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General Hospital



Changi
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8.30 am to 12.30 pm (Saturday)
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Liver surgery 肝脏手术



**Changi
General Hospital**
SingHealth

Information is valid as of July 2021 and subject to revision without prior notice.

All information provided within this publication is intended for general information and is provided on the understanding that no surgical and medical advice or recommendation is being rendered. Please do not disregard the professional advice of your doctor.

What is a liver?

The liver is located under the diaphragm in the right upper abdominal cavity and is divided into the right and smaller left lobes. The liver performs many important functions including detoxification, regulation and storage of substances used by the body such as blood glucose, bile drainage and synthesis/ storage of proteins, vitamins and fats.

What is liver cancer?

Liver cancer begins in the cells of your liver. Several types of cancer can form in the liver. The most common type of liver cancer is hepatocellular carcinoma, which begins in the main type of liver cell.

What are the treatment options available?

Liver surgery involves the removal of a cancerous/ tumorous part of the liver. It is safe to remove up to two-thirds of your liver as long as the rest of the liver is healthy.

This operation is mainly to treat liver cancer, certain at-risk tumours and selected secondary cancers (e.g. colorectal). Sometimes, liver surgery can also be performed for benign (non-cancerous) conditions such as liver abscess and symptomatic liver cysts.

Other alternative treatments include:

Ablation – This treatment destroys liver tumours without removing them and is usually the first line treatment for small-sized tumours. This is done through a thin, needle-like probe which uses high energy radio waves (radiofrequency ablation) or microwave energy (microwave ablation) to heat up the tumour.

Embolisation – Chemotherapy drugs (transarterial chemoembolisation) or radioactive beads (selective internal radiation therapy) is administered into a blood vessel that feeds the cancerous tumour. These drugs may help to reduce the size of the tumour.

Systemic therapy – Some targeted drugs have been tested to slow down or stop advanced liver cancer from progressing, by interfering with specific abnormalities within the tumour. Your suitability for this therapy can be discussed with your medical oncologist.

Stereotactic body radiotherapy (SBRT) – Involves high doses of radiation, delivered with high precision, to the tumour while minimising damage to the healthy tissues nearby.

Liver transplant – If the patient is deemed suitable and within the liver transplant criteria, he/she may receive a new or partial liver from a donor to replace the diseased liver.

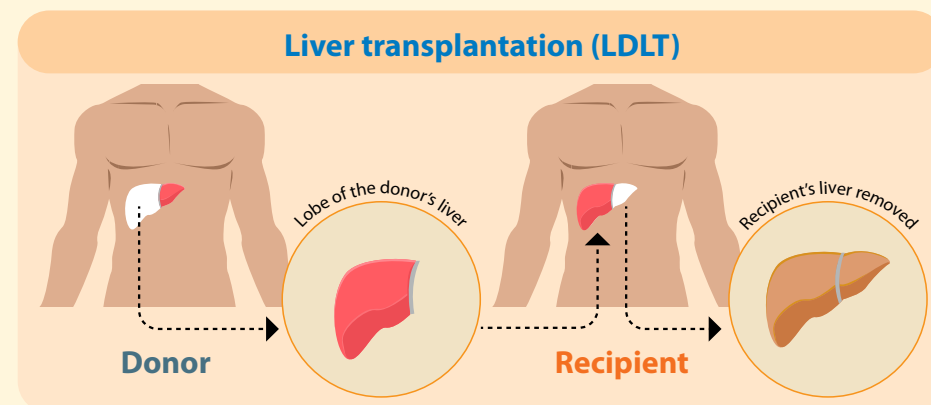
There are two types of liver transplant:

Deceased donor liver transplant (DDLT) -

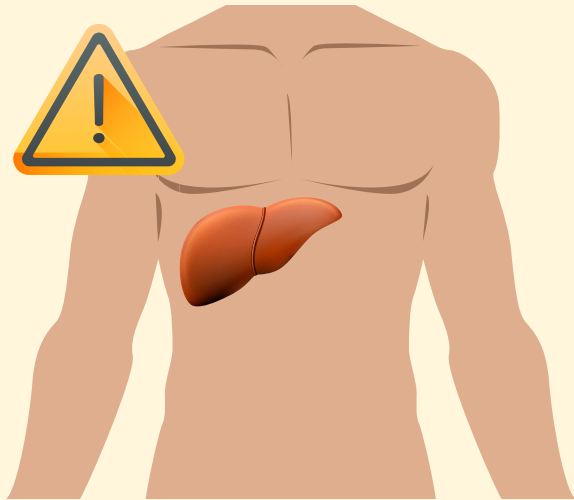
where the donated liver comes from a person who died suddenly from an accident or bleeding in the brain.

Living donor liver transplant (LDLT) -

which involves a living donor giving a portion of his or her liver to a family member in need of a liver transplant.



What are the risks and complications?



If a large portion of the liver needs to be removed, or if the remaining liver is unhealthy, there is a chance of developing liver insufficiency or failure. Bleeding during/ after surgery can occur which may require blood transfusion.

Bile leak can occur either from the cut liver surface or from a joint (anastomosis) between the bile duct and a loop of intestine.

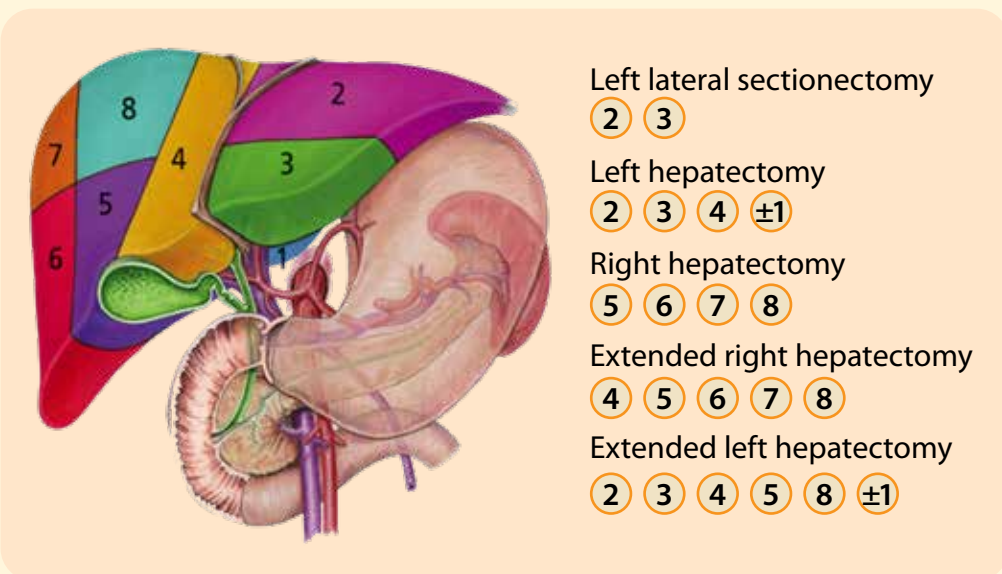
Other possible problems include wound and intra-abdominal infections, injury to other organs, blood clots in the lung(s) or leg(s), urinary tract and lung infections. Precautions (e.g. prophylactic antibiotics, calf compressors etc.) will be taken by the surgeons to minimise these complications.

What does it involve?

General anaesthesia will be given regardless of the type of surgery. Depending on the tumour and conditions of the patient, liver surgery can be in the form of conventional open surgery, keyhole access (laparoscopic) or robotic liver surgery.

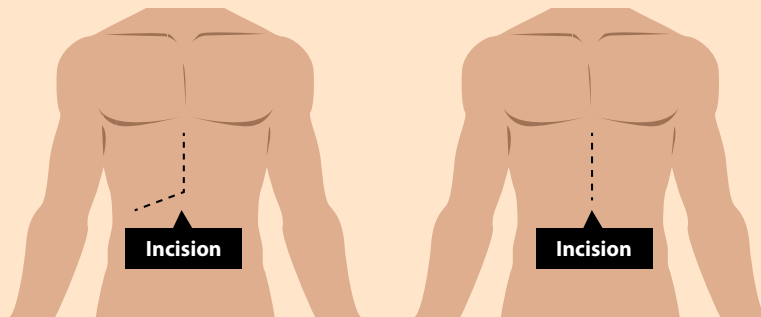
During the surgery, the gallbladder (attached to the liver) may also be removed. In some patients, the bile duct may need to be removed and be connected to the intestine with a joint (anastomosis).

Your doctor will explain in detail on the type of surgery that is suitable for you. This operation typically takes 2 to 6 hours to perform. It may also take longer, depending on the complexity of the surgery and its approach. Your doctor may close your incision with staples, sutures (stitches) or glue.

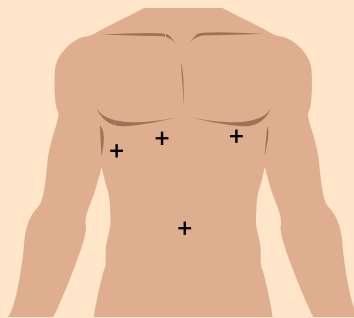


Types of liver resections

Open Surgery



Laparoscopic/ Robotic



The traditional way of liver resection is through a large abdominal incision (reverse L shape). The modern approach involves a minimally invasive surgery also known as laparoscopic/ robotic surgery. This method reduces pain, minimises the chances of leaving a scar and allows for faster recovery. Your doctor will discuss with you if this option is suitable for you.

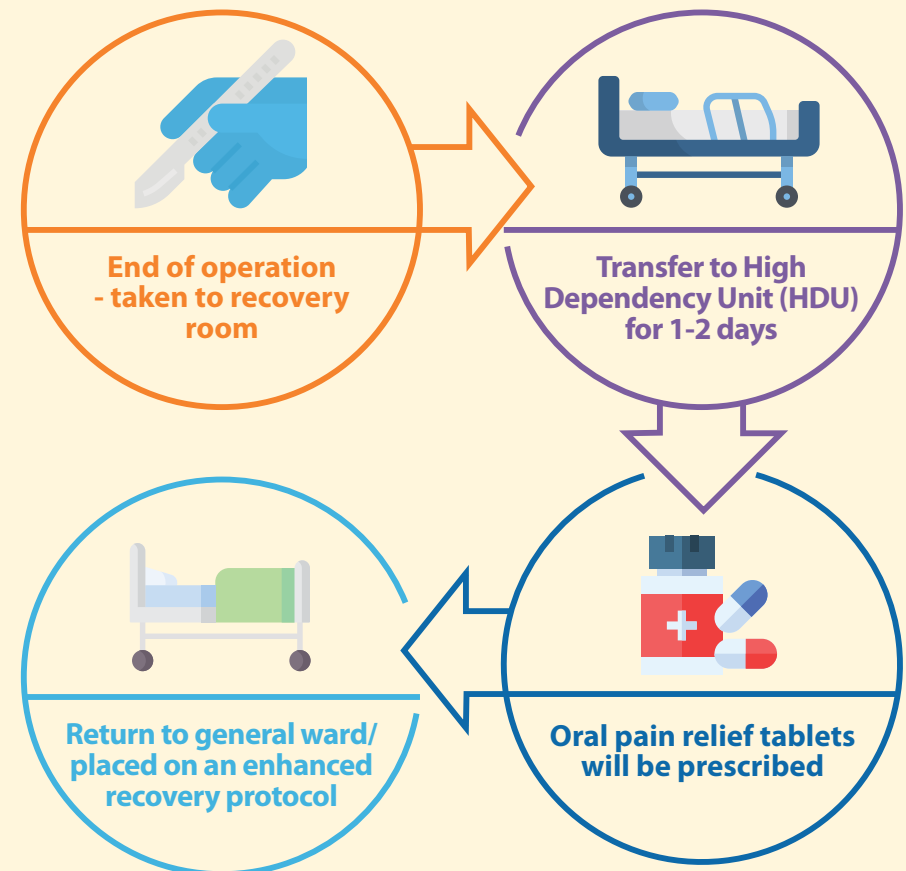
Length of hospital stay



You can expect to stay under observation for at least 3 to 7 days.

Post-surgery

After the surgery, you will be consulted on the recovery process and pain management. Early oral intake and ambulation will help to speed up the recovery and are encouraged.



肝脏简介

肝脏位于横膈膜下方，腹腔右上部，分为右肝叶和略小的左肝叶。肝脏具备多种重要功能，包括排毒，储存糖原；制造胆汁以及合成分泌性 / 蛋白质、维生素和脂肪。

什么是肝癌？

肝癌是指发生于肝脏的恶性肿瘤。肝癌有好几种类型，其中最常见的是原发性肝癌，它始发于肝的主要细胞。

肝癌有哪些治疗方法？

肝脏手术涉及切除肝脏的癌变/肿瘤部分。只要肝脏是处于健康状态，医生可以安全切除高达三分之二的肝脏。

这种手术主要用于治疗原发性肝癌、肝转移瘤 (例如结肠直肠癌)。肝脏手术有时也可用于治疗良性疾病，例如肝脓肿和出现症状的肝囊肿。

其它替代治疗方法包括：

消融术 - 这种治疗方法是在无需切除肿瘤的情况下用其它方式杀死癌细胞，通常用于治疗体积较小的肿瘤和不适合手术的病人。医生会通过一根细长的针状探针，使用高能无线电波 (射频消融) 或微波能量 (微波消融) 来杀死癌细胞。

栓塞术 - 将化疗药物 (肝动脉化疗栓塞术 - Transarterial Chemoembolisation (TACE)) 或放射性微球 (选择性体内放射疗法 - Selective Internal Radiation Therapy (SIRT)) 注入到肝内癌性肿瘤的血管中。这些药物可帮助缩小肿瘤。

全身治疗 - 某些靶向药物可减缓或阻止晚期肝癌的恶化。您可以与您的肿瘤内科医生讨论自己是否适合接受这种治疗。

立体定向放射治疗 (Stereotactic Body Radiotherapy (SBRT))
- 将强度大与精准性高的辐射剂量照射到肿瘤上，同时最大限度地减少对附近健康组织和细胞的损伤。

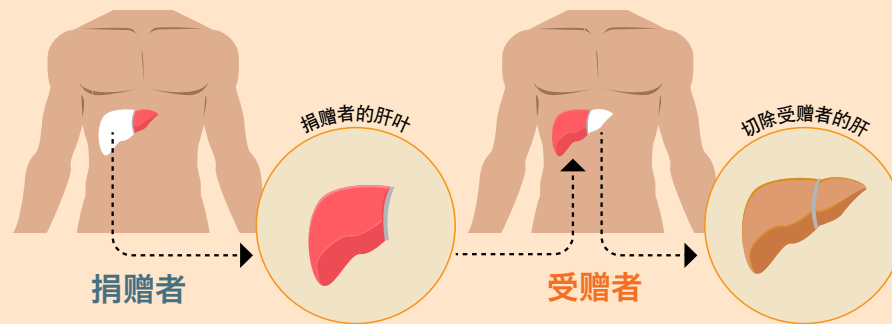
肝脏移植 - 如果患者适合接受肝脏移植，并符合肝脏移植标准，便可以接受一个部分捐赠的肝脏，来取代患病或功能衰弱的肝脏。

肝脏移植包括两种类型：

尸源肝移植 (DDLT) -
捐赠的肝脏来自因意外事故而突然死亡的死者或脑出血的患者。

活体肝移植 (LDLT) -
这是指健康的捐献者将自己的部分肝脏捐献给需要肝脏移植的家人。

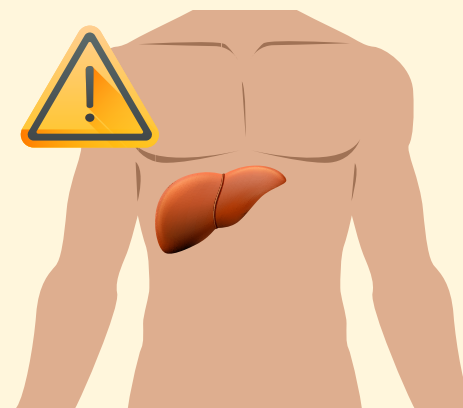
肝脏移植



有哪些风险和并发症？

如果需要切除大部分肝脏，或者剩余的肝脏仍不健康，就可能出现肝功能不全或衰竭。如果手术中/后大量出血，则需要输血。

在肝脏切面或胆管与肠道之间的连接处 (吻合处) 可能会发生胆汁渗漏的情况。



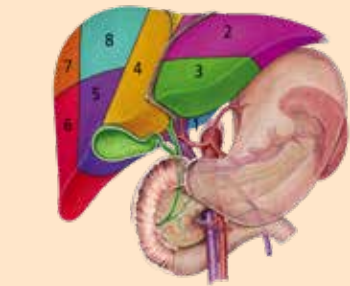
其它可能发生的问题包括伤口和腹腔内感染、其它器官损伤、肺部或腿部产生血栓以及尿道和肺部感染。外科医生会采取预防措施 (如使用预防性抗生素、小腿压缩器等)，以便减少这些并发症的机率。

手术涉及哪些操作？

进行肝脏切除手术时，将会采取全身麻醉。

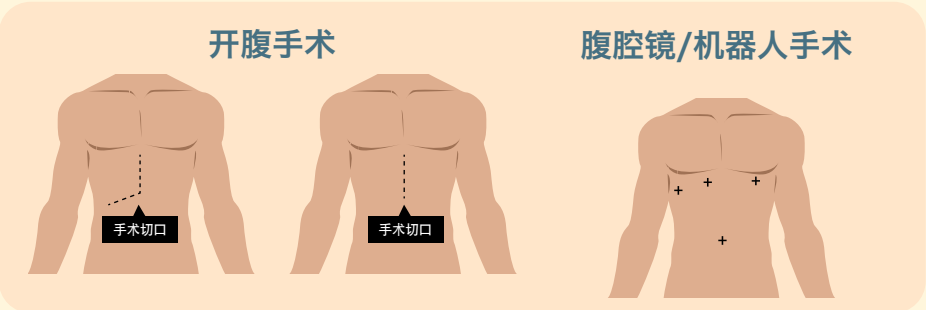
在手术过程中，靠近肝脏的胆囊也可能会一起切除。一些患者可能需要切除部分胆管。胆管切口之后会通过缝合连接到小肠。

医生会根据肿瘤类型和患者的病情，详细地说明适合的手术方式(传统的破腹手术，内窥镜手术(腹腔镜) 或者机器人肝脏手术)。取决于手术的复杂程度和方式，手术通常需要 2 到 6 个小时或更长时间。医生可能会用订皮机、针线缝合或医用粘胶来闭合伤口。



- 左肝外叶切除术
② ③
- 左肝切除术
② ③ ④ ±1
- 右肝切除术
⑤ ⑥ ⑦ ⑧
- 扩大右肝切除术
④ ⑤ ⑥ ⑦ ⑧
- 扩大左肝切除术
② ③ ④ ⑤ ