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LIVER DISEASE MANAGEMENT & TRANSPLANT SERVICES • CENTER FOR COMPLEX DIGESTIVE DISEASE

SPOTLIGHT ON NEW HEPATOLOGY
AND GI TESTS AND TREATMENTS

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Capsule Endoscopy Helps Diagnose Intestinal Disorders

by Kenneth Binmoeller, M.D., and Laura Miyashita

A disposable imaging capsule that transmits video signals of a patient's digestive tract is allowing California Pacific physicians to better diagnose pathology in the small bowel.

Approved by the FDA in August 2001, the capsule endoscope has been in use by California Pacific's Interventional Endoscopy Service (IES) ever since. Among the diagnoses confirmed by the procedure include Crohn's Disease, arterio-venous malformations, Dieulafoy's lesion (exulceratio simplex), and a small bowel tumor.

"Capsule endoscopy allows us to survey the entire small bowel," says Kenneth Binmoeller, M.D., director of Interventional Endoscopy. "This complements standard upper endoscopy and colonoscopy, providing the endoscopist with a comprehensive evaluation of the GI tract."

Patients undergoing capsule endoscopy first have eight aerals taped to their body from which video images are transmitted. The aerals are connected to a small storage device secured on the patient's belt that captures tens of thousands of images for future downloading. Next, the patient swallows the capsule and it moves through the GI tract via the bowel's natural movements. As the capsule passes through the GI tract, it transmits two video signals every second—all of which are captured in the storage device. These signals also enable the system to trace

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The capsule endoscope (11 x 13 mm) contains a camera, light source, radio transmitter and battery.



Image of arteriovenous malformation (AVM) taken by capsule endoscope.

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Honor Robert Gish, M.D.

New Hepatitis C (HCV) Tests Detect Minute Virus Traces

Qualitative HCV RNA Test Proves Useful in
Measuring Efficacy of Combination Therapy

by Robert Gish, M.D., and Laura Miyashita

The development of highly sensitive molecular tests for HCV RNA is proving extremely useful in confirming active infection and assessing one's response to drug therapy. "Over the past 10 years, testing for HCV RNA has become increasingly more sophisticated, and current assays which can detect viral

levels as low as 5 IU or 20 viral copies per milliliter of blood have the potential to dramatically alter current stopping rules for combination therapy," says Robert Gish, M.D., medical director of California Pacific's Liver Disease Management & Transplant Team.

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New GERD Treatment Reduces Medication Dependency

by William Snape, M.D., and Laura Miyashita



The endoscopic suturing device places stitches to cinch close the gastroesophageal junction, decreasing acid reflux.

Patients with Gastroesophageal Reflux Disease (GERD) who require continuous acid reduction can benefit from a new procedure that prevents reflux of gastric contents into the esophagus. Similar to a purse string in its effect, the EndoCinch™ Suturing System consists of passing a suturing device through an endoscope and placing sutures at the junction between the lower esophagus and stomach.

in the past six months, all with favorable outcomes. In early studies, the response rate to the EndoCinch procedure is greater than 90 percent.

Approved by the U.S. Food and Drug Administration (FDA) in 2000, the EndoCinch device offers treatment for GERD, a condition affecting approximately 15 million Americans. Although most patients with GERD can be treated with diet modifications or modest medications, some require continuous acid reduction. Prior to the availability of EndoCinch, these patients would have been placed on a proton pump inhibitor or have undergone fundoplication.

“The major advantage of the EndoCinch is that it reduces the need for taking expensive medicines every day,” says William Snape, M.D., director of California Pacific’s Motility Program. He adds, “It is also a good form of therapy for patients who don’t really need the invasiveness of typical GERD surgery.” Snape has performed nearly a dozen EndoCinch procedures (also called gastric plication)

The EndoCinch procedure is performed on an outpatient basis and takes approximately 1.5 hours. Patients recover rapidly and can typically eat a full diet in 24–36 hours.

