



THE INSTITUTE FOR CANCER CARE AT MERCY

PHYSICIANS ON THE LEADING EDGE OF EXCELLENCE

Liver Cancer: Causes, Diagnosis and Treatment

Anurag Maheshwari, M.D. | The Melissa L. Posner Institute for Digestive Health and Liver Disease at Mercy

Hepatocellular carcinoma (HCC), also referred to as liver cancer, occurs predominantly in patients with cirrhosis. It is now the second leading cause of cancer related death worldwide, with an incidence of 6 per 100,000 or approximately 420,000 people affected worldwide. The incidence of liver cancer in the United States has doubled from 1975 to 2014. It is more common in men, and in the African American and Asian populations. The risk factors for HCC are all etiologies of chronic liver disease such as viral hepatitis B and C, alcohol abuse, fatty liver and autoimmune liver diseases. Despite recent advances in the treatment of hepatitis C, the incidence of HCC is expected to rise due to the epidemic of fatty liver disease known as NASH.

Early Detection For Patients At Risk

Early detection of HCC by surveillance is recommended for all patients at risk of developing HCC. Imaging is the backbone of surveillance with biopsies reserved only for a small minority. The most sensitive modality of imaging is an MRI of the abdomen. However, due to its prohibitive cost, the national society



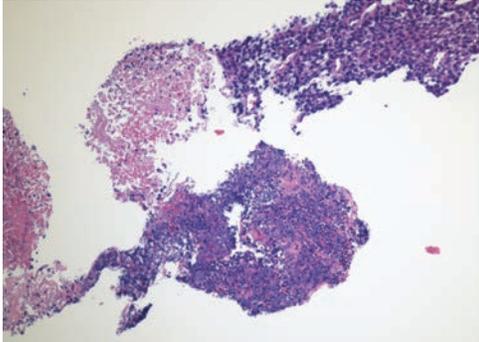
Anurag Maheshwari, M.D., of The Melissa L. Posner Institute for Digestive Health and Liver Disease at Mercy, specializes in liver disease, including hepatocellular carcinoma or liver cancer. Dr. Maheshwari helps patients in need of liver transplants and helps in pre-and post-operative transplant medical care, coordination with liver transplant centers, and understanding as they progress toward recovery.

guidelines recommend an ultrasound every six months. In clinical practice, a yearly triple phase CT of liver is considered acceptable, and utilized most often for HCC surveillance. During early stages, patients are usually

asymptomatic, however with advancing disease they might present with pain in the upper right part of abdomen, loss of appetite, weight loss, fatigue and jaundice.

continued on page 2

Liver Cancer: Causes, Diagnosis and Treatment *continued from page 1*



H+E with 10X objective showing normal liver in pink, and tumor in dark blue with areas of necrosis at the bottom of the slide.

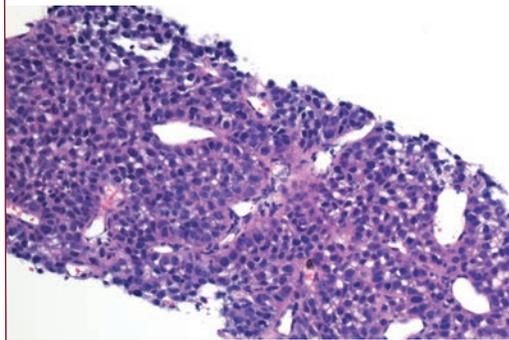
Treatment Options for Liver Cancer

Treatment options for HCC include liver transplantation, surgery (for resection of the tumor), or loco-regional therapy that includes localized chemotherapy (called trans-arterial chemo-embolization or TACE), radiotherapy (radio-embolization or single beam radiotherapy), cryo-ablation, or radio-frequency ablation (RFA). With the exception of surgery and liver transplantation, all other modalities of therapy are considered palliative; that is, they help extend life, but are not a cure for the cancer. Resection is only feasible in about 10% of the cases due to tumor location and co-morbid conditions. There is also a high rate of recurrence of cancer (up to 70%) after initial surgery. Therefore, the best treatment for HCC is liver transplantation, which offers a long-term cure with a low risk of recurrence. However, only patients with stage 2 cancer that fits into the MILAN Criteria (used to assess suitability for transplant) are considered eligible to receive liver transplantation.

