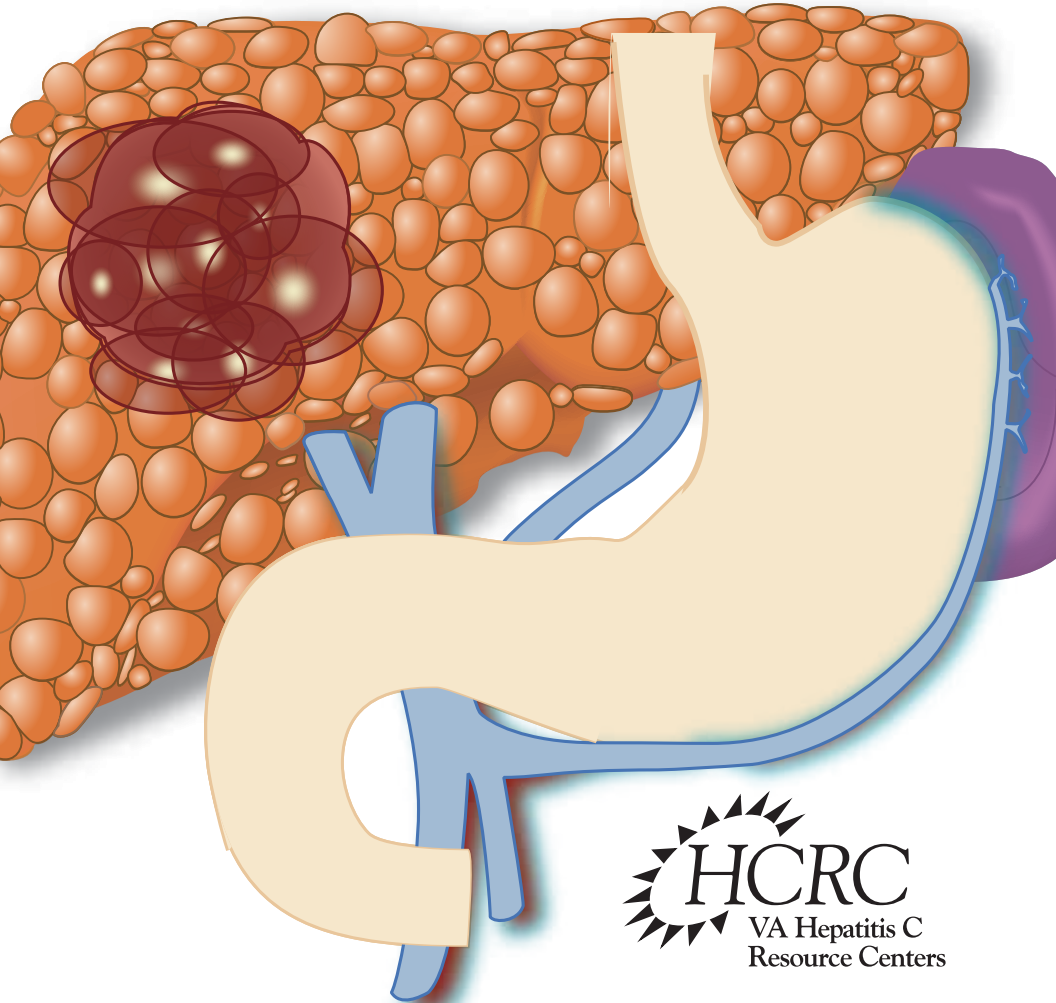





Department of
Veterans Affairs

LIVER TUMORS: A PATIENT'S GUIDE



 **HCRC**
VA Hepatitis C
Resource Centers

The full text of this document can be found and downloaded at www.hepatitis.va.gov. This document is not copyrighted and users are encouraged to print and distribute as many copies as they need.

Liver Tumors: A Patient's Guide

Version 1 (June 2011)

VA Hepatitis C Resources Center Program and
National Hepatitis C Program Office
Veterans Health Administration
U.S. Department of Veterans Affairs

www.hepatitis.va.gov



To our patients:

The ability to recognize and treat liver cancer has greatly improved in the past several years. If you are among the many patients who, after having an ultrasound, for example, have gotten the news that “there is a ‘mass,’ a ‘lump,’ a ‘lesion,’ or a ‘tumor’ in your liver and we don’t know yet what it is exactly,” then this booklet is for you!

The information we have presented here will let you know that there is an entire treatment team looking into this and will have answers soon.

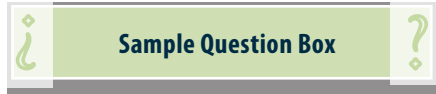
If your liver tumor turns out to be cancer, there are a number of possible options for treatment.

If this tumor turns out not to be cancer, then we hope this will help you understand any future risk and what steps you may need to take now.

We hope you will read this handbook and share it with family, friends and your other health care providers.

Let it guide you to ask your healthcare provider for more information about your particular situation. Sometimes the information provided during a clinic visit is much more than you can absorb right away. You may forget to ask what is most important to you or you may think of a question later.

Questions you might like to ask are highlighted in the Question Box for each section.



Reading this guidebook and jotting down your questions may make your visits with your health care provider much more helpful for you. In fact, the last pages of this pamphlet are meant for just that.

Write all your questions there and ask them when you have a chance.

A glossary is provided at the end of the booklet defining unfamiliar medical terms.

Additional information resources are suggested as well.

Your healthcare team is there for you!

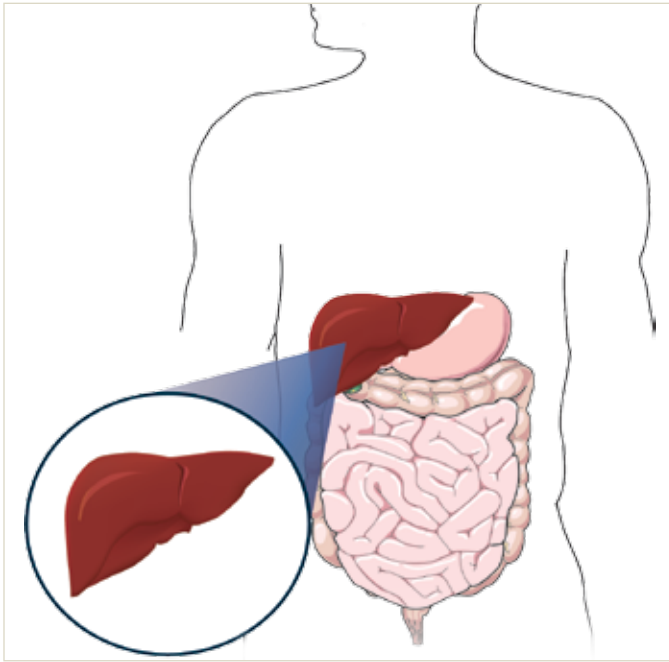


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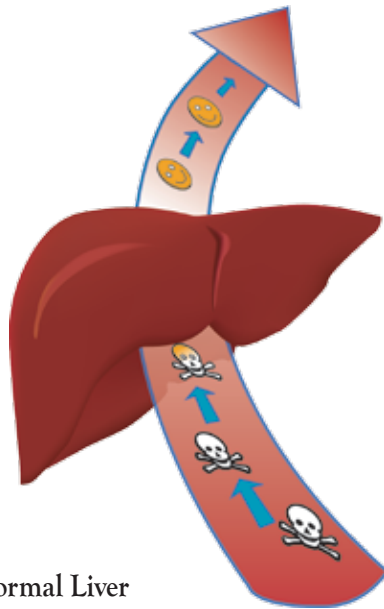
UNDERSTANDING LIVER TUMORS

WHAT IS THE LIVER?



*(Words in **bold print** are defined in the glossary)*

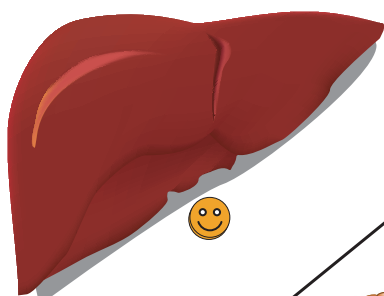
The liver is one of the largest organs in the body. It has many important jobs. It is like a factory that makes vital substances, such as **albumin** and products that help with blood clotting. It cleanses the body of toxins (like alcohol) and filters out bacteria. It produces bile that helps digest food. The healthy liver also gathers and stores important substances for your body to use later, such as sugar and vitamins.



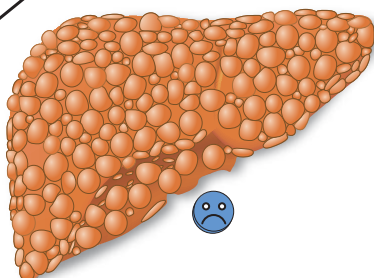
Normal Liver

The liver can perform these tasks because millions of cells work as a team around the clock. Everything that enters the body through the mouth is digested in the stomach and intestines. These raw materials enter the liver “factory” through the bloodstream and the worker cells break them down, purify them, make the products mentioned above, and get rid of harmful substances.

When something damages the liver, like some viruses, alcohol, or some medications, for example, liver cells die and scar tissue develops. When this goes on for many years, the liver shrinks and gets hard. This is called cirrhosis. People with cirrhosis are at risk for liver cancer.



Normal Liver

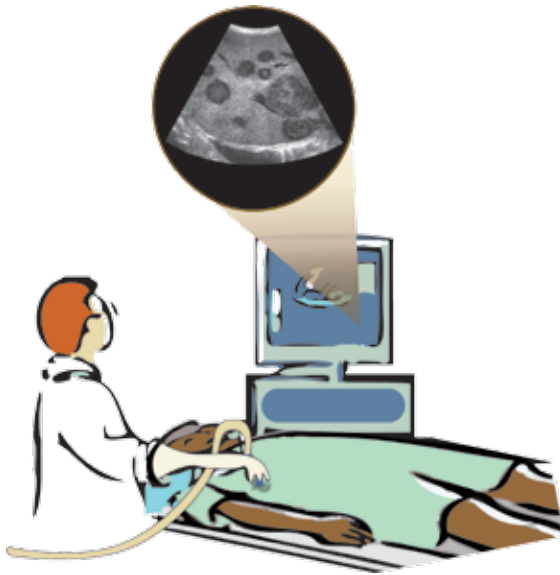


Cirrhotic Liver

There is a Veterans Affairs (VA) Hepatitis C Resource Center (HCRC) guidebook for patients with **cirrhosis** called ***Cirrhosis: A Patient's Guide***. This booklet may provide additional information that you would find helpful. It answers common questions about how this serious chronic condition is managed, and helps patients with cirrhosis to understand how they can best work with their providers to keep their liver healthy as long as possible.

