Potassium(mmol/L)	131/4.37
PT/INR(sec)	
APTT(sec)	

Technique (ERCP)

Previously placed plastic stent was removed using a snare. The guide wire was placed in both ductal systems with difficulty. Cholangiogram confirmed hilar separation with long segment stricture involving the upper and mid CBD with B/L gross IHBRD. The stricture was dilated with SBDC up to 10Fr. Two uncovered SEMS (self-expanding metal stent) placed in both systems drained white bile and pus. There were no post-procedure complications.

On post procedure day three there was a significant drop in bilirubin (24mg/dl to 17mg/dl), the fever subsided and there was improvement in pruritus. On discharge her bilirubin came down to 4 mg/dl and she was referred to the Department of Oncology for further management.

On follow up, the patient is fine with all her symptoms having completely resolved. She is on chemotherapy.

Bilateral metal stenting is being done routinely in Fortis Hospital, Shalimar Bagh in such cases. Endoscopic management is always preferred over per cutaneous route (PTBD) due to absence of risk of puncture site leakage and accidental catheter displacement.

Figure 1

Figure 2

Figure 3

Figure 4

TACE Intervention in Liver Tumour (HCC)

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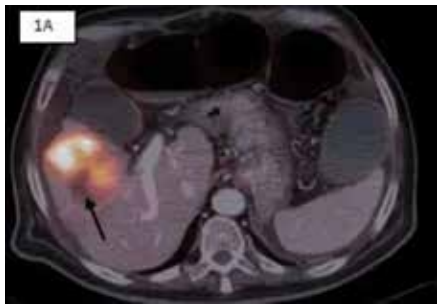
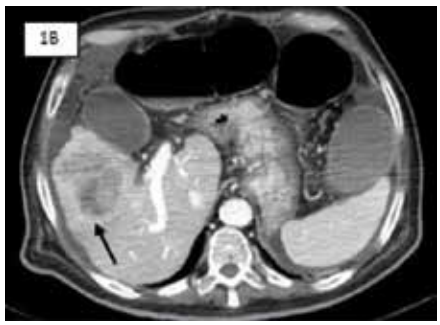
Hepatocellular Carcinoma (HCC) is the most common type of primary liver cancer. Hypoglycemia is a well-established paraneoplastic manifestation of HCC. Cytoreduction by surgery or Transarterial Chemoembolization (TACE) has been effective treatment options in such cases when conservative treatment fails. Tumor Lysis Syndrome (TLS) is an oncological emergency following treatment of malignancies with high cell turnover and can be seen in liver-directed therapy in the form of both ablative therapies and transarterial therapies for HCC.

Authors present a rare case of 65-year-old male, with HCC presented with symptoms of refractory hypoglycemia which was managed by TACE procedure with further patient developing TLS which was medically managed.

The HCC with paraneoplastic manifestation must be considered in a patient with chronic liver disease who presents with refractory hypoglycemia. Conservative treatment with dextrose and steroids is the recommended treatment option and surgical treatment or TACE is considered in non-responders. TLS should always be considered in patients who develop classical metabolic abnormalities with impaired renal function after any therapy leading to increase tumour cell turnover or cell death. Prompt treatment should be started in such cases and pretreatment risk factors of developing TLS should be always kept in mind before planning any treatment.





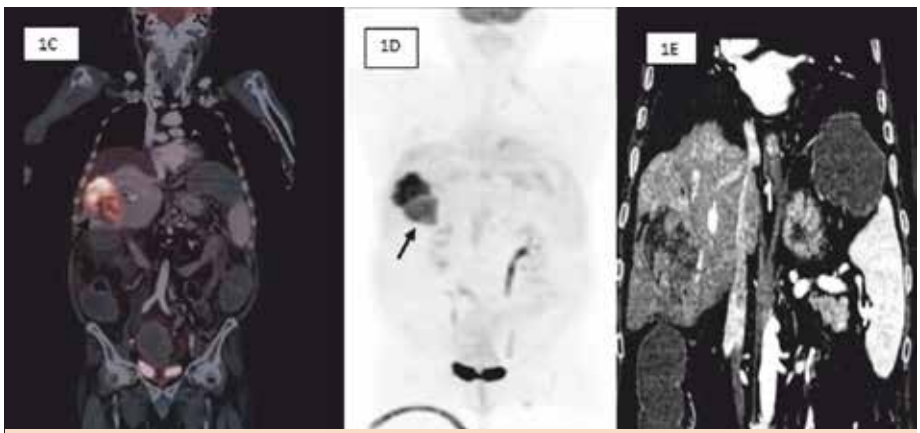


Figure 1: (a,b,c) - Positron Emission Tomography and Computed Tomography (PET-CT) images (axial and coronal) showing hypermetabolic avid mass in right lobe of liver (black arrow); (d,e): Corresponding axial and coronal CECT images showing heterogeneously enhancing mass lesion in right lobe liver with non-enhancing necrotic areas inferiorly (black arrow)

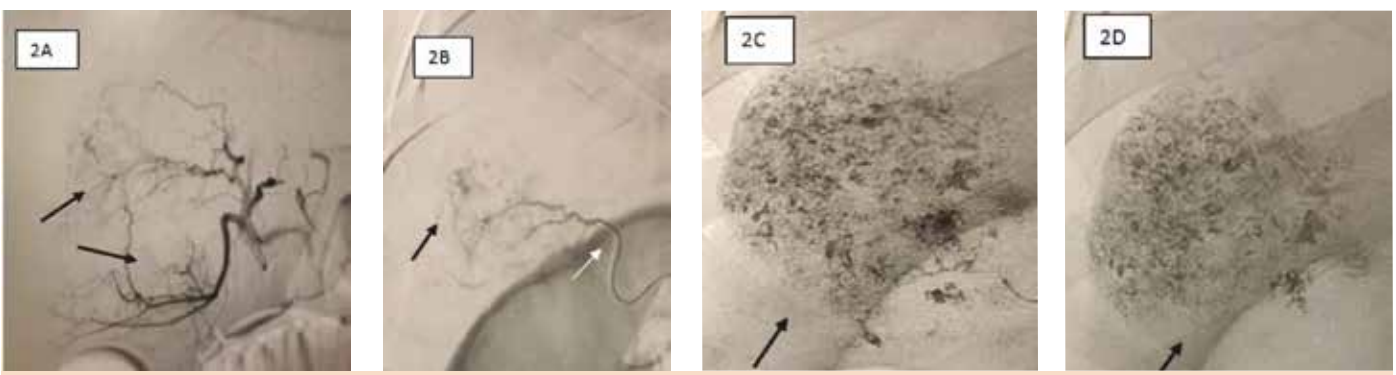


Figure 2:
(a,b) - Coronal angiographic images of right hepatic artery showing diffuse tumour blush (black arrow) with microcatheter placed in segmental tumoural feeder artery (white arrow);
(c,d): Fluoroscopic spot images showing patchy lipiodol deposition throughout tumour (black arrow)

Plug Assisted Retrograde Tranvenous Obliteration (PARTO) for a Patient of CLD with Shunt Encephalopathy

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Department of Gastroenterology & Hepatobiliary Sciences

A 55-year-old female, known case of Chronic Liver Disease (early stage CLD, CTP-B/7/15-no major decompensations like ascites, upper gastrointestinal bleed or jaundice) presented with altered sensorium. She had similar history of recurrent hepatic encephalopathy in the past (three episodes in the last one year) requiring hospitalization which were managed conservatively. Initial bio-chemical tests showed:

Hb (g/dL)	8.1
TLC (thou/µL)	3.79
Plt. Count(thou/µL)	120
DLC (%)	N67 L19
Total/Direct Bilirubin(mg/dL)	0.97/0.31
SGOT/SGPT(U/L)	51/41
Al Phosphatase(U/L)	87
Alb/Glb(g/dL)	2.3/3.8
BUN/ S. Creat(mg/dL)	8/0.64
Sodium/ Potassium(mmol/L)	138/3.42
PT/INR(sec)	14.4/1.20 13.6/1.13
APTT(sec)	24.6

As there were no other factors explaining her altered sensorium, a diagnosis of shunt related encephalopathy was considered.

Hence CECT abdomen was done which showed a large lienorenal shunt which was draining into the left renal vein.

In view of recurrent HE in the past requiring hospitalization, a decision was taken to block the shunt endovascularly. BRTO/PARTO (plug assisted retrograde tranvenous obliteration) was an obvious option to block the shunt. PARTO was performed to block this portosystemic shunt. PARTO is basically modification of BRTO in which we use a vascular plug instead of a balloon to block shunt; this significantly reduces both the procedure time and complications.

Technique

Two punctures were made in the right femoral vein. Selective cannulation of the left renal vein was done. The shunt was subsequently hooked using an angiographic catheter. A long sheath was placed inside the shunt for placing the vascular plug, while another angiographic catheter was negotiated through the shunt distal to long sheath. A 20 mm vascular plug was placed through the long sheath. The rest of the shunt was embolized with a mixture of lipiodol, gelfoam and sodium tetradecyl sulphate. Stasis was noted in shunt post procedure.

On follow up, the patient is doing well and the symptoms have completely resolved. This procedure was technically challenging due to the tortuous nature of shunt and angulation as compared to the renal vein. This procedure was performed for the first time in Fortis Hospital Shalimar Bagh.

Endovascular management is a preferred technique with a short hospital stay and most procedures being performed under local anaesthesia or conscious sedation.

Figure 1

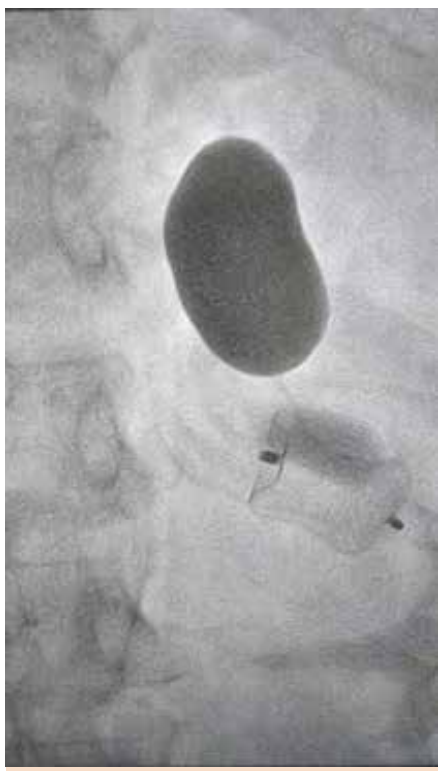

Figure 2

Venous Outflow Reconstruction Using a Polytetrafluoroethylene (PTFE) Graft in Right Lobe Living Donor Liver Transplantation: A Single Center Study

Dr Ashish Singhal, Dr Kausar Makki, Dr Vishal Chorasiya, Dr Arif Ali Khan, Dr Qaleem Mohamed, Dr Furquan Ahmad, Dr Ajitabh Srivastava, Dr Vivek Vij
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Background

Venous outflow reconstruction is very important especially in right lobe living donor liver transplantation without middle hepatic vein. Various interposition (venous or synthetic) grafts have been recommended for reconstruction of anterior sector tributaries.

Methods

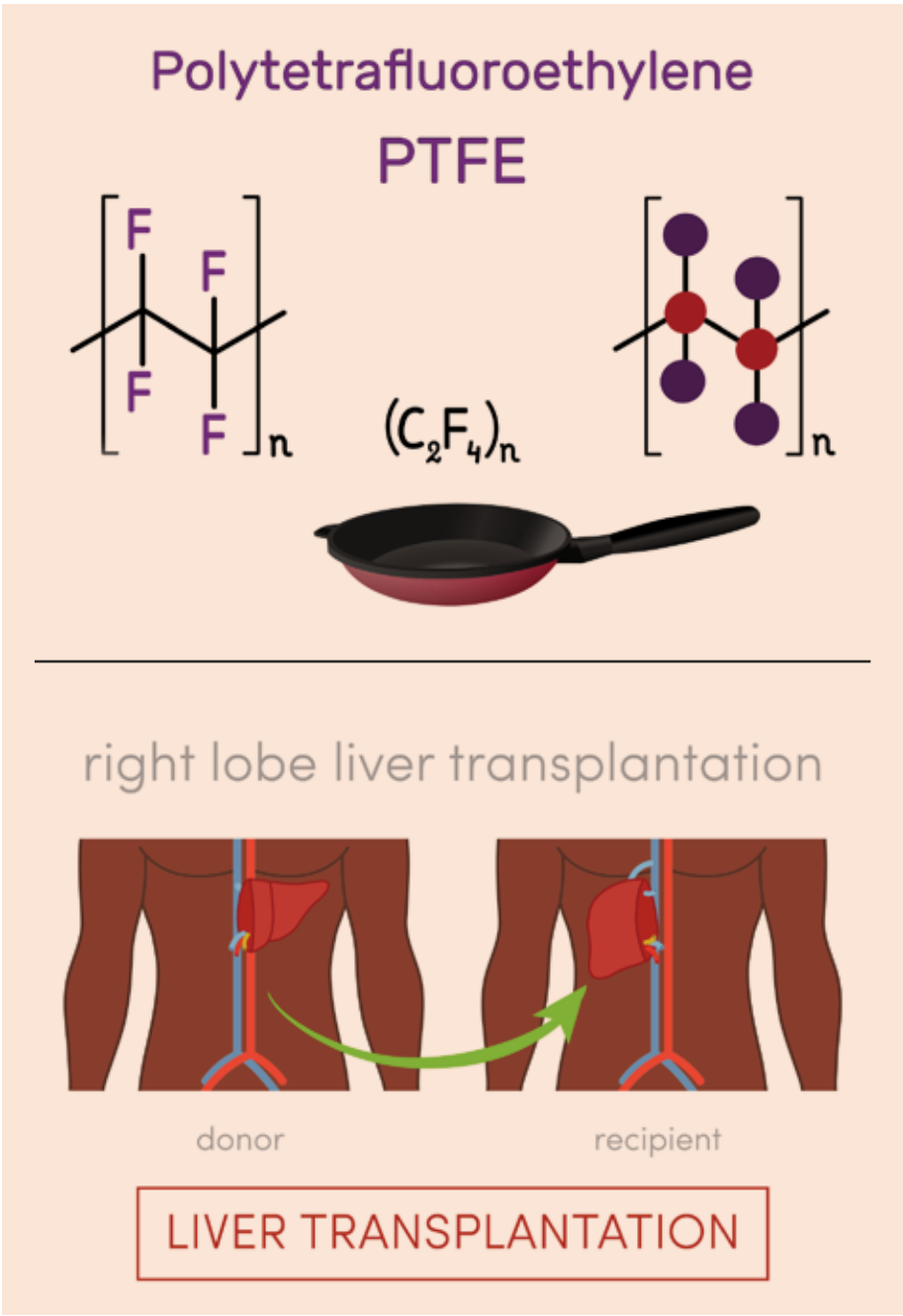
We aimed to describe our surgical technique and analyze anterior sector venous reconstruction using expanded polytetrafluroethylene graft. Retrospective analysis of prospectively collected data for 760 primary right lobe living donor liver transplantations performed at our institute between December 2011 and June 2018. Reconstruction of anterior sector: expanded polytetrafluroethylene (group A, n ¼ 705) and autologous vein (group B, n ¼ 55).

Results

Pretransplant characteristics were comparable among both groups. Group A has significantly lower cold ischemia time (68.7 ± .3.5 minutes vs 127.8 ± 7.2 minutes; P < .001) and anhepatic time (116.3 ± 5.5 minutes vs 190.81 ± 9.35 minutes; P < .001) compared with group B. There was no difference in recovery pattern of liver functions, morbidity, and mortality between the 2 groups. One- and 6-month patency rates of interposition grafts were 97.6% and 84.4% (group A) and 96.4% and 78.1% (group B), respectively.

Conclusion

In centres with limited access to homologous or autologous vascular grafts, use of expanded polytetrafluroethylene graft for anterior sector venous outflow reconstruction in right lobe living donor liver transplantation is a viable option with excellent patency and patient outcomes.



Primary Hyperoxaluria Involving the Liver with Crystal Deposits

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Case Report

A 29-year-old man was known to have multiple bilateral pyelolithotomies for the past 16 years and developed end-stage renal disease 2 years earlier. Molecular genetic testing revealed that he was homozygous for a pathogenic variant of the AGXT gene. Secondary causes of hyperoxaluria were ruled out, given the lack of evidence for malabsorption, high oxalate/low calcium intake in his diet, and lack of prematurity at birth. He was later diagnosed to have hepatitis C virus for the past 6 years, for which no treatment was taken. He was also found to be hepatitis B virus-positive 2 years prior and was on tablet entecavir. His liver function test revealed bilirubin 0.49 g/dL, serum glutamic oxaloacetic transaminase 53 U/L, serum glutamate-pyruvate transaminase 26 U/L, serum alkaline phosphatase 482 U/L, gamma

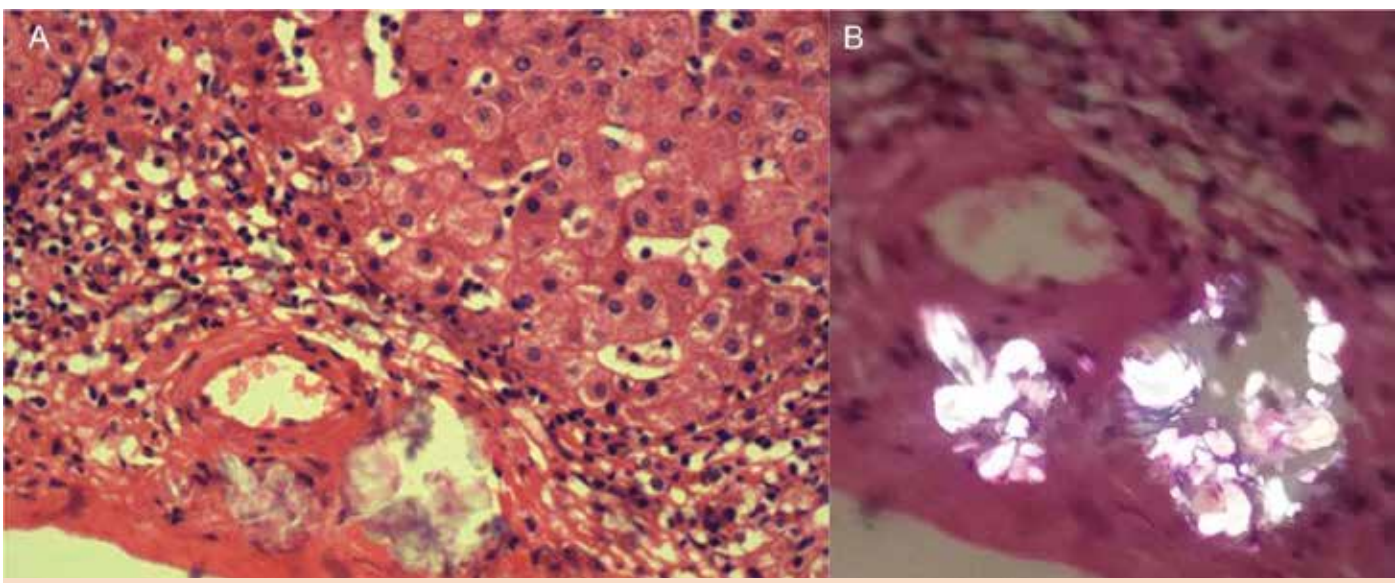

Figure 1: The portal tracts of the liver explants showing (A) oxalate deposits in the portal tracts with hematoxylin and eosin stain (203) and (B) birefringence noted within oxalate crystals on polarizing microscopy

glutamyl transferase 157 U/L, blood urea nitrogen 53 mg/dL, creatinine 7.14 mg/dL, hepatitis B virus DNA 958 IU/mL, and hepatitis C virus antibody 42 IU/mL. He underwent combined liver-kidney transplant for the same. Explant liver showed the presence of birefringent oxalate crystals at several foci within the portal tracts (Figure 1).

Primary hyperoxaluria (PH) is a rare metabolic disorder characterized by inborn errors of glyoxylate metabolism.[1] It has been classified into 3 types. PH type 1 is the most common and is caused by a mutation in the AGXT gene, which leads to a deficiency of the encoded liver-specific peroxisomal enzyme alanine glyoxylate aminotransferase.[2] PH type 2 is caused by a deficiency of glyoxylate reductase /hydroxypyruvate reductase and accounts for about 10% of genetically characterized PH cases. PH type 3 is the rarest type caused by mutation in HOGA1 that encodes the liver-specific mitochondrial enzyme 4-hydroxy-2-oxoglutarate aldolase (HOGA). Each of these mutations leads to overproduction and excretion of oxalate that gets deposited primarily in the kidney. Involvement of liver with oxalate deposits is extremely rare with only 4 cases in the previously reported literature.[1–4] Because the primary enzymatic defect lies in the liver, isolated kidney transplant is not useful in PH and dual organ transplantation is required. In our case, associated comorbidities including chronic hepatitis B and C virus might have precipitated the damage and facilitated crystal deposition.