At Mercy Medical Center, we have a collaborative program with the University of

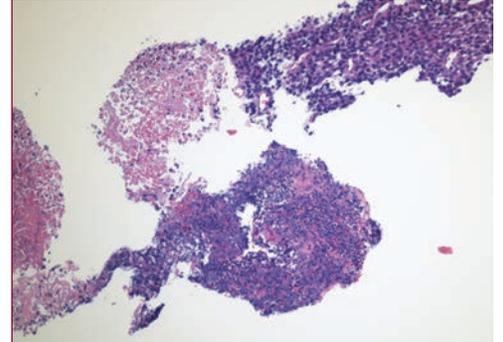
Maryland Transplant Center to help patients achieve liver transplantation. However, the average wait time is nine months. Therefore, we utilize other treatment options at Mercy Medical Center to prevent growth of the tumor while waiting for a donor organ. A brief description of each and their advantages are detailed below:

1. RFA or TACE are currently recommended as a bridge to liver transplant to prevent tumor progression. RFA utilizes radio-frequency waves to kill a core of tissue surrounding the tip of a needle. TACE delivers chemotherapy directly into the tumor by selective hepatic artery cannulation followed by embolization of the feeding vessel thereby combining the effects of chemotherapy with localized ischemia.



H+E of tumor with 20X objective showing loss of landmarks (portal triad, central veins and hepatic sinusoids) with neoplastic tissue showing wide trabeculae (> 3 cells), cytologic atypia and mitotic activity.

2. Radio-therapy: this uses embolization of the feeding vessel (TARE) with the injection of microspheres loaded with Yttrium-90, a pure beta emitter with short tissue penetration, or the delivery of localized radiation using single beam therapy.



Immunohistochemical stains for HSA (hepatocyte specific antigen, also known as HepPar1) that stains fetal, adult and neoplastic liver in 80-100% of cases.

Radio-therapy can be offered to patients with portal thrombosis who may not be eligible for TACE.

- 3. Cryoablation:** uses the same concept as RFA except tissue destruction is achieved by freezing.
- 4. Oral chemotherapy** with sorafenib inhibits the formation of new blood vessels around the tumor, thus starving it of oxygen and nutrients.

Team Approach for Best Outcomes

The management of HCC requires a multidisciplinary approach including hepatologists, surgical oncologists, transplant surgeons, and interventional radiologists. Early detection and early referral to Hepatology is crucial in order to provide the best outcomes for these patients.

Alina Cherry, PA-C, also contributed to this article.



Vadim Gushchin, M.D., surgical oncologist, uses the da Vinci robot to perform a total gastrectomy on a patient diagnosed with the hereditary diffuse gastric cancer (HDGC). Patients with HDGC are carriers of the CDH1 mutation. Eight out of 10 CDH1 carriers will develop a deadly form of gastric cancer. Recommended treatment of care is a multidisciplinary team consisting of gastric surgery, genetics, gastroenterology, pathology, and nutrition.

Hereditary Diffuse Gastric Cancer:

Vadim Gushchin, M.D. | Surgical Oncology

“I am eating almost as much as I did before the surgery,” said my 30-year-old patient before her second postoperative visit after having a robotic gastrectomy four weeks ago. Most likely, she is exaggerating her progress – I said to myself – at least it is sign of a positive attitude. This patient has special meaning to me for a couple of reasons. First, using the daVinci robot, allowed for a smooth, early recovery, but also because I removed a healthy stomach. Second, the pathology examination confirmed – no tumor found between the esophagus and the duodenum.

This story started five years ago when our surgical oncology team treated a 48-year-old woman with stage IV gastric cancer. The tumor had spread through the peritoneum and the patient elected to have cytoreductive surgery and HIPEC. She died two years later from progression of the disease. At that time, we noticed the family history of an unusual type of breast cancer – lobular. Even the patient herself was a breast cancer survivor prior to the diagnosis of gastric cancer. After meticulous data gathering and analyzing by Mercy’s genetic counselor, a genetic test was done and confirmed the clinical impression. The patient had a gene mutation known as CDH1. Several relatives including the patient’s two daughters also were found to be a carrier of the gene.

About CDH1 Mutation

The CDH1 mutation has well-known consequences for its carriers: 8 out of 10 will develop a lethal type of gastric cancer and half of the women will be diagnosed with lobular (treatable) breast cancer during their lifetime. The mutation leads to a faulty protein E-cadherin, which interferes with cell-to-cell communication and induces cell progression to cancer. The average age of diagnosis of gastric cancer – by far the deadlier of the two malignancies associated with CDH1 mutation – is 38. At present, there are no known methods of screening or protection from gastric cancer in CDH1 carriers. Removal of the entire stomach – also known as a total gastrectomy – before the cancer forms is the only way to save the lives of these individuals.