For more information on the EndoCinch or our Motility Program, call our Specialty Referral Program at 1-888-637-2762.

Advances in Radiofrequency Ablation Benefit Patients with Unresectable Liver Lesions

by Robert Osorio, M.D., and Laura Miyashita



A new starburst design enables surgeons to ablate liver lesions up to 5 cm.

While radiofrequency (RF) ablation has been an option for liver cancer patients for several years, new technology has expanded its use to larger tumors or multiple, unresectable lesions.

“We can now ablate tumors up to 5 cm in diameter, either through a laproscopic, percutaneous or open approach,” says Robert Osorio, M.D., surgical director of California Pacific’s Liver Disease Management & Transplant Program. “This expands the patient base to which we can offer radiofrequency ablation, making it a viable option for patients with multiple metastatic tumors or larger tumors.”

California Pacific’s Liver Program uses a new device called the RITA® StarBurst™ System. To perform the ablation, a thin (14 gauge) needle electrode is inserted into the lesion under ultrasound or CT guidance. From the tip of this electrode, nine prongs are deployed into the lesion. An electrical current passes through these prongs, causing the surrounding tissue to become super-heated to 70°C and cells to die within minutes. Each such cycle creates up to a 5 cm spherical volume of necrotic tissue. By carefully placing and replacing the needle electrode, lesions of varying sizes can be completely ablated.

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There are two qualitative tests for HCV RNA:

- Transcription-mediated amplification (TMA) assay; and
- Polymerase chain reaction (PCR) assay.

Of these two, the TMA assay is the most sensitive. Research has shown that the TMA assay detects the presence of HCV RNA in more than 50% of individuals who were reported as having no virus by the PCR test at the end of treatment.

Because of the sensitivity of the TMA assay, Gish’s team uses this test to confirm HCV infection in

patients who are immune suppressed or antibody negative. The assay is also used at the end of combination therapy to determine an appropriate stop date and a patient’s sustained response six months following treatment.

Comparison of HCV RNA Detection Between PCR and TMA; All Patients Treated with Combination Therapy

Classification	PCR		TMA	
	Positive	Negative	Positive	Negative
Sustained Responder	0	59	1	58
End-of-Treatment Responder	0	47	24	23
Nonresponder	49	0	48	1

Source: Sarrazin C, et al. Hepatology. 2000; 32:818-823

Hepatic Arterial Infusion Delivers Targeted Chemotherapy

by Robert Osorio, M.D., and Laura Miyashita

New data and the ability to laparoscopically place hepatic arterial infusion pumps (HAI Therapy) has renewed interest in targeted chemotherapy treatment. According to research in the *New England Journal of Medicine*, HAI Therapy has proven to be highly effective when used as an adjuvant to systemic therapy and surgical resection of colorectal liver metastases.

Hepatic infusion uses an implantable drug pump (see illustration) to deliver chemotherapeutic agents to the liver through a catheter placed in the hepatic artery. The three-inch wide pump is placed beneath the skin of one's abdomen, just above the belt line, during either an open procedure or laparoscopically. Depending on the protocol developed by the oncologist, the pump can be refilled with additional medication.

"What's exciting is that we can now place HAI pumps laparoscopically and thereby minimize

patients' post-operative recovery," says Robert Osorio, M.D., surgical director of California Pacific's Liver Disease Management & Transplant Program. Typically, HAI Therapy is used along with traditional chemotherapy treatments and surgical procedures to deliver a higher concentration chemotherapy drugs. Because the liver generally removes 94-99% of drugs delivered via systemic chemotherapy before they enter the rest of the body, HAI Therapy combats this dilution by delivering the drug in higher doses, without the additional chemotherapy treatments.

For further information on treatment options for liver cancer, call our Specialty Referral Program at 1-888-637-2762.



HAI Therapy delivers concentrated doses of chemotherapy directly into the liver's hepatic artery, where it is most effective.

Gastric Electrical Stimulation Used to Manage Chronic Nausea and Vomiting Associated with Gastroparesis

by William Snape, M.D., and Laura Miyashita

An implantable pacemaker connected to two wires in the stomach wall offers hope to patients with intractable nausea and vomiting who are unresponsive to medical therapy. Named Enterra™ Therapy, this new device uses mild electrical pulses to stimulate the stomach, thereby controlling the nausea and vomiting associated with gastroparesis.

Gastroparesis is a stomach disorder in which food moves through the stomach more slowly than normal. In some patients—primarily those with diabetes—this condition results in severe, chronic nausea. Patients with gastroparesis typically have multiple hospitalizations to treat dehydration and decreased blood volumes as a result of their nausea and inability to drink fluid.

Covered under the U.S. Food and Drug Administration's (FDA) humanitarian device exemption, a few hundred gastric electrical stimulation procedures are expected annually because of the relatively small patient population suffering from gastroparesis.

At California Pacific, Motility Program Director William Snape, M.D., and Laparoscopic Surgeon Gregg Jossart, M.D., have implanted three gastric pacemakers to date.

During the procedure, two wires are placed in the stomach laparoscopically while the neurostimulator is placed in the abdominal wall's subcutaneous tissue laparoscopically. The neurostimulator is controlled with a programmer administered by the physician, and patients have clinic visits monthly to monitor the stimulation frequency.

Currently, patients treated at California Pacific with gastric electrical stimulation have responded to the therapy very well. As Snape explains, "This therapy shows great promise for decreasing hospitalizations stemming from gastroparesis symptoms."

For more information on gastric electrical stimulation or our Motility Program, call our Specialty Referral Program at 1-888-637-2762.

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The RITA procedure has been safely performed in more than 3,000 cases in the United States, and is currently available at California Pacific. It has been performed on liver lesions of various origins, including hepatocellular carcinoma (HCC),

adenocarcinomas (especially those of colon/rectal origin), various sarcomas, and neuro-endocrine lesions including carcinoid.

For further information on radiofrequency ablation or treatment options for liver cancer, call our Specialty Referral Program at 1-888-637-2762.

American Liver Foundation to Honor Robert Gish, M.D.



Robert Gish, M.D.

This year's "Salute to Excellence," held February 9, 2002, in San Francisco, will honor the leadership and accomplishments of Robert Gish, M.D., medical director of California Pacific's Liver Disease Management & Transplant Program. Sponsored by the American Liver Foundation's Northern California Chapter, "Salute to Excellence" honors special achievements in the medical and biopharmaceutical industries.

Among other achievements, Dr. Gish founded a network of outreach clinics to bring quality hepatology and liver transplant clinical care to communities throughout Northern California and Nevada. This network—comprised of 18 outreach sites and three research clinics—provides patients with specialized medical care for liver disease and transplantation, as well as clinical trials for new viral hepatitis therapies. For further information on the event, contact the American Liver Foundation at (415) 248-1060.

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the physical course of the capsule's progress. The capsule is excreted naturally out of the body after about seven hours and the video is then downloaded to a workstation for viewing.

California Pacific's first capsule endoscopy patient suffered from an occult GI bleed requiring weekly blood transfusions. The patient had undergone every diagnostic procedure available—standard upper endoscopy and colonoscopy, enteroscopy, small bowel x-rays, and a red blood cell nuclear

medicine scan—with no results. After undergoing the capsule endoscopy, the images demonstrated several arteriovenous malformations (AVM) in the jejunum. "One of the AVMs was actually oozing bright red blood," says Dr. Binmoeller. After undergoing laparoscopic surgery with an oversew of the AVMs, the patient's bleeding problem has been resolved.

For more information on capsule endoscopy or our Interventional Endoscopy Service, call our Specialty Referral Program at 1-888-637-2762.

www.cpmc.org/liver



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