Disclosures

Author contributions: N. Bansal designed the study, collected and interpreted the data, drafted and critically revised the article, and is the article guarantor. V. Vij designed the study and approved the final version to be published. M. Rastogi designed the study, critically revised the article, and approved the final version to be published.

Financial disclosure: None to report.

Informed consent was obtained for this case report.

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References

1. Tanriover B, Mejia A, Foster SV, Mubarak A. Primary hyperoxaluria involving the liver and hepatic arteries; images of an aggressive disease. Kidney Int. 2010;77:651.
2. Dimashkieh H, Koehler A. Primary hyperoxaluria affecting the liver. Arch Pathol Lab Med. 2002;126:1250–1.
3. Patra S, Vij M, Varghese JS, Rela M. Aggressive primary hyperoxaluria involving the liver in an adult. Liver Int. 2012;32(10):1564.
4. Kogiso T, Tokushige K, Hashimoto E, et al. Primary hyperoxaluria complicated with liver cirrhosis: A case report. Hepatol Res 2015; 45: 1251–5.

Rare Systemic Presentation in a Case of Cirrhosis of Liver

Dr Tejaswini Dande
Gastroenterologist
Fortis Cunningham Road, Bangalore

A 47-year-old female presented with a three-month history of jaundice, distended abdomen, swelling of both upper and lower limbs, and shortness of breath on exertion. She was a case of seronegative rheumatoid arthritis on methotrexate 20mg/week for four years with no other comorbidities. She was diagnosed with chronic liver disease (?cause), portal hypertension, and ascites in December 2021. Symptomatic treatment for the same was begun.

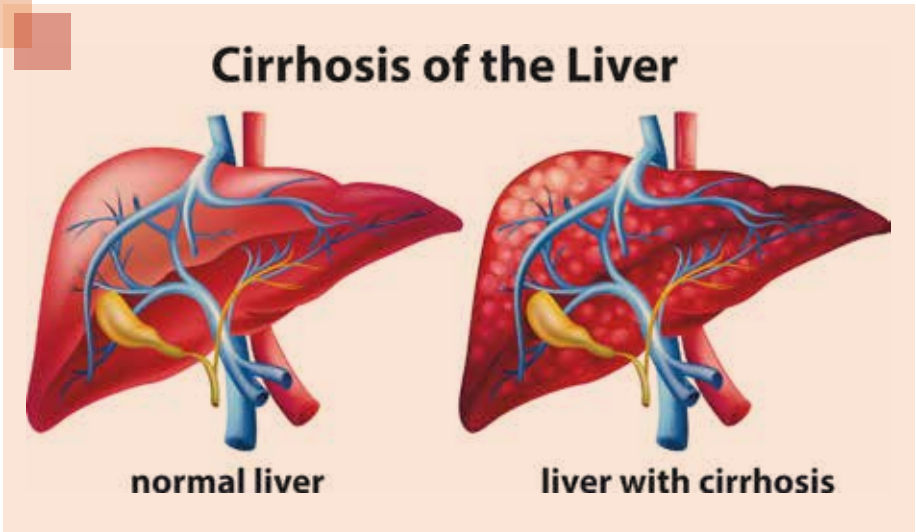
On examination, she was pale, icteric, had anasarca, and had an SpO2 saturation of 88% when breathing room air. Her investigations revealed that she had an Hb of 4 gm%, normal total WBC counts, and platelets of 27,000 cells per cmm. The upper GI endoscopy showed congestive gastropathy and no varices. Her viral markers, autoimmune hepatitis profile and Wilson's profile were negative. An abdominal ultrasound showed moderate splenomegaly, and patent portal and hepatic veins. She had a total bilirubin of 6 mg/dl. The other liver enzymes were within normal limits. Her chest X-Ray showed bilateral basal lung patches.

The thoracic HRCT revealed alveolar hemorrhages and degenerative spinal changes. Despite two pints of PRBC and four pints of RDP transfusions, her Hb and platelet counts didn't improve. She developed non-palpable purpura, hemoptysis and hematuria. She was transfused with two more pints of blood and one pint of SDP. Her hemoglobin improved to 6 gm% but platelets were at 22,000/cumm. The serum methotrexate levels were not traceable. PT and APTT were normal. Anti GBM antibodies, ANA profile, ANCA, MPO, PR3 and APLA workup were negative. The serum ferritin level was 775 mcg/dL. The peripheral smear didn't show any microangiopathic hemolytic picture. Direct Coomb's test was negative. CRP was 40mg/l. Her sputum culture/sensitivity showed Klebsiella pneumonia growth, urine showed fungal infection and the blood culture was negative.

She was started on piperacillin-tazobactam at 4.5g iv three times a day. She also was administered fluconazole with caution. A bone marrow examination was done to rule out macrophage activation syndrome. No evidence of macrophage hemophagocytosis was found in the bone marrow or the sputum.

The rheumatologist's opinion was sought and the patient was begun on injectable methylprednisolone 1g intravenously per day for three days. Her hemoptysis stopped, but the lung patches did not improve on serial X-rays. Her hemoglobin was stable at 7gm% and platelets improved to 42,000/cumm. Her hematuria stopped after removing the Foley's catheter. She was then switched over to injectable methylprednisolone 1mg/kg body weight and her platelet counts began to worsen. She was administered 5 cycles of plasma exchange therapy after the rheumatologist reviewed her. Her platelets initially improved to 60,000/cumm and then dropped to 30,000/cumm after 5 cycles of PLEX. The hemoglobin also dropped to 5.9 gm%.

Due to inadequate response to the treatment, the patient was given IVIG 60g /d for 2 days. Currently her Hb is at 7 gm% and platelets of 60,000/cumm. A final diagnosis of Chronic liver disease (? Seronegative autoimmune hepatitis) with rheumatoid arthritis and macrophage activation syndrome was made. She is currently under observation. She will be discharged with a tapering dose of steroids and mycophenolate mofetil.



Laparoscopic Cholecystectomy for Biliary Pancreatitis in a Patient of Situs Inversus Totalis: A Rare Surgical Endeavour

Dr Lokesh Goyal
Consultant - GI, HPB, Bariatric & Minimal Access Surgery
Fortis Escorts Hospital, Jaipur

Since Philip Mouret first performed it in 1987, laparoscopic cholecystectomy has become the gold standard procedure for gall stone associated disorders and is one of the most common surgery being performed worldwide today. The technique has got its own learning curve considering a higher incidence of variations in the anatomy of biliary tract. Secondly, the surgery becomes tricky in associated inflammatory conditions (cholecystitis and pancreatitis).

We report here managing a case of Situs Inversus Totalis admitted with gall stone induced pancreatitis. Situs Inversus Totalis is a rare congenital anomaly associated with transposition of visceral organs to the opposite side in a mirror image of normal (e.g. Liver, Gall bladder, appendix on the left side; Heart and stomach on the right side). First reported by Fabricius in 1600, the incidence of this condition is thought to be in the range of 1:10000 to 1:20000. Feasibility and technical difficulty in treatment of such cases pose a challenge due to the contralateral disposition of viscera, demanding reorientation of visual motor skills to the left upper quadrant.

A 45-year-old patient with no comorbidities got admitted with upper abdominal pain and biliary vomiting. Chest skiagram, abdominal ultrasound and laboratory investigations confirmed the diagnosis of Situs Inversus Totalis with gall stone associated mild pancreatitis. Liver function tests were within normal limits. An MRCP with MRI abdomen was performed to rule out any inadvertent biliary anatomical variations and luminal status of common bile duct; the bile duct lumen was clear on MRCP.

Figure 1:
Chest X-ray showing Dextrocardia

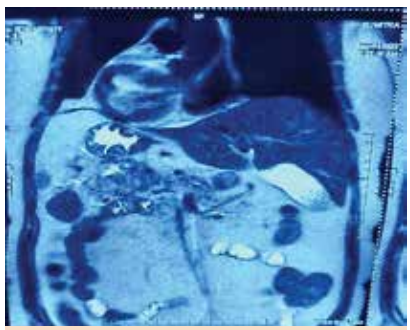


Figure 2: MRI abdomen depicting transposition of visceral organs to opposite side

Figure 3: Intra-operative view of left sided liver and gall bladder

Figure 5: Mirror image port placements than conventional surgery

Figure 4: Reversal of operating room settings to opposite side

Giant Liver Haemangioma Presenting as Kasabach-Merritt Syndrome

Dr Gaurav Gupta
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Dept of Liver Transplant and
HPB Surgery, Fortis Hospital, Mulund

A 48 year old female, initially presented with pain in abdomen and dyspnea on exertion, on investigation she was found to have a very low Hemoglobin(Hb-5g/dl). Intravenous iron infusion and blood transfusion were given. She was thoroughly investigated and on CT abdomen was found to have a 25cm X 20 cm X 12 cm giant liver hemangioma occupying almost the entire abdomen. She had received almost 15 units of PRBC by this time. She had had an intra hemangioma bleed with consumption coagulopathy. The test reports showed a high INR (2.3) and low platelet (40,000) due to the consumption coagulopathy. During this stay she had acute intrahaemangioma bleed for which angioembolisation was done. She stabilized but has persistent features of consumption coagulopathy along with pain abdomen.

The CT scan revealed that the hemangioma was arising from the left lobe of liver and was reaching up to the iliac region. It was decided to take the patient for a left hepatectomy. On exploration, the haemangioma had dense adhesions with the stomach, pancreas and omentum. A very difficult hepatectomy was completed uneventfully. The tumour weighed 2600 gm. ex vivo. Patient had a smooth post-operative recovery. A fortnight after the surgery her coagulation parameters returned to normal. The histopathology showed cavernous haemangioma.

Kasabach-Merrritt Syndrome is a very rare but serious complication characterized by consumption coagulopathy. Mortality rates range between 10-37%. Goals of treatment is control of coagulopathy and thrombocytopenia and eradication of the haemangioma. Nonsurgical treatment like steroids, angioembolistion, irradiation have been tried. Surgery remains a good option in cases like this where one single large symptomatic haemangioma is present.

Figure 1: On exploration, giant haemangioma occupies whole abdomen

Figure 2: After mobilization and adhesion removal

Figure 3: Final specimen picture

A Report on Three Patients with Echinococcus Multilocularis: Lessons Learned

Nalini Bansal[1], Vivek Vij[2], Mukul Rastogi[3], Manav Wadhawan[2], Ajay Kumar[2]
Received: 22 December 2017/
Accepted: 23 May 2018

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Abstract

Echinococcus multilocularis (EM) is the most virulent species of the genus Echinococcus. It causes a highly lethal helminthic disease in humans. The disease may present as hepatic mass mimicking a malignant neoplasm. Due to the vascular and neural invasion, protean clinical manifestations including Budd-Chiari syndrome (BCS) may be the clinical presentation of this condition. We herein report three cases of Echinococcus multilocularis; the first case presenting as multiple hepatic space-occupying lesions, second as liver mass infiltrating the nerve bundles, and the third as a hepatic mass infiltrating the large vessels including inferior vena cava and right hepatic vein presenting as BCS. EM is a parasite with capabilities of mass-forming effect, neural and vascular invasion. Though cases of BCS have been described, most of these are due to secondary compression and rarely by direct parasitic invasion.

Conclusion

In conclusion, alveolar echinococcus forms a slow-growing infiltrative solid cystic lesion in the liver. It can cause obstruction of bile duct, portal vein, hepatic vein, or IVC. The disease has high fatality rate if left untreated. The disease can cause lymphovascular dissemination resulting in delayed recurrence. AE behaves as a malignant tumour with vascular dissemination and neural infiltration.

Keywords

Budd-Chiarisyndrome, Alveolarechinococcosis, Malignantparasite, Neuralinvasion, Echinococcusmultilocularis

References

1. Eckert J, Deplazes P. Biological, epidemiological, and clinical aspects of echinococcosis, a zoonosis of increasing concern. Clin Microbiol Rev. 2004;17:107–35.
2. McManus DP, Zhang W, Li J, Bartley PB. Echinococcosis. Lancet. 2003;362:1295–304.
3. Kantarci M, Bayraktutan U, Karabulut N, et al. Alveolar echinococcosis: spectrum of findings at cross-sectional imaging. Radiographics. 2012;32:2053–70.
4. Bulakci M, Yilmaz E, Cengel F, et al. Disseminated alveolar hydatid disease resembling a metastatic malignancy: a diagnostic challenge-a report of two cases. Case Rep Radiol 2014;2014: 638375.
5. Piotin M, Cattin F, Kantelip B, Miralbès S, Godard J, Bonneville JF. Disseminated intracerebral alveolar echinococcosis: CT and MRI. Neuroradiology. 1997;39:431–3.
6. Demir MK, Kilico lu G, Akinci O. Alveolar hydatid disease of the liver: brief review and spectrum of adjacent organ invasion. Australas Radiol. 2007;51:346–50.
7. Cakmak E, Hakan A, Gumus C, Celiksöz A. A case of Budd-Chiari syndrome associated with alveolar echinococcosis. Korean J Parasitol. 2013;51:475–7.
8. Bedioui H, Nouira K, Ayadi S, et al. Budd-Chiari syndrome secondary to hepatic echinococcosis. Gastroenterol ClinBiol2007; 31: 721–4.

Figure 1: Case 1 - (a) Non-contrast computed tomography upper abdomen showing multiple calcified lesions in entire liver. (b) All lesions remain nonenhancing in arterial phase. (c) Lesions showing hypoenhancement as compared to rest of parenchyma with central calcifications

9. Piarroux M, Piarroux R, Giorgi R, et al. Clinical features and evolution of alveolar echinococcosis in France from 1982 to 2007: results of a survey in 387 patients. J Hepatol. 2011;55:1025–33.

10. Kern P, Wen H, Sato N, et al. WHO classification of alveolar echinococcosis: principles and application, Parasitol Int. 2006; 55: S283-7.

11. Koch S, Bresson-Hadni S, Miguet JP, et al. Experience of liver transplantation for incurable alveolar echinococcosis: a 45 case European collaborative report. Transplantation. 2003;75:856–63.

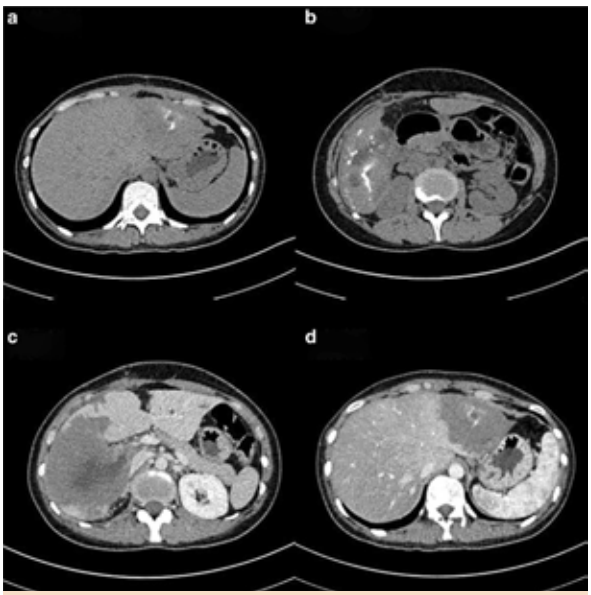


Figure 2: Case 2 - (a) Explanted liver showing large space-occupying lesion. (b) Explant liver slice showing creamy solid cystic mass. (c) Microscopy showing parasitic membranes. (d) Nerve infiltration by membranes

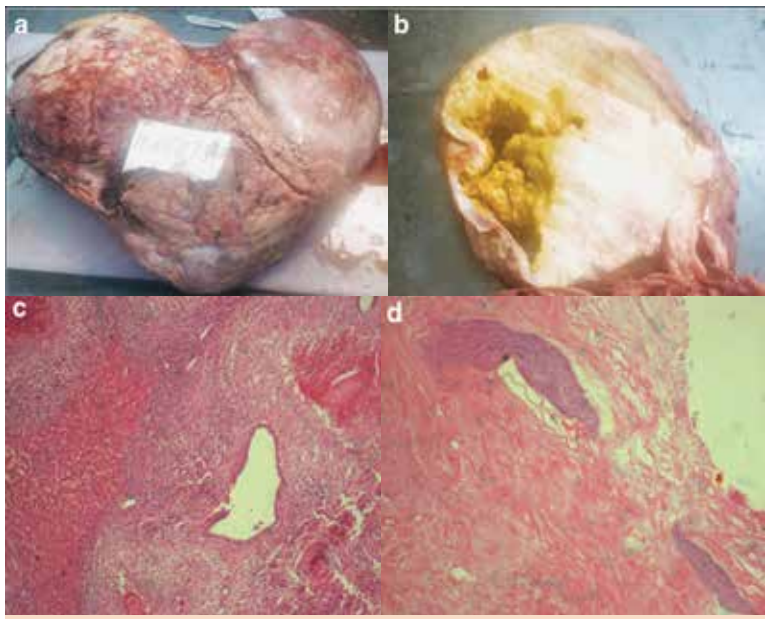


Figure 3: Case 2 - (a) Explanted liver showing large space-occupying lesion. (b) Explant liver slice showing creamy solid cystic mass. (c) Microscopy showing parasitic membranes. (d) Nerve infiltration by membranes

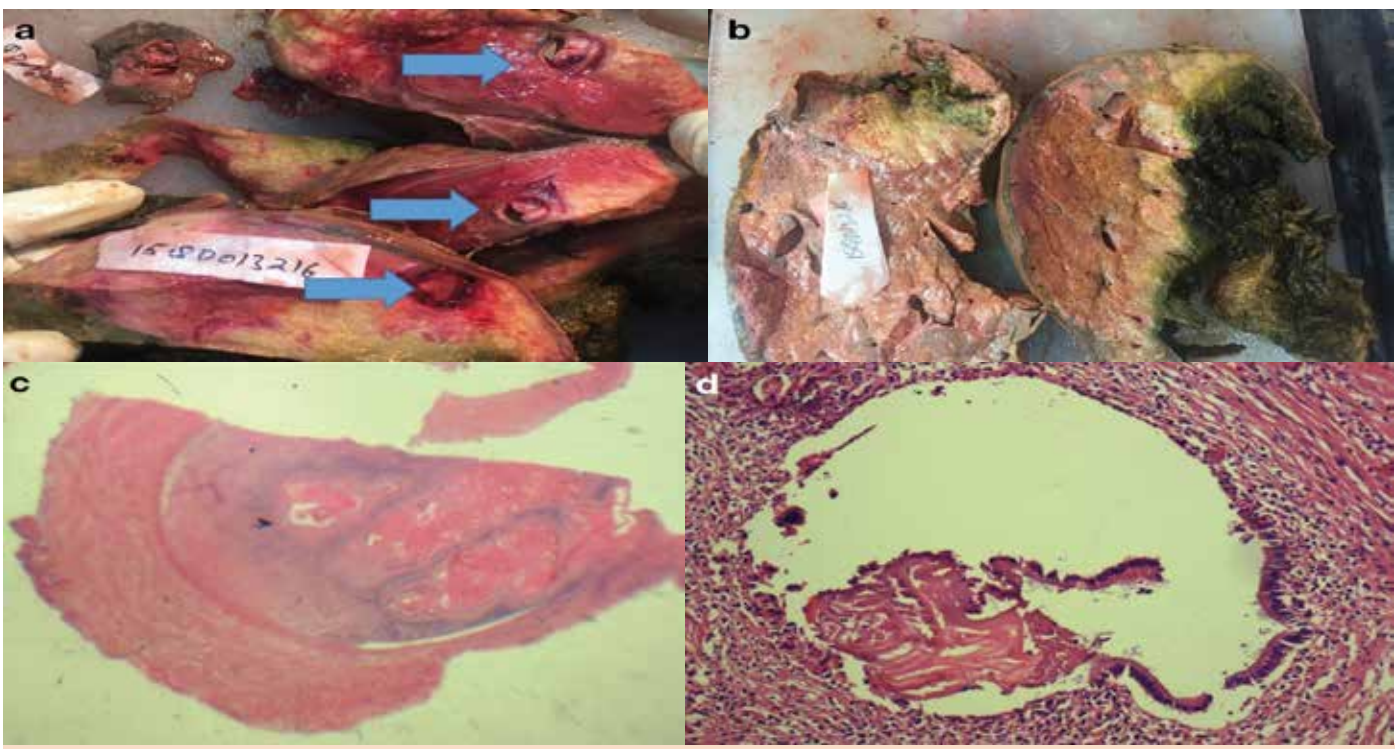
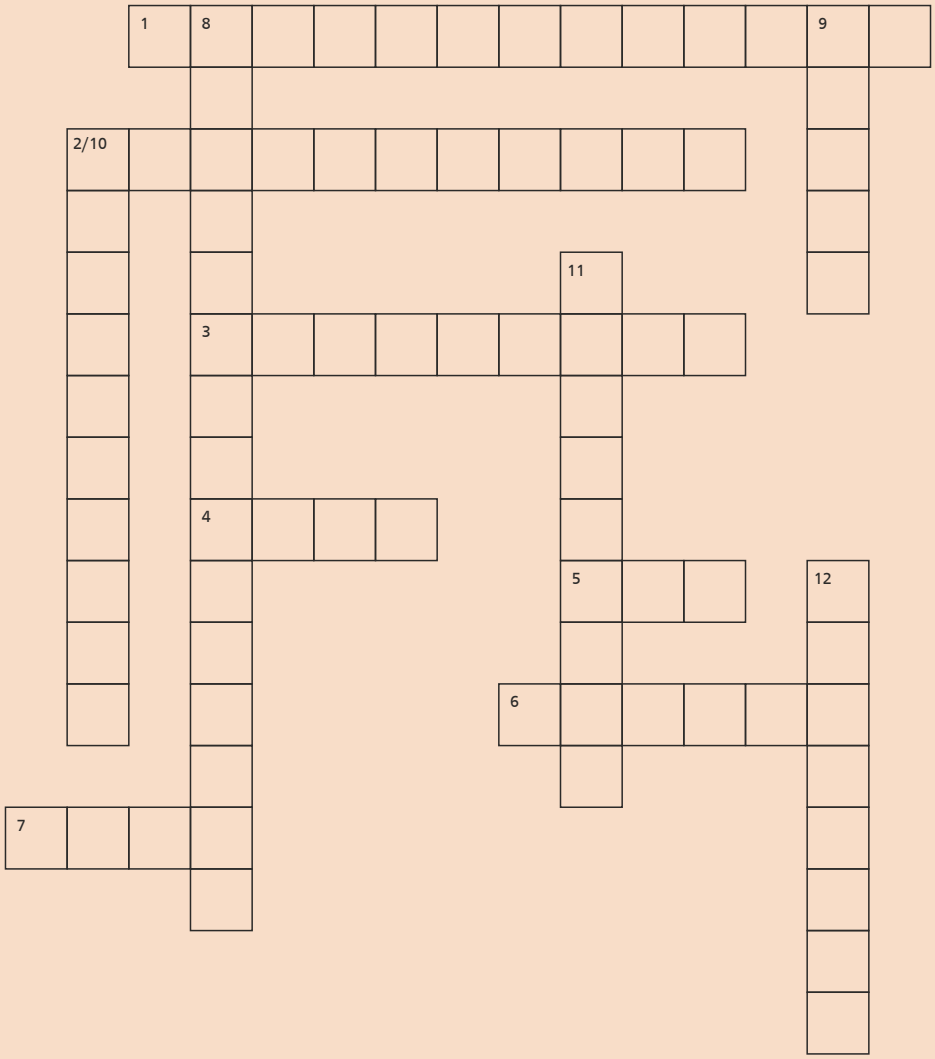


Figure 4: Case 3 - (a) Parasitic embolus in large hepatic vein blue arrow. (b) Large hepatic mass in both lobes. (c) Parasitic embolus in inferior vena cava. (d) Parasitic membrane infiltrating bile duct

TRIVIA

Crossword

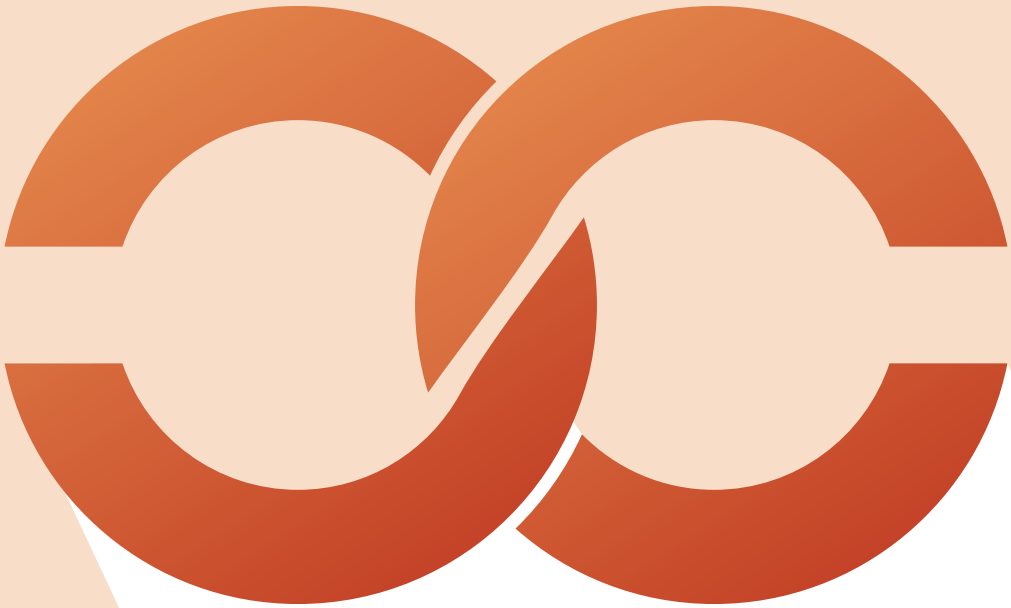


ACROSS

1. Nonprescription analgesic and antipyretic drug which has direct hepatotoxic potential when taken as an overdose and can cause acute liver injury and death from acute liver failure. (10)
2. The Greek God who was punished by Zeus, such that an eagle came and ate a part of his liver every day, only for it to grow back every night, meaning that he would need to endure his punishment for eternity. (10)
3. Late stage of scarring of the liver caused by many forms of liver diseases and conditions such as chronic alcoholism and hepatitis. (9)
4. _____combines the local delivery of chemotherapy with a procedure called embolization to treat cancer, most often of the liver. (4)
5. _____clearance assessment is the most commonly used dynamic liver function test performed at bedside. (ICG)
6. _____disease is a genetic disorder in which copper builds up in the body, mainly in the liver, the brain, the eyes and other organs. (6)
7. _____is an endoscopic procedure used to treat swallowing disorders, most commonly achalasia. (4)

DOWN

8. A surgical procedure to remove the gall bladder. (15)
9. The Couinaud classification divides the liver into _____segments based on portal bifurcations. (5)
10. The two sources of blood supply to the liver are the hepatic artery and the ____ ____. (6,4)
11. Liver flaps are also known as _____. (9)
12. A mixed gland with both an endocrine and a digestive exocrine function. (7)



CLINICAL TRIALS

Important Research Projects at Fortis

A Prospective, Multi-Center, Open-Label Phase IV Randomized Clinical Trial to Evaluate the Efficacy and Safety of Heptral™ (Ademetionine tablets) in Indian Patients with Alcoholic Liver Disease

PI - Dr Gourdas Choudhuri
Chairman, Department of Gastro & Hepato-biliary Sciences, FMRI, Gurugram

Multicentric Study conducted across five centres in India. Unit enrolled five patients in the study. The investigational product is from Akum Drugs and marketed by Abbott India.

About the Study

The primary objective of the study is to evaluate the effectiveness of Heptral (Ademetionine tablets) on change in serum alanine aminotransferase (ALT) at 120 days (4 months) of treatment as compared to baseline in patients with alcoholic liver disease (ALD) inclusive of fatty liver (FL), alcoholic hepatitis (AH) and alcoholic cirrhosis (AC). Patients were advised to take Heptral (Ademetionine tablets) at a total daily dose of 1200 mg, orally in divided doses (400 mg-3 tablets in a day) for 120 days(4months).

PI Opinion/Observation about the Study Drug

Patients have responded well and are doing good.

An Open-Label Extension Study of Etrasimod in Subjects with Moderately to Severely Active Ulcerative Colitis

PI - Dr Gourdas Choudhuri
Chairman, Department of Gastro & Hepato-biliary Sciences, FMRI, Gurugram

The study is being conducted across 10 centres in India and 373 centres globally.

Fortis Memorial Research Institute, Gurugram, has successfully enrolled five patients in the study.

About the Study

The primary objective of the study

was to assess the safety of long-term administration of Etrasimod in subjects with moderately to severely active UC., Etrasimod may potentially provide therapeutic benefit via S1P receptor modulation.

To date, Etrasimod has been found to be safe and well-tolerated in approximately 281 adult subjects treated at various doses. The safety and tolerability of Etrasimod has been evaluated in previous phases of the study. Treatment with 2 mg Etrasimod qd for 12 weeks led to clinically meaningful and statistically significant endoscopic and symptomatic improvements versus placebo. Sustained beneficial effects of Etrasimod were observed for up to 46 weeks in the subsequent open-label extension study.

PI Opinion/Observation about the Study Drug

It spared the patients the need for biological treatment and most are doing well & are in good remission.

A Long-Term Extension Study to Evaluate the Safety of Filgotinib in Subjects with Crohn's Disease

PI - Dr Gourdas Choudhuri
Chairman, Department of Gastro & Hepato-biliary Sciences, FMRI, Gurugram

The study is being conducted at 58 centres throughout India and globally 44 countries across the world.

About the Study

The primary objective of the study is to observe the long-term safety of Filgotinib in subjects who have completed or met protocol specified efficacy discontinuation criteria in a prior Gilead-sponsored Filgotinib treatment study in Crohn Disease.

The potential benefits of JAK inhibition include improvement in clinical symptoms and mucosal and endoscopic healing. JAK inhibition may be efficacious in the treatment of IBD based on results from FITZROY study. In FITZROY, an increase in mean haemoglobin concentration was observed, without difference between Filgotinib and placebo. No clinically significant changes from baseline in mean neutrophil counts or liver function tests were observed at 10 weeks. Filgotinib treated subjects showed an increase in HDL and no significant change in LDL. Lipid and haemoglobin effects represent potential benefits in this population.

PI Opinion/Observation about the Study Drug

This drug was found to be quite effective with good safety profile and efficacy.

A prospective, multi-centre, open label, phase IV study to evaluate safety and efficacy profile of Infimab™ in patients with moderate to severe Crohn's disease

PI - Dr Rinkesh Kumar Bansal
Senior Consultant, FMRI, Gurugram

About the Study

Infliximab is a purified, recombinant DNA-derived chimeric human-mouse IgG monoclonal antibody. Infliximab neutralizes the biological activity of TNF-α by binding with high affinity to the soluble (free floating in the blood) and transmembrane (located on the outer membranes of T cells and similar immune cells) forms of TNF–α, and inhibits or prevents the effective binding of TNF–α with its receptors.

PI Opinion/Observation about the Study Drug

We are enrolling patients of moderate to severe Crohn's disease in a phase 4 study of infliximab. It is a multicentric Indian study in which more than 10 tertiary centres are involved. We have enrolled seven patients in this study. All the patients responded very well to this study drug with no significant adverse events reported till date.

A Phase II randomised, double blind, placebo controlled, parallel group, multicentre study to evaluate the efficacy, safety and tolerability of TRC160334 as an add on to mesalamine in patients with mild to moderate active ulcerative colitis

PI - Dr Nitin Shanker Behl
Senior Consultant, Fortis Ludhiana

The study is conducted across 27 centres across India.

Fortis Ludhiana enrolled highest number of patients in India (39 Screened, 23 Randomized).

Benefits of the Study Drug

Study Drug stabilizes HIF by inhibiting HIF hydroxylase enzymes. It has shown dose dependent efficacy in relevant animal models of colitis.

In phase I study with repeated 7 days' administration of study drug to mild moderately active UC subjects, was found to be well tolerated with only two cases of nausea (one mild, one moderate).

PI Opinion/Observation about the Study Drug

As a leading investigator pan India for this phase II Trial, has made me realise the tremendous potential for the study drug. We are seeing exciting results with use of study drug as add on drug to current treatment protocols. Till date no serious adverse events have been observed. Hopefully patients of ulcerative colitis will benefit from this study drug.

A Phase 3, Multicenter, Open-Label Extension Study to Evaluate the Long-Term Efficacy and Safety of Mirikizumab in Patients with Moderately to Severely Active Ulcerative Colitis

Dr Ajay Bhalla
SAdditional Director, Fortis Noida

The study is conducted across 13 centres pan-India.

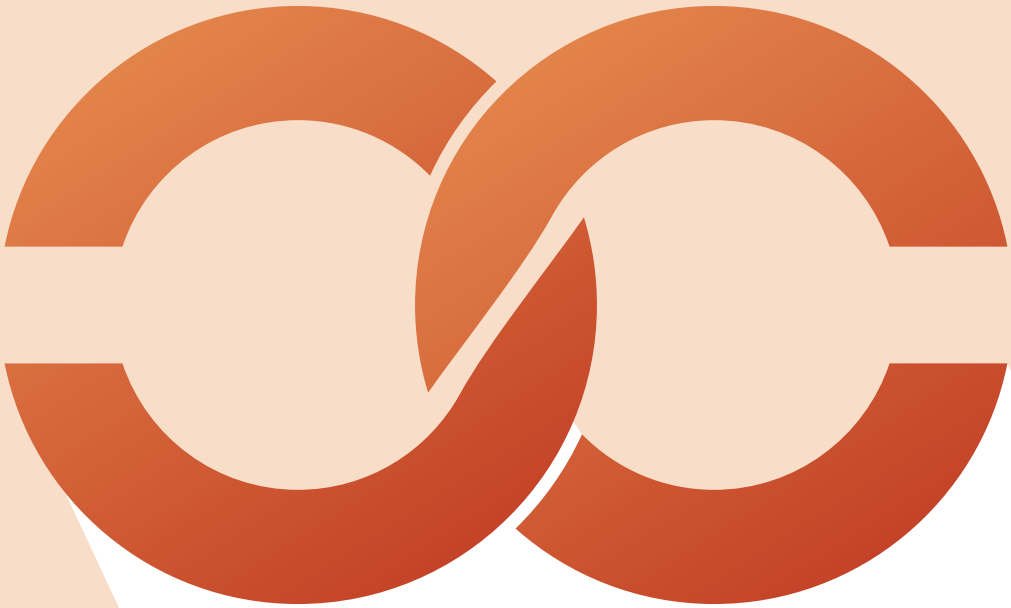
About the Study

Mirikizumab is a humanized immuno-globulin G4 (IgG4) monoclonal antibody that binds to the p19 subunit of interleukin-23 (IL-23), a cytokine that has been implicated in mucosal inflammation in ulcerative colitis (UC).

Patients receive open-label Miriki-zumab subcutaneously for (up to 3 years) and then enter a 12-week post-treatment follow-up period.

PI Opinion/Observation about the Study Drug

The drug Mirkizumab will be commer-cially available in 2023.This is offered as first line drug as a biologic for patient with moderate to severe ulcerative colitis and mayo score has been gradually decreased. This study has been conducted in 3 parts that is AMAN, AMBG and now it is extended to AMAP, so in first study that is AMAN, patient is dependent on steroid and in second part (AMBG), the patient is no more dependent on steroids.



ONCO CONNECT

Tumour Board Cases

Case 1

Dr Sandeep Nayak
Chairperson Oncology Speciality Council Director, Department of Surgical Oncology, Fortis Cancer Institute, Bangalore

Dr Nalini Bansal
Chief of Histopathlogy
Fortis Escorts, Okhla

Dr Vineeta Goel
Fortis Hospital, Shalimar Bagh

A 58-year-old female presented with history of bleeding per vagina since three months. On examination, PV/PS examination was suggestive of ulcero-proliferative growth seen over the anterior lip of cervix the anterior and lateral fornices and upper 2/3rd of vagina. Bilateral parametrium was involved while the rectal mucosa was free.

Biopsy was done which was suggestive of moderately differentiated adenocarcinoma. MRI Pelvis showed a cervical mass lesion extending to the lower uterus, urinary bladder (causing irregular mucosal thickening), bilateral parametrial extension and bilateral external iliac lymph node. No HUN or liver metastasis. CECT Abdomen and Pelvis showed heterogeneously enhancing cervical mass measuring 5.3x6.6cms indenting the lower uterus and upper 2/3rd of vagina and invasion of base of the bladder with intravesical enhancing soft tissue density. Diffuse parametrial fat stranding. Sub-centimetric lymph node along iliac vessel in pelvis.

In view of bladder involvement and risk of vesico-vaginal fistula and radiation cystitis patient was planned for three cycles of NACT with Paclitaxel and Carboplatin. After completion of three cycles of NACT, PET CT (Response assessment) was done which revealed interval decrease in the size of lesion in cervix measuring 28x31x47mm, max SUV 3.4 (prior 53x66mm) involving lower 1/3rd of uterus, abutting posterior wall of urinary bladder with no definitive bladder infiltration, significant parametrial fat stranding seen, not involving vagina. FDG avid right external iliac lymph node is seen measuring 12x14 mm with max SUV 2.9. Few bilateral external, internal and common iliac lymph node measuring 3 to 7mm were also seen. Patient was then planned for definitive chemoradiation followed by interstitial brachytherapy.

Technique: Image guided Radiation therapy (IGRT)

- Source : Linear Accelerator-Versa HD, Energy: 6MV photons
- Volume & Dose : PTV50: Primary + Bilateral pelvic lymph nodes:
- -5000cGy in 25Fr @ 200cGy/Fr, 5Fr/week.
- SIB to PTV57.5: Gross nodes
- -5750cGy in 25Fr @ 230cGy/Fr, 5Fr/week.
- From 04/10/2021 to 06/11/2021
- Along with concurrent chemotherapy 3 weekly Inj.Paclitaxel 260mg
- +Injection carboplatin 450mg x 5 cycles

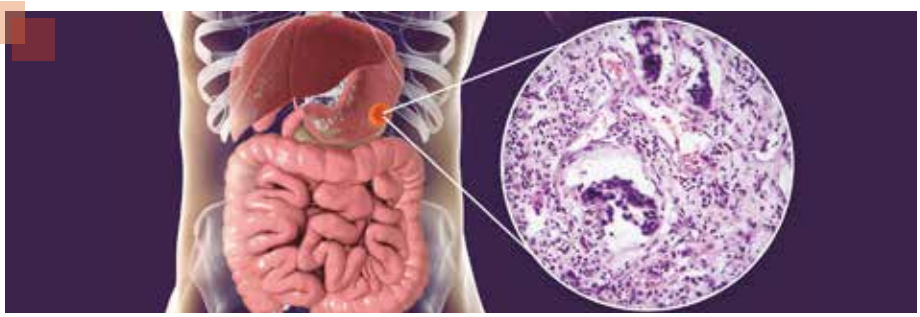
Brachytherapy was given as planned below

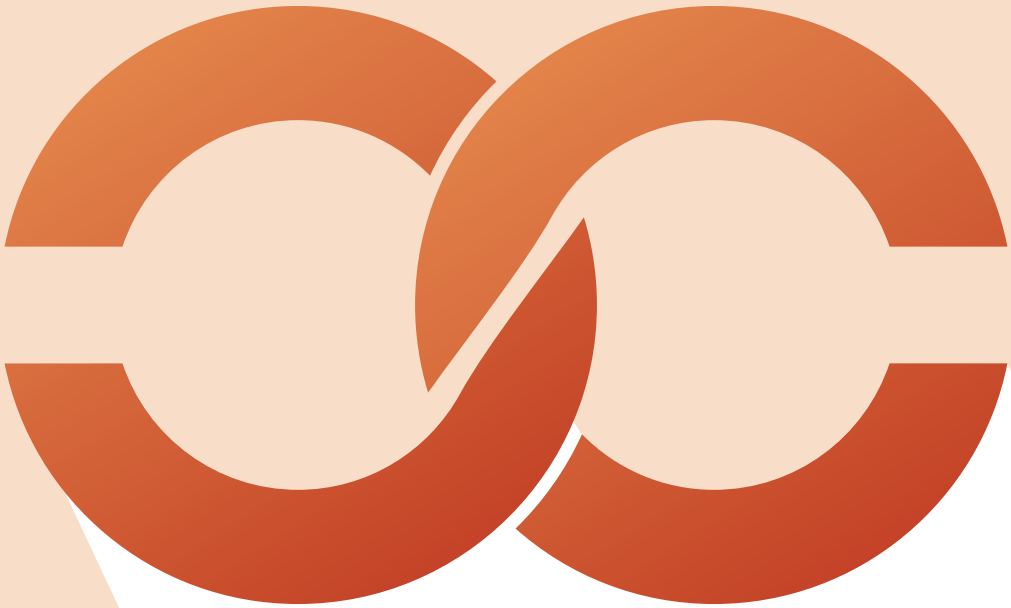
- Ir192 HDR source intracavitatory brachytherapy 6Gy X 1 fraction
- In view of bicytopenia invasive procedure not done
- Interstitial brachytherapy 6Gy X 3 fractions

Response assessment PET-CT done after three months was suggestive of residual lesion in cervix with marked response to CT-RT. Residual lymphadenopathy in bilateral external iliac lymphadenopathy with decrease in size and FDG avidity. Biopsy was done which showed Adenocarcinoma. Patient thus underwent Robotic TAH-BSO and bilateral pelvic lymphadenectomy. Histopathology was found to be Adenoid Cystic carcinoma, Intermediate grade with stromal invasion of 1.4cm into deep 1/3rd of cervix. All margins were free.

- Right PLND-1/7 with ENE+
- Left PLND-4/7 with ENE + Stage-ypT1b1N1a.

After discussing in the tumour board it was planned to review the pathology again and re-assess the previous pretreatment biopsy. If the diagnosis is adenoid cystic carcinoma then patient goes for observation and if it is adenocarcinoma then patient receives adjuvant treatment.





PUBLISHED LETTERS TO THE EDITOR-COVID

Insights on topics related to liver transplantation during the COVID by our distinguished teams at Fortis were shared and published as letters to the editor in recognized journals. We are sharing the same here with the references.

23 Herbal Immune Booster–Induced Liver Injury in the COVID-19 Pandemic

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We read with interest a case series of drug-induced liver injury (DILI) cases in COVID 19 pandemic, entitled "Herbal Immune Booster–Induced Liver Injury in the COVID-19 Pandemic—A Case Series" by Nagral A et al.1 We have observed two similar cases at our center which were having complementary alternative medicine (CAM)–associated liver injury during COVID 19 pandemic. Both the patients were having no prior comorbidity, and all confounding diagnoses were ruled out. There was no history of any other new drug that could explain the presentation. Diagnosis of DILI was biopsy proven with the Roussel Uclaf causality assessment method (RUCAM) score and was suggestive of DILI (Table 1). Both the patients have received giloy kadha and giloy preparations in high doses for COVID prevention. Competing etiologies were ruled out. Hepatitis serology (A/B/C/E), ceruloplasmin, and serology for the Epstein-Barr/herpes simplex /cytomegalovirus were negative, and hepatic Doppler ultrasound was normal. Autoimmune markers showed antinuclear antibody (ANA) positive with high IgG levels in both cases, and possibility of autoimmune hepatitis (AIH) was considered vs. DILI. Biopsy was performed for both the cases and was not suggestive of AIH, and there were areas of perivenular necrosis and mild portal infiltrate, no interface hepatitis, paucity of plasma cells, no rosettes, and relatively mild-moderate inflammatory infiltrate, predominantly with eosinophils, consistent with DILI; both our cases were biopsy proven.

The patient was treated with steroids in tapering doses, ursodeoxycholic acid (15 mg/kg), and liver biochemistry was normalized after 10–12 weeks. In the absence of other etiologies, bland cholestasis on liver biopsy, and an RUCAM score of 7 and 9 (the second case has h/o of self-induced re-challenge, which resulted in fluctuating jaundice), which are consistent with DILI, DILI was confirmed with liver biopsy and AIH was ruled out.

Ayurvedic herb-related hepatotoxicity and liver injury can present as asymptomatic minor transaminase elevations, to acute liver failure requiring transplantation.[2] Tinospora cordifolia /giloy is an herbaceous vine of the family menispermaceae, used as an immune booster in the Indian subcontinent. DILI has emerged as a side effect after its prevalent use in the present time in various forms as a tablet and kadha to prevent COVID 19 infection. The major misconception in the Indian society is that "herbs are safe", which results indigenous use of the potentially lethal CAM/herbs in high doses. Often patients use them along with prescription drugs, without knowing the potential interactions and side effects of CAM. This results likely as a result of inhibition of drug-metabolizing enzymes (e.g., cytochrome P450) or other unknown pathways, as CAMs are not studied well so far, and underlying mechanisms are not known. Despite this, a standard system for prediction of drug–herb interaction is still not present.[3] In our cases, CAMs were taken to boost immune response for COVID 19 prevention. The regulations of these CAMs are not standardized, dosing is erratic, and there is emergence of liver injury related to CAM intake during COVID as the excess use of CAM may exceed the capacity of the liver to metabolize them and results in toxicity and immune dysregulation, resulting in DILI. One should observe utmost precautions to use these remedies without supervision.

Credit Authorship Contribution Statement

Mukul Rastogi: Conceptualization, Methodology, Writing – original draft, Writing - review & editing. Rakesh K. Jagdish: Writing – original draft, Writing - review & editing. Vivek Vij: Supervision, Writing – original draft, Conceptualization. Nalini Bansal: Study of biopsy images and interpretations.

Living Donor Liver Transplantation During the COVID-19 Pandemic: "Elective" but "Necessary"

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Emergence of rapidly evolving COVID-19 has changed surgical care including transplantation worldwide.1-3 In the face of pandemic and nationwide lockdown, we ceased our living donor liver transplantation (LDLT) activity on March 24, 2020. This action was precautiously pertaining to safety of donors and recipients and to free up intensive care unit (ICU) beds, ventilators, personal protective equipment (PPE), and healthcare personnel to care for critically ill patients with COVID-19. Recommencement of LDLT required mitigation of patient selection, screening, healthcare resource planning, surgical, and anesthesia management. Of the 22 patients in work-up, 7-related LDLTs were performed between April 13, 2020, and May 31, 2020 (Table 1). Five were international patients, and they underwent mandatory quarantine of 14 d after arriving in India. None of the transplant pairs had clinical suspicion for COVID-19 based on symptoms, contact history, or high-resolution computed tomography chest. Each transplant pair was admitted 7 days preoperatively and had SARS-CoV-2 (real time-polymerase chain reaction) testing from nasopharyngeal swabs twice; 5 days apart, including 1 within 48 hours before the LDLT.

Medical, nursing, and allied health staff were similarly screened for COVID-19 contact and symptoms, trained in proper use of PPE, and utilized in strict 1:1 nursing care (12-h shifts) with minimal crossover. Additional measures included a dedicated ultrasound machine, electronic review, and telemedicine. Anxiety and distress driven by COVID-19, transplant program closures, and adverse outcomes required the assistance of a psychologist. Blood and blood product management required advance notification to blood bank and ensuring the availability of factor concentrates.4

Irrespective of preoperative testing, all patients in operating room (OR) were managed as COVID-19 positive with staff adhering to full precautions. A team briefing before each case was crucial to overcome the limited communication when using N95 masks. We concur with the updated Association of Anaesthetists guidelines5 but refrain from use of induction rooms where the air changes per hour are lower than the main operating theater (Table 2). OR traffic was restricted with no crossover between donor and recipient OR. We suspended laparoscopic donor program and performed all donor hepatectomy by open approach. Recipient surgery was routine with special attention to avoid spillage of ascitic fluid and minimize aerosol generation by decreasing electrocautery power settings and continuous suctioning near contact points.

Recipients were extubated in ICU with full staff using PPE kits. No visitors were allowed, but daily video calls with family were facilitated. All immunosuppression, antibiotic and antifungal prophylaxis, and ICU management were unchanged compared with pre-COVID protocols. No COVID-19-directed prophylactic medications were used. All donors and recipients had an uneventful postoperative course and were discharged directly from ICU. Post discharge, twice weekly home collection of blood and telemedicine substituted for clinic follow-up. None of the patients developed COVID-19 or related symptoms in hospital or during the follow-up.

All transplant teams are facing the dilemma of avoiding death on waiting lists while conducting "elective" but "necessary" transplant surgery safely during this pandemic. Our protocol has permitted a cautious restart of our LDLT program amid a country suffering enormous numbers of COVID-19 infections.

Acknowledgements

All our fearless and dedicated operating room, intensive care, and outpatient clinic personnel, and administrators for their relentless and humane efforts. The authors would like to thank Ms Naisha Singhal for her editorial assistance.

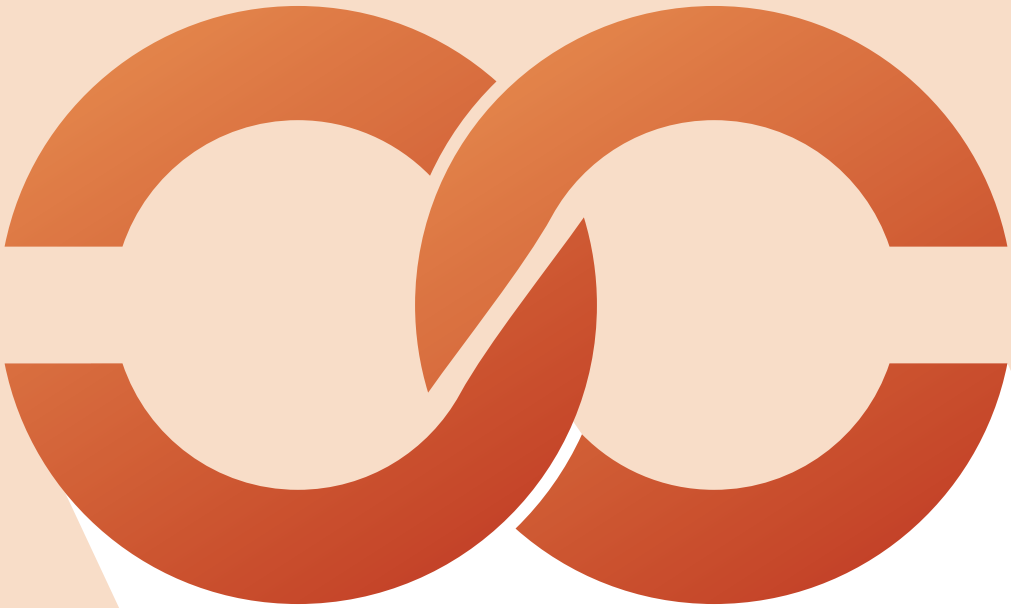
References

1. COVIDSurg Collaborative. Mortality and pulmonary complications in patients undergoing surgery with perioperative SARS-CoV-2 infection: an international cohort study [published correction appears in Lancet. 2020 Jun 9]. Lancet. 2020;396:27–38.
2. Kumar D, Humar A. CMV immune monitoring-where do we go from here? Am J Transplant. 2020;20:1961–1962.

doi:10.1111/ajt.15876

3. Ahn C, Amer H, Anglicheau D, et al. Global transplantation COVID report March 2020 [published online ahead of print, 2020 Apr 1]. Transplantation. 2020;10.1097/TP.0000000000003258. doi: 10.1097/TP.0000000000003258 4. Srivastava P, Agarwal A, Jha A, et al. Utility of prothrombin com-plex concentrate as first-line treatment modality of coagulopathy in patients undergoing liver transplantation: a propensity score-matched study. Clin Transplant. 2018;32:e13435. doi:10.1111/ctr.13435

5. Cook TM, El-Boghdadly K, McGuire B, et al. Consensus guidelines for managing the airway in patients with COVID-19: Guidelines from the Difficult Airway Society, the Association of Anaesthetists the Intensive Care Society, the Faculty of Intensive Care Medicine and the Royal College of Anaesthetists. Anaesthesia. 2020;75:785–799. doi:



NURSING

Concept Map on 'Prevention of Errors in OR'

Sharing the award winning concept mapping entry from our educator at Fortis Hospital, Mulund, Ms Bincy Thomas, which has been awarded the first prize at the International Conference of "Association Of Operating Room Nurses (AORN)". A premium Nursing forum, it is the **only platform for professional perioperative nurses.**

Ms Bincy Thomas
Nursing Educator,
Fortis Hospital, Mulund

Concept maps are visual representations of information, especially useful for those who learn better visually. It can be thought of as a scheme representing visual knowledge in the form of a hierarchical graphic network composed of nodes and links. Concept mapping is an instructional strategy that requires learners to identify, graphically display, and link key concepts by organizing and analyzing information. It can be successfully used for conceptual thinking, thus increasing competence in critical thinking in any healthcare set up.

The concept map on "Prevention of Errors in OR" helps provide an overview of preventive measures for possible errors in the Operating Room. The Concept map begins with listing down of OR Errors with the highest impact on patient safety. This includes wrong patient, wrong site, wrong surgery, retained surgical items, cautery burns, etc. among perioperative patients. The preventive measures are then linked to each of the errors, with IPSG 4- 'Ensure Safe Surgery' being the main focus of OR safety. The specific interventions in place at Fortis Mulund in accordance with current EBPs are then linked to the main concepts. The Concept map gives an overview of the most crucial error prevention processes to be followed in any Operating Room.

References

1. Holschuh, J. and Nist, S. (2000). Active learning: Strategies for college success. Massachusetts: Allyn & Bacon.
2. Hsu L, Hsieh SI. Concept maps as an assessment tool in a nursing course. J Prof Nurs. 2005 May-Jun;21(3):141-9. doi: 10.1016/j.profnurs.2005.04.006. PMID: 16021557.

Barbara J. Daley, et al. Concept Maps in Nursing Education: A Historical Literature Review and Research Directions. Published Online: October 11, 2016. https://doi.org/10.3928/01484834-20161011-05

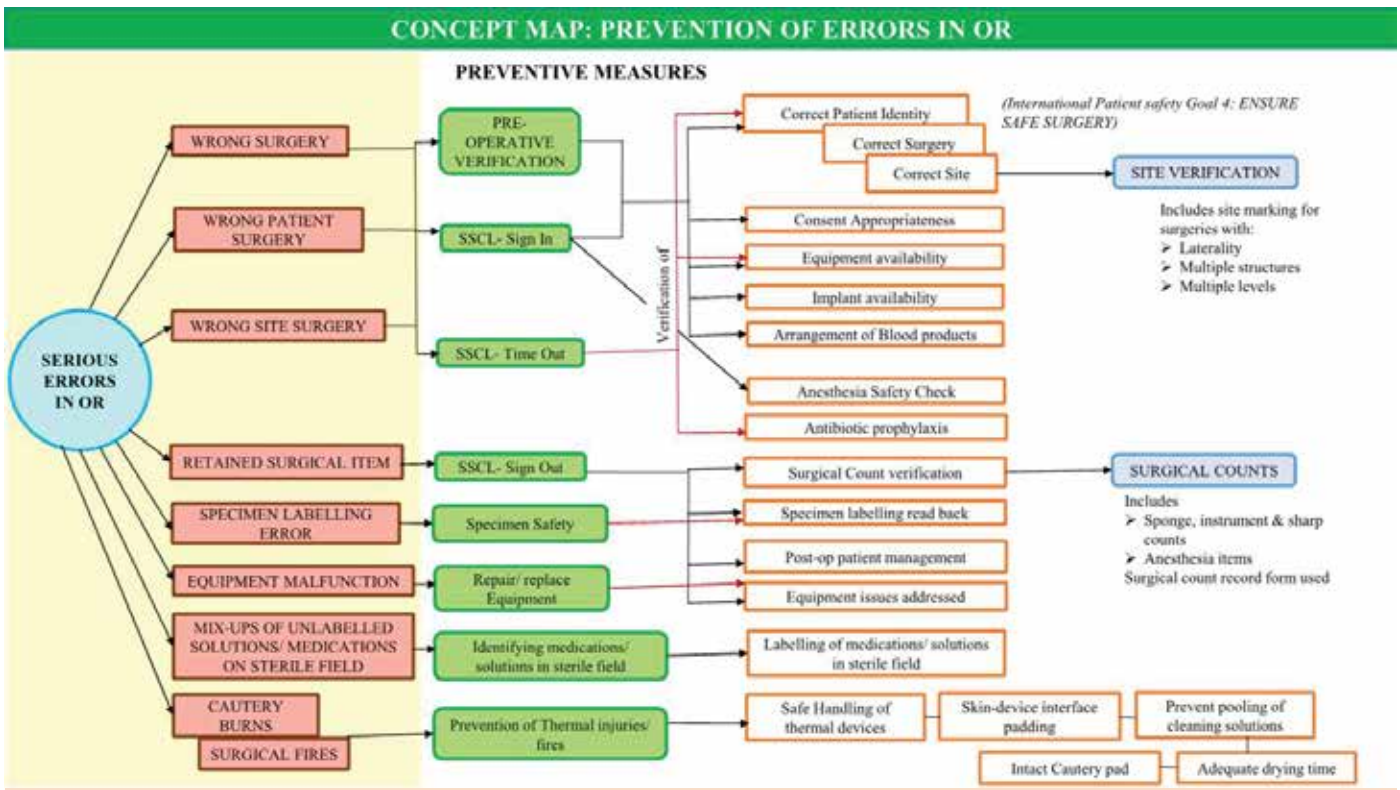
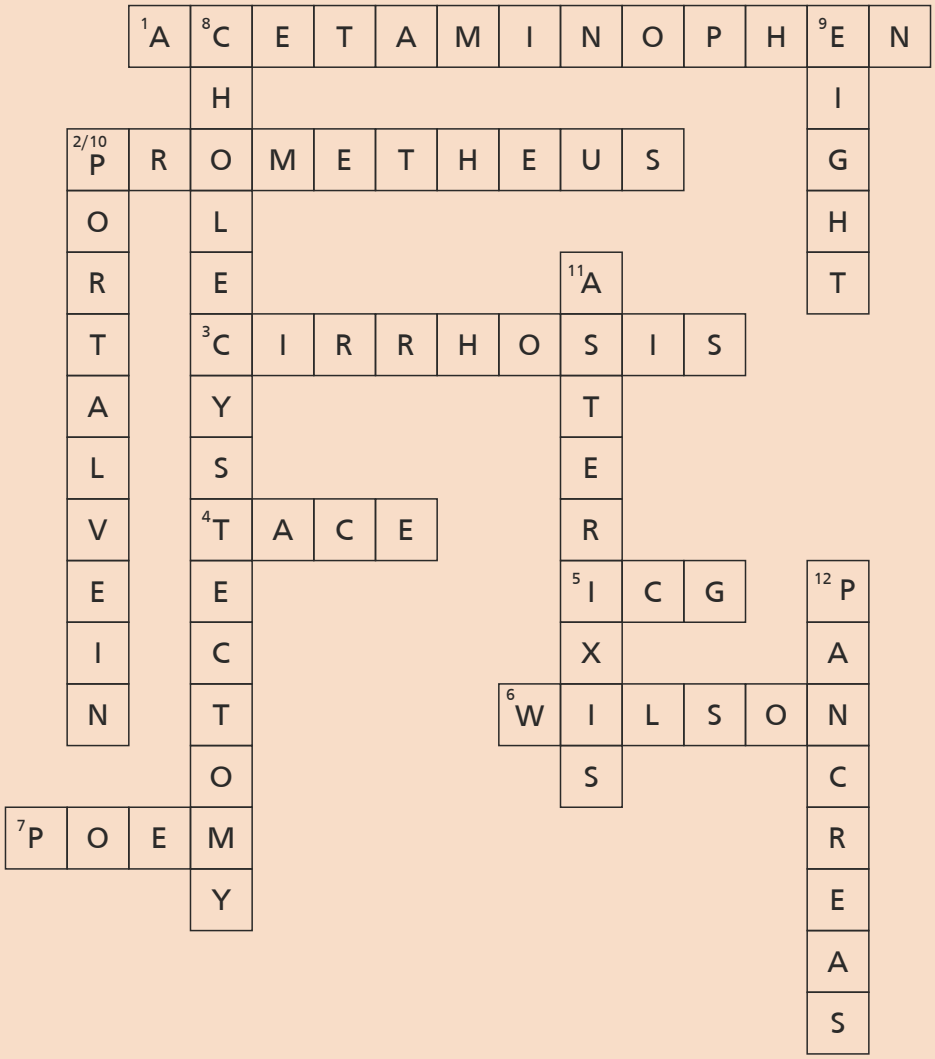


Figure 1

Answers To The Crossword



ACROSS

1. Nonprescription analgesic and antipyretic drug which has direct hepatotoxic potential when taken as an overdose and can cause acute liver injury and death from acute liver failure. (10)
2. The Greek God who was punished by Zeus, such that an eagle came and ate a part of his liver every day, only for it to grow back every night, meaning that he would need to endure his punishment for eternity. (10)
3. Late stage of scarring of the liver caused by many forms of liver diseases and conditions such as chronic alcoholism and hepatitis. (9)
4. _____combines the local delivery of chemotherapy with a procedure called embolization to treat cancer, most often of the liver. (4)
5. _____clearance assessment is the most commonly used dynamic liver function test performed at bedside. (ICG)
6. _____disease is a genetic disorder in which copper builds up in the body, mainly in the liver, the brain, the eyes and other organs. (6)
7. _____is an endoscopic procedure used to treat swallowing disorders, most commonly achalasia. (4)

DOWN

8. A surgical procedure to remove the gall bladder. (15)
9. The Couinaud classification divides the liver into _____segments based on portal bifurcations. (5)
10. The two sources of blood supply to the liver are the hepatic artery and the ____ ____. (6,4)
11. Liver flaps are also known as _____. (9)
12. A mixed gland with both an endocrine and a digestive exocrine function. (7)

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