A Family Diagnosis and Treatment

It is certainly not easy for a young woman to deal with the chilling cancer statistics of being an unlucky carrier of the CDH1 mutation. Although lobular breast cancer could be well treated, it is the gastric cancer that makes the patient, her family, and her doctors nervous every time she would undergo an upper endoscopy – what if this deadly tumor had already grown. When confronted with the odds of 80% risk of developing the tumor, for the majority of patients, removing the stomach becomes the only logical solution.

Living With Total Gastrectomy

Certainly, total gastrectomy significantly changes patients' lives. We typically do not think twice about eating a plate of food. However, for a patient without a stomach, drinking a half of a glass of water (not to mention eating a sandwich) becomes a challenge. During the initial adjustment period, maintaining weight and not getting dehydrated may be problematic. Social eating gatherings, such as Thanksgiving dinner, would not be the same. Fortunately, my patient's healthy and positive attitude, the experience of her family members (her sister and aunt both had prophylactic gastrectomies), and preoperative dietary counseling helped establish realistic expectations. A month after her surgery, I see all the signs that she will succeed in living an almost normal life after gastrectomy.

Benefits of 21st Century Oncology

For the oncologist, such cases have a special meaning. On the surface, using the daVinci robot is the hallmark of 21st century medicine. The operation is high tech, very precise, and minimally invasive. The patient left the hospital in five days with minimal discomfort and focused on a new eating pattern. However, the true appeal for me is the clinical “detective” work of the oncologists and medical geneticist who suspected and identified the potentially deadly CDH1 mutation and expertly counseled the patient and the family. In the end, the cancer was treated before it had a chance to develop, which is an amazing concept. This was made possible not only because of the new technology of new genetic tests but also because of the effective use of medical knowledge and information. It is true 21st century oncology that we have privilege to practice at the Institute for Cancer Care at Mercy.



Dr. Armando Sardi, Institute for Cancer Care, makes presentation about international outreach at Colombia Embassy in Washington, D.C.

Mercy's Dr. Armando Sardi, Director, The Institute for Cancer Care, visited the Embassy of Colombia in Washington, D.C. in April 2016, presenting information about the work Partners for Cancer Care and Prevention (PFCCAP) has done along with its sister organization, Fundacion Para la Prevencion y el Tratamiento de Cancer, among others, helping thousands of patients in Dr. Sardi's native Colombia.

Dr. Judith Salerno, President and Chief Executive Officer of Susan G. Komen[®], was also among the presenters speaking about their work in the United States and in Latin America. The mission of PFCCAP is to decrease the individual and community burdens of breast and cervical cancer in Colombia, by mitigating the obstacles that women face during their cancer journey. PFCCAP is developing a pilot program to be replicated in other areas of Colombia and Latin America.

In 2006, when he first returned to his native Cali, Colombia with 28 volunteers to provide medical services, Dr. Sardi could not imagine the journey he would begin. From its humble beginnings, Dr. Sardi's "Mission to Colombia" evolved into Partners for Cancer Care and Prevention, a 501(c)(3) non-profit organization that is now making a sustainable impact on health access in Cali.

To-date, PFCCAP has helped over 35,000 patients. Along with the Colombian branch of the organization - Fundacion Para la Prevencion y el Tratamiento de Cancer - and the continuous support of individual donors and from private and public organizations, PFCCAP will continue to bring care to those in need.



SAVE THE DATES



Mark your calendars for the sixth annual Heat it to Beat It Walk on Sunday, September 18, 2016 at The Maryland Zoo in Baltimore. The event goal is to raise funds and awareness for the Peritoneal Carcinomatosis research.

Funds raised support:

- Research trials relating to molecular profiles of appendiceal tumors
- First line treatment and study for ovarian cancer with CRS/HIPEC
- Quality of life study of post HIPEC patients
- Alternative and supplemental treatment options
- Funding for research nurses and research fellow
- Publication in major medical journals and presentation at national and international conferences

2015 RESULTS

In 2015, a record number 61 teams, 628 patients, families and friends joined the walk to raise \$142,000.



For the first time, a team of 22 runners represented HITBI at the Baltimore Running Festival and collectively raised \$8,000. For the 2016 event, Falls Road Running Store has agreed to partner with us. For more information about the 2016 event, please visit www.heat-it.org.

Mercy's Annual Celebration of National Cancer Survivors Day



Come share and celebrate the lives of our cancer survivors, loved ones and caregivers and advocates for cancer patients on June 12, 2016. This day of celebration provides an opportunity for survivors to connect with one another, share ongoing challenges of cancer survivorship, and show the world that life after a cancer diagnosis can be fruitful, rewarding, and inspiring.



Members of Mercy Medical Center's diverse cancer team recently assembled to form a team human cancer ribbon. The gathering demonstrated the various types of cancer treated at Mercy and the important role that the entire team plays in caring for our cancer patients and their caregivers. More than 200 employees, including physicians, surgeons, nurses, physician assistants and administrative staff wore a color that represents a specific type of cancer.



Armando Sardi, M.D., FACS

Director, Institute for Cancer Care

Hoffberger Breast Center

Neil B. Friedman, M.D.
Gauri C. Bedi, M.D.
Jennifer E. Joh, M.D.
410-332-9330

Dermatology

Oanh Laurant, M.D.
Janet Lin, M.D.
Linda C. Wang, M.D., JD
410-332-9260

Melissa L. Posner Institute for Digestive Health & Liver Disease

Paul Thuluvath, M.D.
Michael Cox, M.D.
Richard Desi, M.D.
Matilda Hagan, M.D.
Mary Harris, M.D.
Scott Huber, M.D.
Patrick Hyatt, M.D.
Sergey Kantsevov, M.D.
Anurag Maheshwari, M.D.
Lisa Pichney, M.D.
Debra Vachon, M.D.
Hwan Yoo, M.D.
410-332-9356

Center for Minimally Invasive Surgery

Thomas Swope, M.D.
Kelly Alexander, M.D.
Nora Meenaghan, M.D.
410-332-9653

Gastroenterology

Jonathan B. Schreiber, M.D.
410-332-9195

Gynecologic Oncology Center

Dwight Im, M.D.
Neil Rosenshein, M.D.
Teresa Díaz-Montes, M.D.
Hyung S. Ryu, M.D.
410-332-9200

Interventional Pain Medicine

David Maine, M.D.
James A. McGowan, M.D.
410-332-9036

Inpatient Oncology

Isatu Jalloh, RN
443-955-4816

Lung Center

Albert Polito, M.D.
Elizabeth Kochman, M.D.
Audrey Liu, M.D.
410-332-9732

The Cancer Doctors at Overlea

Vadim Gushchin, M.D.
Maria Jacobs, M.D.
Peter Ledakis, M.D.
410-663-0619

Medical Oncology & Hematology

David Riseberg, M.D.
Sandy D. Kotiah, M.D.
Peter Ledakis, M.D.
410-783-5858

The Cancer Doctors at Lutherville

Vadim Gushchin, M.D.
Richard L. Huslig, M.D.
Jennifer E. Joh, M.D.
Sandy D. Kotiah, M.D.
David Riseberg, M.D.
410-252-2273

Department of Surgery

Phuong Nguyen, M.D.
410-332-9265

Outpatient Chemotherapy

Joan Marie Lake, RN, MA, CCRC, CPHQ
410-783-5866

Prevention & Research Center

410-951-7950

Interventional Radiology

Brad Cogan, M.D.
Robert Liddell, M.D.
David Sill, M.D.
410-332-9286

Radiation Oncology

Maria Jacobs, M.D.
Benjamin Laser, M.D.
410-332-9055

Plastic & Reconstructive Surgery

Bernard Chang, M.D.
Brendan Collins, M.D.
Craig Vander Kolk, M.D.
410-332-9700

Surgical Oncology

Armando Sardi, M.D.
Kurtis Campbell, M.D.
Vadim Gushchin, M.D.
410-332-9294

Urology Center

Stanley Silber, M.D.
Ira Hantman, M.D.
Blaine Kristo, M.D.
Alan Kusakabe, M.D.
Robert Thompson, Jr., M.D.
410-332-9654

Thyroid Cancer

Errol Rushovich, M.D.
William Valente, M.D.
Asif Mohamed, M.D.
Supneet Saluja, M.D.
410-332-9654

Tyanna O'Brien Center for Women's Imaging

Jean K. Warner, M.D.
Liba Goldblum, M.D.
David Sill, M.D.
Vera Stewart, M.D.
Deepa M. Masrani, M.D.
410-332-9102

The Institute for Cancer Care
AT MERCY

The Institute for Cancer Care at Mercy offers:

- One-of-a-kind cancer treatment center
- A multi-disciplinary team of physician experts
- Dedication to advancing breakthrough treatments for cancer management
- Cutting-edge cancer treatment with access to the latest clinical trials
- Pioneering and complex surgical techniques
- Innovative cancer therapies to meet clinical as well as personal needs for each patient
- Survivorship wellness programs for patients

227 St. Paul Place | Baltimore, MD 21202

410-332-9294 | TTY 410-332-9888

1-888-MDHEALS