- **Do I have cirrhosis?**
- **What is causing my liver disease?**
- **Is my liver still working well?**

WHAT IS A LIVER TUMOR?



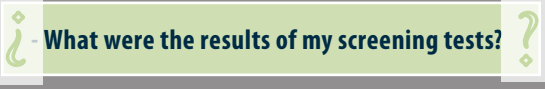
A liver tumor is a spontaneous new growth of tissue that forms a mass or a lump. Sometimes this can be a harmless or **benign** growth of liver cells. **Malignant** or cancerous tumors of the liver, on the other hand, are not harmless. They may start in the liver or they may start elsewhere, for example, the colon, the breast, or the lung, and spread to the liver. One kind of tumor that starts in the liver and is malignant is **hepatocellular carcinoma** and is commonly called HCC. An important thing to know about HCC is that having cirrhosis makes it more likely you will develop HCC.

Therefore, once a person develops cirrhosis, liver cancer screening is started. This means having an **ultrasound** of the liver. It may also involve a blood test called **alpha fetoprotein**, AFP for short, which is a tumor marker.

Because **AFP** is not accurate by itself (50% of people who have HCC have a normal AFP) having both a picture of the liver and a blood test for AFP increases the likelihood that a cancerous tumor, if one exists, will be found.

Another important thing to know is that cancerous tumors always grow. HCC may double in size over a period of six months. That's why the usual time period between screening tests is set at six months.

If the picture on the ultrasound is not normal, the health care provider informs the patient that the test shows a tumor or a "mass" in the liver. At this point it may not be known, without further testing, whether that tumor is harmless or whether it is a cancerous growth.



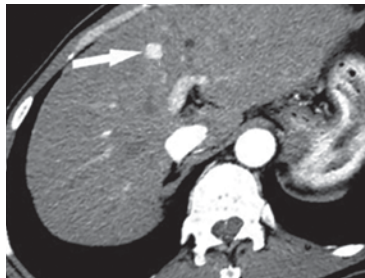
HOW DO WE KNOW IF IT IS LIVER CANCER OR NOT?

Once a liver tumor has been seen on a screening ultrasound, more tests will be necessary to definitely diagnose cancer (HCC). If the first test was an ultrasound then a **CT** scan may be ordered to get a better picture of the tumor. Sometimes it becomes clear on a CT scan that the tumor is either harmless or cancerous. Sometimes an **MRI** will be needed to better understand the liver mass. If the pictures we have taken do not completely answer the question, then a **liver biopsy** may be needed.

- **Why am I having this CT or MRI?**
- **Will I need a biopsy?**
- **How is a biopsy done?**



Sometimes the tumor that is seen is so small that it can't be determined if it is cancer or not. Cancer cells always increase in number faster than normal cells so, in the case of a tiny lump, the only way to find out if it is really a cancer is to repeat the test after a few months to see if it has grown. A tumor that does not get bigger is watched carefully over time and if it never grows then it is not cancerous. A tumor that grows may be cancer.





Larger health care centers may have a tumor board. This is a group of **liver specialists, liver surgeons, radiologists, interventional radiologists, pathologists, oncologists and nurse case managers**. These experts go over the results of all the tests to further understand what the tumor is, how big it is, whether there is one or more than one, where it is located and to decide what would be the best way to treat it. Patients living near smaller centers may have to travel to larger centers for treatment.

- ?** - **When will my particular case be reviewed by a tumor board?**
- **How soon will I know the results?**
 - **How likely is it that my tumor is cancer?**
- ?**

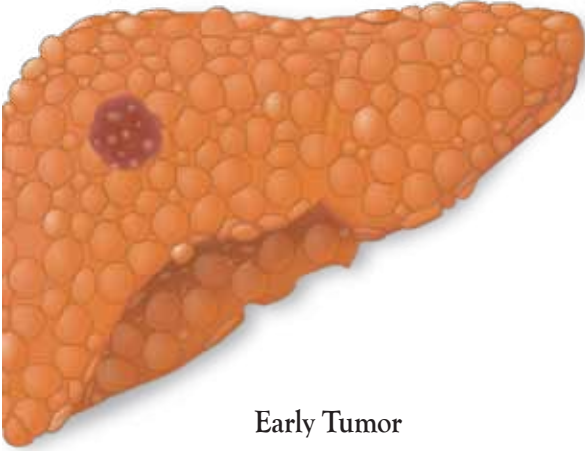
WHO GETS LIVER CANCER?

People with cirrhosis are at risk for liver cancer (HCC). Anyone with chronic **hepatitis C** who has had this infection long enough to develop cirrhosis is at increased risk for HCC. People whose cirrhosis was caused by long-term heavy alcohol use are also at risk.

People with **hepatitis B** have an increased risk for HCC even if they do not have cirrhosis. Many patients have no clear symptoms of liver cancer. This is why all people with cirrhosis and those with hepatitis B are offered a cancer screening test periodically. **Tumors that are found early can be treated more successfully.**

People at Highest Risk for Liver Cancer (HCC)	
Cirrhosis	No Cirrhosis
Chronic Hepatitis C Alcoholic Hepatitis Hemochromatosis Primary Biliary Cirrhosis Alpha1-Antitrypsin Deficiency Non-Alcoholic Steatohepatitis Autoimmune Hepatitis Chronic Hepatitis B <i>(with Cirrhosis)</i>	Hepatitis B Carriers – Asian Males Over 40 – Asian Females Over 50 – Africans Over 20 Unknown Causes



WHAT ARE THE TREATMENTS FOR LIVER CANCER?

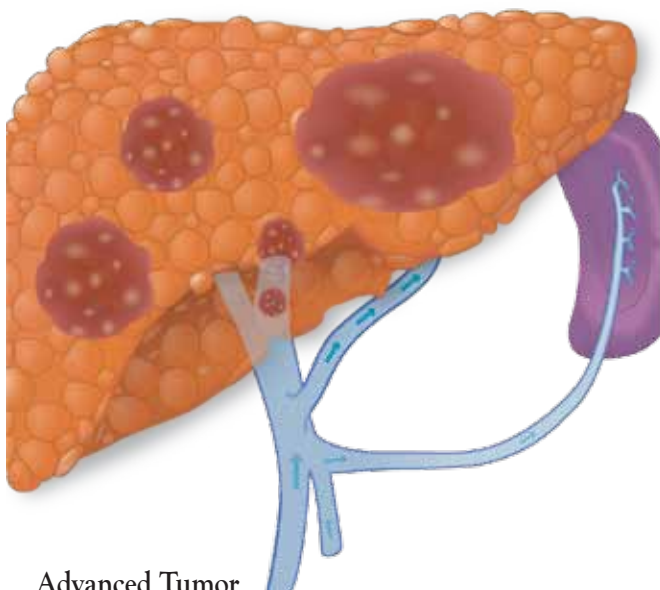


Early Tumor

Once it has been found that the tumor is actually a cancerous growth then the attention of the healthcare team turns to treatment. Knowing the size, the number and the location of the tumor(s); how well the liver is working; and the age and general health of the patient will help determine the best treatment.

Like in most cancers, the earlier a malignant tumor is found and the smaller it is, the more likely it is to be curable. Tumors that are discovered late and have had a chance to grow or multiply may not be curable.

 **How certain is it that I have a cancerous tumor?** 



Advanced Tumor

There are many different treatments for HCC. Some treatments are **curative**, meaning they can get rid of the cancer completely. Other treatments are called **palliative**. This means that they may reduce the size of the tumor or make it less likely to grow but they may not make it completely disappear. Each of the treatments we describe in the following pages has risks. For example, there may be a risk of bleeding or infection or blood clots. In some cases there may be the risk of injury to an already injured liver. At the time the treatment is offered the healthcare provider will explain exactly how the treatment works and what it will do to either cure the cancer or reduce its effects. At the same time any risk to the patient will be explained in detail.

With every treatment there are also predictable side effects that can be managed. When we explain each treatment we will mention the more common side effects that can be expected and how they are usually managed.

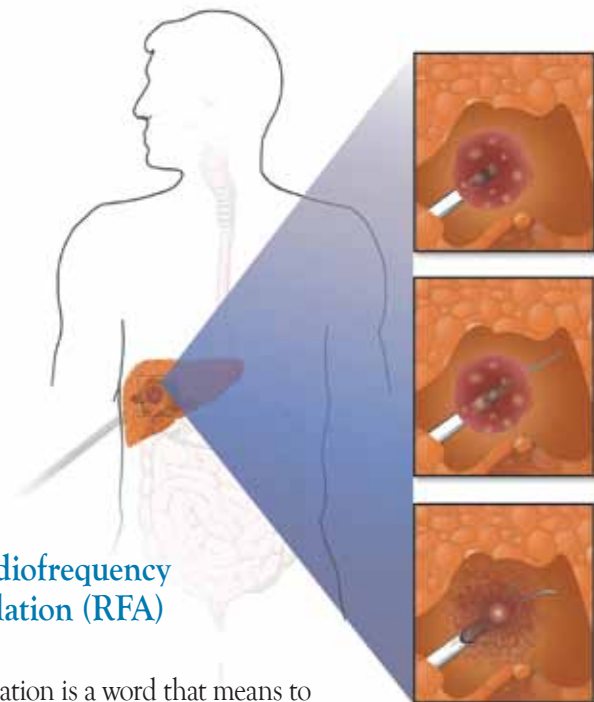
All of these treatments, whether they can produce a cure or not, may need additional supportive care given by specialists who practice **palliative medicine**.



Each of the treatments that are now available will be described in the following chapter. Some of the treatments described are only available at larger VA centers – so patients who want these treatments may have to travel to where they are available.

What are the chances my cancer can be completely cured?

TREATMENTS THAT CAN CURE LIVER CANCER



Radiofrequency Ablation (RFA)

Ablation is a word that means to remove or destroy tissue. RFA uses heat to kill the tumor. An **electrode** placed in the tumor produces enough heat to destroy the tumor cells. The heat also closes the small blood vessels that feed the tumor and prevents bleeding. In order to reach the tumor there are different routes. If the tumor is easily reached, then the simplest way is from outside the body, through the skin and muscle, and into the liver tumor. This can be done as an outpatient with **intravenous sedation**, often called conscious sedation. Other hard to reach tumors may need an inpatient stay and can be treated using either **laparoscopic** or **open surgery**. These methods require **general anesthesia**.

Common side effects: There can be pain in the area where the electrode enters the body and brings heat to the tumor. This is commonly managed by narcotic pain medication. There may be nausea for which anti-nausea medication will be offered. In general, patients can expect to feel better in 3-7 days.

