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LIVER CANCER (HEPATOCELLULAR CARCINOMA)

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Primary liver cancer is a cancer which originates from the liver cells. The liver is made up of different types of cells like liver cells, bile duct cells, blood vessels, etc. Liver cells (hepatocytes) make up 80% of the liver tissue.

Due to mutations in the genetic structure of the liver cells, these cells gradually turn cancerous and start to grow uncontrollably. As the cancerous cells multiply and grow, a tumour forms. The liver cancer cells can also invade nearby organs and/or spread through blood circulation to other parts of the body like the brain and bone. Primary liver cancer is also known as Hepatocellular Carcinoma (HCC) or Hepatoma for short.

Liver cancer is the third most common cancer in the world. In Singapore, it is the fourth most common cancer among men according to the Singapore Cancer Registry, 2006 – 2010. Liver cancer is a very deadly disease — most patients die within a year from diagnosis. Most of the liver cancer cases are found in Southeast Asia, and in countries like China and Taiwan. This is due to the high incidence of Hepatitis B infection in this part of the world. Hepatitis B is

the most common cause of liver cancer worldwide. Men are much more likely than women to have liver cancer.

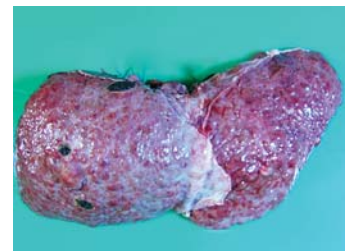
Primary liver cancer is different from a liver tumour caused by cancer cells that have spread from cancer of other organs such as colon, lung and breast. Such a cancer is known as metastatic liver cancer. This article will only focus on primary liver cancer.

The Causes and Risk Factors for Liver Cancer

In general, any disease that can cause a chronic inflammation of the liver can cause liver cancer. This chronic inflammation and continual damage leads to permanent scarring of the liver called cirrhosis. When compared to a normal liver (picture 1), a cirrhotic liver shows shrinkage of the liver volume with a nodular surface (picture 2). A cirrhotic liver is at risk of forming a liver cancer.



Picture 1: This picture shows a tumour arising in a relatively normal-looking liver.



Picture 2: This picture shows a cirrhotic liver with the typical nodular surface.

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Some of the risk factors of liver cancer in Singapore are:

- **Hepatitis B.** HBV carriers are 100 times more likely to contract liver cancer compared to non-carriers. Male HBV carriers with liver cirrhosis are especially at risk.
- **Hepatitis C.** Similar to Hepatitis B, Hepatitis C also causes chronic inflammation in the liver, which results in liver scarring (liver cirrhosis). In Singapore, Hepatitis B is much more common than Hepatitis C.
- **Steatohepatitis.** This is a severe form of fatty liver in which the fat deposition within the liver cells causes chronic ongoing inflammation, which can result in liver cirrhosis. Given the increasing incidence of obesity, especially in developed countries, liver cancer due to fatty liver may overtake liver cancer due to Hepatitis B in future. In fact, at the International Liver Congress in April 2012, it was reported that non-alcohol related fatty liver is now the leading cause of liver disease in North America, and soon in Europe.
- **Alcohol.** Chronic alcohol consumption can lead to chronic liver damage, and hence liver cirrhosis.
- There are many other risk factors which can cause cirrhosis and/or liver cancer, such as aflatoxin, hereditary diseases like haemochromatosis and Wilson's disease, etc. In general, such risk factors are not so common amongst Singaporeans.

Sometimes, liver cancer can occur without any known risk factors or cause. This is called cryptogenic primary liver cancer.

The Symptoms of Liver Cancer

In the early stages of liver cancer, most patients do not have any symptoms. When symptoms appear, they may include some or all of the following:

- Loss of appetite
- Loss of weight
- Upper abdominal discomfort especially on the right side
- Tiredness
- Generalised abdominal swelling
- Jaundice

The cancer can also spread to other organs and cause these organs to fail as well. It commonly spreads to the bone and brain, causing bone pain and altered mental status.

When Should You See a Doctor?

As the symptoms of liver cancer are very non-specific, it is not surprising that by the time many patients consult a doctor, the cancer is too advanced for cure. In general, if you experience unexplained weight loss or appetite loss, or persistent tiredness, you should consult your doctor.

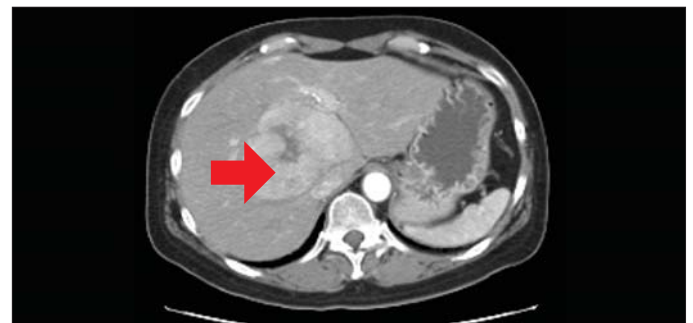
To increase the chance of cure, a patient needs to see the doctor when the tumour is still at an early stage, before even any symptoms appear.

Hence, patients who have risk factors for liver cancer should consider going for regular screening. This is to allow the detection of the tumour when it is still very small and hence more treatable. High-risk patients include Hepatitis B and C carriers, and anyone who has liver cirrhosis. In Singapore, patients who have Hepatitis B or cirrhosis from any other cause are advised to participate in the liver cancer screening programme.

What Can Doctors Do for Me?

The doctor will do two things:

1. To confirm the diagnosis. A scan (either a CT scan or a MRI scan) is needed (picture 3). Liver cancer has a unique blood flow which gives it a characteristic appearance on CT scan or MRI scan. A blood test called alpha-feto protein (AFP) will also be ordered. Occasionally, a needle biopsy may be required in some unique situations.



Picture 3: A CT scan of a liver. The tumour (solid arrow) appears brighter than the surrounding liver because of its unique blood flow.

2. To assess the state of the liver's health. Due to scarring (cirrhosis), the liver function is often affected. Hence, an assessment of the liver function is needed to help choose the most appropriate treatment for each individual patient.

Treatment options

Surgery is the only chance of a long-term cure. Surgery can either be in the form of a liver transplantation or removing the part of the liver in which the tumour is found. This is called a hepatectomy or liver resection (picture 4).

Because of the liver scarring, some patients may not be fit for a liver resection. Hence a liver transplant is the ideal treatment as the transplant not only removes the tumour, it also replaces the damaged and cirrhotic liver with a non-cirrhotic liver. The main problem is the availability of suitable livers for transplantation.



Picture 4: Part of a cirrhotic liver which has been surgically removed. There is a tumour within this part of the liver.

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There are other non-surgical options. Selection of these alternatives depends on the tumour profile, the state of the liver, as well as the patient's health and preference.

If the tumour is still very small, non-surgical options called local ablation may be used. Examples of local ablation are:

- Radiofrequency ablation — using electrical current to destroy the cancer cells.
- Alcohol (ethanol) injection — injecting concentrated alcohol directly into the tumour to kill the cancer cells.

Radiation can also be used to kill the cancer cells. This radiation can be delivered using small radioactive beads delivered directly into the tumour (SIRT) or through an external radiation beam (radiotherapy).

For patients who are not fit or not suitable for an operation, chemotherapy may be helpful to control the cancer. This involves the use of drugs to kill the cancer cells. These drugs can be delivered directly into the tumour itself (TACE) or be administered through an intravenous injection or even oral tablets (systemic chemotherapy).

How Do I Prevent Liver Cancer?

You can reduce the risk of developing liver cancer by protecting yourself from hepatitis infection and cirrhosis.

Get yourself vaccinated against Hepatitis B if you have not done so, practice safe sex, go easy on the alcohol, and adopt a healthy lifestyle with good dietary habits and have a regular exercise regime. The aim is to maintain a healthy weight. Go for regular checks of your cholesterol levels so that early treatment can be instituted. Prevention is always better than cure.

47TH ANNUAL GENERAL MEETING

On 25 April 2012, the Singapore Cancer Society held its 47th Annual General Meeting (AGM) at the Society's headquarters at Enggor Street. About 30 members and SCS management staff attended the meeting.

We welcomed new members, Ms Lim Peck Suat, Dr Lim Siew Eng and Mr Lawrence Patrick, to the 48th Council, and thank retiring members, Ms Lim Soo Hoon and Dr Donald Poon, for their dedicated service and invaluable contribution to SCS.

THE 48TH COUNCIL MEMBERS

Chairman	Mr Choo Eng Chuan Partner Ernst & Young Solutions LLP
Vice Chairman	Dr Ang Peng Tiam Medical Director Parkway Cancer Centre
Honorary Secretary Secretary	Ms Daphne Hong Senior State Counsel International Affairs Division Attorney-General's Chambers, Singapore
Assistant Honorary	Mr Wee Leong How Consultant Rubicon Consultancy
Honorary Treasurer	Mr Pay Cher Wee Director Accion Capital Management Pte Ltd
Council Member	Mr Gerald Minjoot Managing Director Greendale Investments Pte Ltd
Council Member	Mr Chew Mei Kwang Kenneth Chairman Elite KSB Holdings Ltd
Council Member	Mr Adrian Choo Partner Boyden Global Executive Search
Council Member	A/Prof Lim Soon Thye Senior Consultant and Deputy Head Department of Medical Oncology National Cancer Centre Singapore
Council Member	Mr Calvin Phua Director, Land Policy Ministry of Law
Council Member	Mr Tan Kay Hui Media Representative Tankayhui Media
Council Member	Dr Tan Kok Kheng Chief Executive Officer MycoBiotech, Inc
Council Member	Ms Lim Peck Suat (Co-opted) Group Chief Financial Officer PSA International Pte Ltd
Council Member	Mr Lawrence Patrick (Co-opted) Chief Executive Officer Johns Hopkins Singapore International Medical Centre
Council Member	Dr Lim Siew Eng (Co-opted) Senior Consultant and Clinical Director Department of Haematology-Oncology National University Cancer Institute, Singapore
Council Member	Mrs Mildred Tan (Co-opted) Managing Director Ernst & Young Advisory Pte Ltd