# **U**KHealthCare

# Collaboration

Number 2, September 2012

# Liver Tumor Program

at UK HealthCare





How we can help: The liver tumor program at UK HealthCare works closely with primary care providers as well as cancer and liver specialists to encourage ongoing surveillance of high-risk patients, provides hepatocellular carcinoma screening for cirrhotic patients, offers immediate referral access for liver tumor patients and utilizes new treatment therapies for all groups.

Program overview: UK HealthCare's liver tumor program offers the referring physician and patient the following benefits:

- A 19-physician tumor board that reviews cases and identifies an individualized treatment plan.
- Multiple treatment options for complex cases.
- Timely communication with the referring physician to ensure continuity of care.
- Success in treating tumors that even a few years ago could not be treated.
- The opportunity for patients to participate in clinical trials.
- High survival rates (Figure 1) reflect the value of the tumor board's group decision-making and customized treatment therapies.

Figure 1

# Liver Cancer Survival Rates UK HealthCare 23% National 11% State of Kentucky 7% Five-Year 1998-2007

Source: Markey Cancer Center, Kentucky Cancer Registry, National Cancer Institute Surveillance, Epidemiology and End Results (SEER) Program.



### **Liver Transplantation for Hepatocellular Carcinoma (HCC)**

The first line of treatment for HCC is surgical resection. Unfortunately, most patients with HCC are not candidates for surgical resection due to the presence of portal hypertension, liver failure or other comorbidities. For patients who are not surgical candidates, the best treatment option is liver transplantation, which provides excellent long-term outcomes for patients who are within Milan criteria (see below). Many patients who are beyond Milan criteria can be down-staged with radio frequency ablation, transarterial chemoembolization or radio embolization and can then successfully undergo transplantation.

#### Milan Criteria

One lesion <5cm or up to 3 lesions <3cm with no extrahepatic manifestation and no vascular invasion.







#### **Referral Process**

- 1. Urgent cases can be seen within three days and often the next day. Most referred patients are seen within one to two weeks. Referring physicians are asked to provide the patient with diagnostic images to bring to their appointment. A clinical exam, review of all pertinent images, laboratory values, pathology reports and a preliminary treatment plan with counseling are completed at the initial visit.
- 2. The case is presented at the next weekly tumor board meeting, where pathology and imaging studies are reviewed and an appropriate treatment plan is determined.
- 3. The patient is then seen again within one to two weeks and treated by the appropriate specialist of the multidisciplinary group as determined by the consensus treatment plan.
- 4. Systemic chemotherapy and radiotherapy are performed either at Markey Cancer Center or in concert with the referring oncology team.
- 5. The patient is seen one month after surgery and surveillance is coordinated between members of the hepatobiliary tumor program and the referring oncology, gastroenterology or primary care services.



# Case Study 1

# Synchronous Colorectal Hepatic Metastasis

A 73-year-old female presented for evaluation after consultation with a referring oncologist in October 2011. The patient underwent transanal excision of a T1N0 rectal cancer in 2004 and had been doing well until rectal bleeding recurred in September 2011. Patient evaluation identified a biopsy-proven rectal cancer involving the anal sphincter. Staging evaluation performed by the referring oncologist identified two PET avid liver lesions suspicious on MRI for metastases.

primary tumor and the hepatic metastases and to receive subsequent chemotherapy.

The patient returned to the referring oncologist and received neoadjuvant chemoradiation. She was re-evaluated at UK in December 2011, three weeks after completion of her chemoradiation. She underwent a combined laparoscopic partial right lobectomy and laparoscopic abdominoperineal resection by a liver program physician and a colorectal surgeon and

#### **Most Common Liver Tumors Treated**

Hepatocellular carcinoma • Cholangiocarcinoma • Colorectoral hepatic metastasis • Neuroendocrine hepatic metastasis • Noncolorectal, non-neuroendocrine, hepatic metastasis • Gallbladder cancer

Despite a negative liver biopsy, the referring oncologist consulted with UK by phone and ultimately referred the patient for consultation.

At a simultaneous visit, the patient was evaluated by a surgical oncologist and a colorectal surgeon and was approved for simultaneous resection of the rectal cancer and liver disease. No other disease concerns were identified. The case was discussed with the referring oncologist, the hepatobiliary tumor board and the gastrointestinal tumor board, and recommendations were made for the patient to receive neoaduvant chemoradiation followed by surgical resection of the

was discharged from the hospital with a colostomy on postoperative day four.

The referring oncologist was informed throughout the care process by regular calls and access to labs, X-rays and clinical notes via the UK HealthCare physician portal. Pathology confirmed a margin -negative resection at both sites. The patient continues to recover and is receiving adjuvant chemotherapy under the direction of her referring oncologist. The patient reported feeling educated about her plan of care and was prepared for surgery. Patient has fully recovered and is under further therapy.



# Neuroendocrine Tumors and Transplantation

Transplantation for neuroendocrine tumors is controversial. Mezzaferro's group in Italy recently proposed that patients who have less than 50 percent liver involvement, carcinoid histology, resection with control of the primary tumor, gastrointestinal origin with portal drainage and stable disease may benefit from liver transplantation<sup>1</sup>. Our group recently published a study in the Archives of Surgery describing the experience with 150 patients who underwent liver transplantation in the United States for metastatic neuroendocrine tumors<sup>2</sup>. We found that outcomes for liver transplantation for metastatic neuroendocrine tumors are very similar to outcomes for hepatocellular carcinoma, which is the most common transplant indication for cancer. We identified one-, three- and five-year survival rates of 81 percent, 65 percent and 49 percent, respectively.

#### References

- Mazzaferro V, Pulvirenti A, Coppa J. Neuroendocrine tumors metastatic to the liver: How to select patients for liver transplantation? J Hepatol. Oct 2007; 47(4): 460-466.
- 2. Gedaly R, Daily MF, Davenport D, McHugh PP, Koch A, Angulo P, Hundley JC. Liver transplantation for the treatment of liver metastases from neuroendocrine tumors: An analysis of the UNOS database. Arch Surg. 2011 Aug; 146(8): 953-8.

#### **IMPROVING** OUTCOMES

#### **Liver Tumor Board**

Key to improved outcomes is the tumor board which reviews each case. The tumor board meets weekly and consists of the following individuals:

Roberto Gedaly, MD Transplant and

Hepatobiliary Surgery

Jon Hundley, MD Transplant and

Hepatobiliary Surgery

Michael Daily, MD Transplant and

Hepatobiliary Surgery

Malay Shah, MD Transplant and

Hepatobiliary Surgery

Shaun McKenzie, MD Surgical Oncology and

Hepatobiliary Surgery

Lowell Anthony, MD Medical Oncology

Jens Rosenau, MD Hepatology

Eun Lee, MD Pathology

Mahesh Kudrimoti, MD Radiation Oncology

Hicham Abada, MD Interventional Radiology

Richard Pelligrini, MD Interventional Radiology

Steven Krohmer, MD Interventional Radiology

Thomas Seay, MD Interventional Radiology

Jimmy Lee, MD Diagnostic Radiology

Halmane Ganesh, MD Diagnostic Radiology

Adrian Dawkins, MD Diagnostic Radiology

Andres Ayoob, MD Diagnostic Radiology

Scott Stevens, MD Diagnostic Radiology

Rashmi Nair, MD Diagnostic Radiology

### Treatment Techniques Commonly Used

Open liver resection

Laparascopic liver resection

Liver transplantation

Transarterial chemoembolization (TACE)

Radiofrequency ablation (RFA)

Radioembolization

Targeted conformational external

beam radiation

Preoperative portal vein embolization

Systemic chemotherapy

# Liver Tumor Program Lead Physicians



Shaun McKenzie, MD 859-323-6346 shaun.mckenzie2@uky.edu

tumor program, joined Tech University School of Medical Center in Los



Roberto Gedaly, MD 859-323-4661 roberto.gedaly@uky.edu

Roberto Gedaly, MD, joined UK HealthCare in 2006 from the University of Tennessee and was appointed chief of abdominal transplantation surgery at UK in 2010. Dr. Gedaly completed three abdominal transplantation fellowships at Deaconess Hospital, Harvard University, in Boston; at Jackson Memorial Hospital, University of Miami, Florida; and at Methodist Hospital, University of Tennessee, Memphis. Now an internationally recognized transplant surgeon, Dr. Gedaly leads an active basic science research laboratory focusing on inhibition of hepatocellular carcinoma proliferation and detection and treatment of liver stem cells in hepatocellular carcinoma.



Jon Hundley, MD 859-323-4661 jonhundley@uky.edu

Jonathan Hundley, MD, was born and raised in Kentucky and graduated from the University of Louisville School of Medicine. Dr. Hundley completed his general surgery residency at the University of Michigan and a surgical fellowship in liver, kidney and pancreas transplantation at the University of Alabama. He joined UK HealthCare as surgical director of the UK liver transplant program in 2009. Dr. Hundley's research interests include liver transplantation outcomes and extracorporeal membrane oxygenation (ECMO) in organ donation He has written numerous publications, articles and chapters.

## Collaboration

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# Case Study 2

# Neuroendocrine Tumors and Liver Transplant

A 63-year-old female was diagnosed with colonic carcinoid tumor and underwent a right hemicolectomy in 2008 at a local hospital. In April 2011, the patient developed metastases to the liver and was told there were no hospitals in Kentucky equipped to deal with the diagnosis. The patient traveled more than 700 miles to a nationally recognized medical center for evaluation and was scheduled for operative resection.

Upon exploration, NASH cirrhosis was diagnosed and the patient underwent radiofrequency ablation of seven metastatic lesions and resection of one lesion. Postoperatively, the patient developed severe

hepatic decompensation and returned home for a liver transplant evaluation.

During a consultation with a physician's assistant in a local gastroenterology group, the patient was referred to UK HealthCare for management of neuroendocrine metastases. The patient was evaluated in the liver transplant clinic five days later and discussed in the hepatobiliary tumor board. Based on patient data, a liver transplant was performed in early 2012. The patient is doing well and MRI results at three months showed no tumor recurrence.