Alcohol Injection

This technique is reserved for small tumors where the heat of RFA may injure a nearby organ (like the gallbladder), or not work due to the cooling effects of a nearby large blood vessel. Surgeons or radiologists often use ultrasound to pinpoint the location of the tumor and pass a needle into it. Then they inject a very strong alcohol. This alcohol is so strong that it kills whatever cells it contacts. Although the aim is to kill only cancer cells, some healthy cells in the liver may also die, but not enough to cause major liver damage.

Common side effects: This procedure may have to be done more than once and patients commonly experience pain each time it is repeated. Narcotic pain medications are offered to make the pain tolerable. If there is nausea, anti-nausea medications are offered.

 **Is RFA recommended for me?**

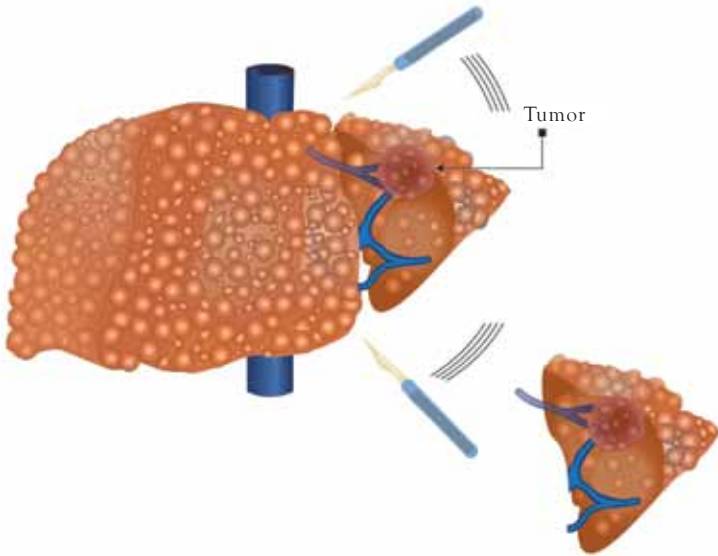
- **Why or why not?**
- **If I have RFA what will I experience?**
- **How long will it take to recover from this procedure?**
- **How much discomfort does this treatment cause?**
- **What other side effects can I expect?**



- **Is alcohol injection recommended for me?**
- **Why or why not?**
- **If I have alcohol injection what will I experience?**
- **How long will it take to recover from this procedure?**
- **What are the side effects?**



Surgical Resection



One way to get rid of a tumor is by cutting it out (resection). This, of course, is major surgery and requires an entire surgical team. Although removal of the tumor can be very successful, the patient's liver must be working very well in order to allow some of it to be removed and still have good liver function.

If the liver is not working well to begin with, cutting out the tumor may lead to liver failure and death.

Common side effects: These are similar to what is experienced after any major surgery. The hospital stay can be between 7-10 days, depending on whether the abdomen has to be opened or whether the procedure can be done **laparoscopically**.

- There is always pain associated with surgery but this is managed with narcotic pain medications.
- There may be nausea and this is made tolerable with anti-nausea medication.
- Complications such as jaundice, mental confusion, and fluid retention may occur temporarily and will be managed by your liver team.
- Recovery time for a laparoscopic procedure may be as long as six weeks, but if it is open surgery it can take as long as twelve weeks to get back to your normal life.



- Is surgery recommended for me?

- **Why or why not?**
- **How much of the liver will be removed?**
- **How much will be left?**
- **What will I experience?**
- **How long will it take to recover from the surgery?**



Liver Transplant



One of the problems with treating HCC is that, even though one tumor can be taken out or killed with heat or alcohol, another new tumor can form, particularly if the patient has cirrhosis. If the causes of cirrhosis (chronic infection with hepatitis C or hepatitis B or ongoing heavy alcohol use) are not treated successfully, then the risk of a new cancer is higher. Getting a new liver by liver transplant lowers the risk of a new tumor growing.

Liver transplant is a good choice when tumors are small and are few. Once cancer has spread to the blood vessels in the liver or moved outside the liver then transplant is no longer possible.

? - Is transplant recommended for me?

- Why or why not?

- How long might I have to wait for a new liver?

- What happens after liver transplant?



The process of preparing for a liver transplant is long and has many steps. There is a VA guidebook, **National Liver Transplant Guide** that has been developed by VA providers to help Veterans understand their choices. This booklet presents the entire process of liver transplant as it happens in the national VA Healthcare System. Patients with a liver tumor or tumors whose providers determine would benefit from transplant, who decide that they want to have a transplant, and are otherwise healthy enough to go through transplant surgery are often put at the top of the list for receiving a donated liver in the present U.S. national system.

Common side effects: The side effects of liver transplant fall into two main categories: short-term and long-term. In the short term they are the same as for any surgery which requires opening up the abdomen. A patient may be hospitalized from 7-14 days but it may take as long three months to completely recover. Long-term complications are associated with the side effects of medications used to prevent rejection of the liver. These drugs must be taken every day for the rest of the patient's life and may cause diabetes, heart disease, and kidney injury over time. Other minor side effects of the anti-rejection medications include headaches, diarrhea and changes in body chemistry, like high potassium or low magnesium. All this means that patients with a new liver have to be followed very closely.

Both patients and health care providers can find transplant and other helpful information about hepatitis and cirrhosis through the VA Hepatitis C Resource Center (HCRC) on our website: www.hepatitis.va.gov

TREATMENTS THAT DO NOT CURE LIVER CANCER BUT MAY PROLONG SURVIVAL (PALLIATIVE)

Local

Embolization

Because HCC is a tumor that is fed by many little blood vessels, one way of attacking the tumor is by cutting off its blood supply. Through arteries in the groin (usually) interventional radiologists thread small plastic tubes called **catheters** into the arteries of the liver. They fill the artery feeding the tumor with material to cause it to close. In this way they directly cut off the blood supply to the tumor and it dies. This is done under intravenous sedation and requires a brief hospital stay.



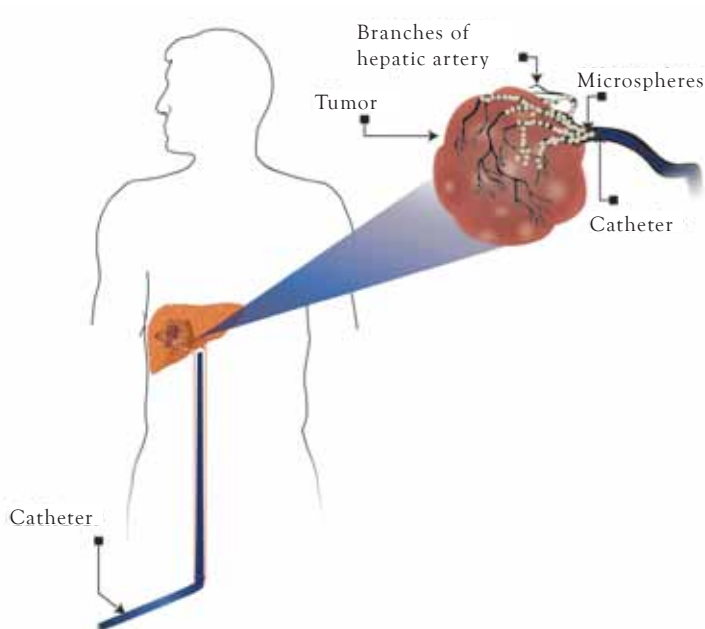
- **Is embolization recommended for me?**
- **Why or why not?**
- **What will I experience during and after this procedure?**
- **Will there be pain?**
- **Other side effects?**
- **What are the chances the tumor will regrow?**



Transarterial Chemoembolization (TACE)

Like embolization described above, the interventional radiologist performing TACE uses the artery in the groin to thread a catheter

into the arteries in the liver. But this time, a high concentration of chemotherapy is injected directly through this catheter into the blood vessels and the tumor, together with material to cut off the tumor's blood supply. This is also done under intravenous sedation and requires a brief hospital stay.



- Is TACE recommended for me?
- Why or why not?
- What will I experience during and after this procedure?
- Will there be pain or other side effects?
- Will the tumor come back?



Common side effects: The side effects of embolization and TACE are similar. These procedures require short hospital stays of about 24-48 hours.

Pain, nausea, vomiting and low grade fever may occur and medication is given to help tolerate these discomforts. Antibiotics are given to prevent infection. It may take a while for bowel movements to return to normal. Patients may develop a rash or hiccoughs. Some people develop what is called “post-embolization syndrome.” This is fever, nausea and “just not feeling well” that can last from a few days to a few weeks after the procedure. If chemotherapy is used, there may be side effects like hair loss or lowering of the blood counts, but because the chemotherapy stays locally within the tumor, this is a rare occurrence.

Transarterial Radioembolization (TARE)

At this time radiation therapy is not very helpful in the treatment of HCC because at the same time that it kills tumor cells, it kills non-tumor, working liver cells. One newer method being explored delivers radiation directly to the tumor by using radioactive **microspheres**. This is a promising new treatment that aims at destroying the tumor without more widespread injury to healthy liver tissue.

Systemic

Molecular Therapy

Molecular therapy is a different approach to getting rid of a liver tumor. With this method a patient receives a medication that attempts to kill tumor cells. Unlike traditional chemotherapies that kill all rapidly dividing cells, whether they are cancer cells or not, molecular therapy is directed to kill only the cancer cells and has fewer side effects. Current therapy is given in pill form.

Common side effects: include fatigue, diarrhea and rash. Hand-foot syndrome (a red, peeling rash on the hands or feet that may be painful) may require creams or reduced doses to manage this symptom. There are other possible side effects that are less common. Many new therapies are in development including combination of the above therapies. In the future, some medications may be given directly into a patient's veins by repeated intravenous infusion.



- Has molecular therapy been recommended for me?

- Why or why not?

- How successful can this treatment be?

- Will it get rid of the cancer?

- What are the side effects of this treatment?

- How will it affect my quality of life?




Although systemic therapy has not been found to be effective for curing liver cancer, recently developed medications have been able to prolong a patient's life without destroying good quality of life.

Long-Term Benefits of Palliative Medicine




Support

Although the palliative treatments described on pages 18– 21 may slow the growth of tumors and prolong life, in time a cancer that is not able to be cured will continue to grow and begin to cause uncomfortable symptoms. One symptom that worries anyone who has been told they have cancer is pain. While you are undergoing treatment for HCC, or even if you have chosen not to have treatment for this cancer, palliative medicine specialists provide expert relief of pain.

 - **What causes the pain from liver cancer?**

- **How do pain management specialists usually treat it?**

- **How will pain treatments affect my quality of life?** 

Treatment for Other Symptoms

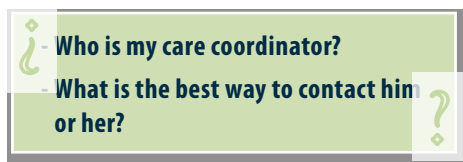
These experts can also provide treatment for other symptoms connected to cancer or its treatment such as

- fatigue
- breathlessness
- nausea
- anxiety or
- depression.

The palliative team works with your treatment team and will help you set your own goals for care that take into consideration your physical, emotional and spiritual needs. They can be valuable guides through complex treatment choices and can help support your family members who may also be having a difficult time dealing with your diagnosis.

Care Coordination

An important part of the palliative care team's role is to smooth out the bumps in the road to cancer care. Since treatment of cancer may involve twists and turns through clinic care, hospital care, long-term care and even hospice care, the role of this team is to make sure you get what you need wherever you find yourself on this journey.



WHAT IS THE EMOTIONAL SIDE OF LIVER CANCER?



Hearing that you have cancer is frightening news for patients and their families. Even though information is available about what liver cancer (HCC) is, how it is diagnosed, and how it is treated, still patients may experience understandable feelings of loss of control over their body and their future. This can produce normal but uncomfortable feelings of uncertainty, confusion, helplessness, fear, anger, sadness and grief. Sometimes patients may become depressed and feel hopeless. There are actions patients can take to feel supported during the time that their tumor is being investigated or treated.

Sharing the news with family members or close friends and asking for support.

Although asking for support may be hard for some patients, this can make patients feel less alone and reduce feelings of helplessness both in themselves and their families and loved ones. This booklet can help you share this information.

Asking questions about the health care team.

Confidence in the team that is providing care can help reduce stress and anxiety. No one should hesitate to ask a provider's name and what his or her role is on the team. It helps to write this information down and to know how to go about reaching each person on the team. A patient should always know who to contact in an emergency. The final pages of this pamphlet can be used to make your own notes for this purpose.

Joining a support group where one is available.

In a support group patients can feel free to share their thoughts and feelings about this diagnosis with others who may have similar experiences. This is an opportunity for sharing information and learning coping skills. Although the best support group is led by someone knowledgeable about liver cancer, its treatment and ways to cope with illness, there are many resources available online as well.

Choosing ways of coping with stress.

Stress is another word for suffering. People find relief of suffering by connecting with inner and outer resources. The following ways of coping have been helpful for people with life-changing illnesses like cancer:

- Talking to friends or family
- Music or art
- A regular exercise program
- Relaxing activities (hobbies)
- Stress management sessions or classes
- Support groups
- Yoga or meditation
- Spiritual activities
- Massage
- Journal keeping



- What resources are available to me at my VA hospital?

- How do I get to them?



Viewing a serious illness as an opportunity for

personal growth and a time for reassessing priorities may also be helpful in the journey of healing. Each person needs to choose the way that works best.

Talking with a healthcare provider about depression.

Symptoms of depression may include more than a change of mood or sadness. Although it is normal, at first, for a person who hears they have cancer to be shocked, anxious, sad or angry, a person who experiences several of the following symptoms lasting more than two weeks may be actually depressed.

- Loss of interest or pleasure in things usually enjoyed
- Irritability
- Changes in sleep patterns
- Helplessness or hopelessness
- Appetite changes or loss of weight
- Problems concentrating or making decisions
- Feelings of guilt
- Thoughts about self-harm
- Frequent thoughts of death
- Feeling like a burden to others

DEPRESSION IS A MEDICAL ILLNESS THAT CAN BE TREATED. Ask your healthcare provider about options for treating depression. If you have thoughts about harming yourself, call the National Suicide Prevention Lifeline at 1 (800) 273-8255 immediately!

SUMMARY

Important facts about liver cancer:

- Liver cancer (HCC) is a common cancer that can eventually cause pain and death.
- It can be treated successfully if it is found early.
- If you have cirrhosis, you have a greater risk for developing cancerous liver tumors than people with normal livers, particularly when cirrhosis is due to chronic hepatitis C or B or heavy alcohol use.
- There are several different treatments for HCC.
- The choice of which treatment to offer you is made by a team of experts and is based on
 - ◆ the number and size of the tumor(s);
 - ◆ the location of the tumor(s);
 - ◆ your age and health; and
 - ◆ the health of your liver.
- The decision to accept the treatment offered is up to you.
- Liver cancer is a major cause of stress for any patient and his or her loved ones, and can affect mental health as well as physical wellbeing.
- It is very important to have support making important decisions about treatment.

Your VA providers are happy to help you through this complex process.

APPENDIX

GLOSSARY

AFP: (Alpha-Fetoprotein): A tumor marker that is measured in the blood. High levels of AFP may be a sign of liver cancer.

Albumin: Important protein made by the liver. Too little of it in the blood is a sign that the liver is not working well.

Benign: Harmless. Some liver tumors are harmless.

Biopsy: Cells or tissue (many cells) are removed from a lump that looks like it might be cancer. A pathologist examines the cells under a microscope and decides if it is benign tissue (harmless) or malignant (cancer).

CT Scan (CAT Scan): A type of X-ray that takes pictures of parts of your body from many angles. Often a dye is used to make the target body part easier to see. CT scans can be used to look for liver cancer.

Catheter: A catheter is a thin flexible tube that can be inserted into a part of the body to inject or drain a fluid or to keep a passage open.

Cirrhosis: Scarring of the whole liver that makes it shrunken, hard and lumpy. This is the result of something like alcohol or a virus that is there for a long time damaging the liver.

Curative: The cancer can be rid of completely.

Electrode: A conductor of electrical energy.

General Anesthesia: A procedure performed by a specially trained doctor (anesthesiologist) before surgery or some other painful process that enables a patient to be unconscious and not experience the pain of the procedure.

Hepatitis B: A virus that circulates in the blood and may attack the liver. About 1 in 10 people who are exposed to hepatitis B will develop a chronic infection. In some of those cases the liver may be damaged and develop cirrhosis. Chronic hepatitis B increases risk for liver cancer even without cirrhosis.

Hepatitis C: A virus that circulates in the blood and attacks the liver. In most cases infection with this virus becomes chronic. Although it may harm other parts of the body as well, it prefers the liver. About 3 out of 10 people who are infected with this virus will get liver disease and this may progress to cirrhosis.

Hepatocellular Carcinoma (HCC): A malignant growth of liver cells that forms a tumor; one kind of liver cancer.

Interventional Radiologist: This is a specially trained radiologist who not only takes X-rays and reads them but performs procedures guided by the pictures taken during the actual procedure.

Intravenous Infusion: Fluids or medications can be provided by inserting a needle into a vein and delivering the treatment directly into the blood.

Intravenous Sedation (Conscious Sedation): Medications given by intravenous infusion that allow a person to be deeply relaxed but not quite unconscious. Usually a person who is sedated in this way can follow directions but is not uncomfortable during a procedure.

Laparoscopic Surgery: Surgery done in the belly or the pelvis through very tiny openings (about a half inch) with very small instruments guided by a camera that sends images to a TV screen to guide the surgeon. The advantage of this kind of surgery over open surgery (see on following page) is less pain and less bleeding.

Liver Specialist: A doctor who has spent additional years studying the treatment of liver diseases. A liver specialist is called a hepatologist.

Liver Surgeon: A surgeon who has specialized in operating on the liver and all its connecting blood vessels and bile ducts.

Liver Transplant: When a person's liver has been severely damaged and no longer works well, a liver transplant may be the only option. The person's diseased liver is removed by a transplant surgeon and replaced by the donated liver of a person who has died and donated organs. Sometimes a living person may be willing to donate a part of the liver to save the life of a person whose liver no longer works. A liver transplant may be an option for liver cancer as well.

Local Treatments: Local treatments are treatments that target the cancerous tumor directly without affecting the rest of the body in a major way (See TACE on page 32 as a good example).

Malignant: Harmful; cancerous; growing out of control. Some liver tumors are cancerous.

Microspheres: Small spherical particles that can contain medications, chemicals or radioactive substances that can be delivered to the site of a tumor through blood vessels.

MRI: A test that takes pictures of a body part using a magnet, radio waves and a computer. MRI's are often used to get a better picture of a tumor found on a screening ultrasound or CT.

Nurse Case Manager: A nurse whose role is to coordinate care for a patient who has a complex problem, like liver cancer for example, who may need many tests and many visits with different providers.

Oncologist: An oncologist is a doctor who has spent additional years studying cancer and its treatment.

Open Surgery: To perform open surgery, which is the only choice in some circumstances, the opening in the body has to be big enough for the surgeon's hands to get inside. In this kind of operation the patient has to be unconscious.

Palliative Medicine: A medical specialty aimed at improving the quality of life of patients who are suffering from a serious illness, like liver cancer, or from the side effects of the treatments for that illness.

Pathologist: A doctor who has received additional training in looking at tissue under a microscope and deciding whether it is healthy or diseased. A pathologist can tell normal liver cells from cancer.

Radiologist: A doctor with special training in assisting in the diagnosis of diseases by reading X-rays and other types of imaging studies like ultrasounds, CAT scans and MRI's.

RFA (Radiofrequency Ablation): A treatment for HCC where an electrode placed in a tumor produces enough heat to kill it.

Systemic Treatments: Some local problems are treated by medications that circulate through the whole body in order to get to the infected or diseased part. Antibiotics are one example; chemotherapy is another.

TACE (Transarterial Chemoembolization): Chemotherapy is injected directly into the tumor through the blood vessels that feed it, destroying the tumor and cutting off its blood supply.

TARE (Transarterial Radioembolization): Radioactive materials carried in tiny capsules is injected directly into the tumor through the blood vessels that feed it, destroying the tumor and cutting off its blood supply.

Tumor Board: A group of medical professionals (liver specialists, radiologists, interventional radiologists, pathologists, liver surgeons, oncologists, nurses) who meet on a regular basis and discuss tumors, deciding what they are and what to do about them. In the case of a liver tumor board, these specialists are all trained in the recognition and treatment of liver tumors.

Tumor: A spontaneous growth of tissue that forms a lump or a mass.

Ultrasound: A type of test that uses sound waves to take pictures of parts of the body. It can be used to look for liver tumors.

RESOURCES

The VA's Hepatitis C Program

website: www.hepatitis.va.gov

The following resources can be found on this website

Cirrhosis: A Patient's Guide

National Liver Transplant Guide



www.hepatitis.va.gov

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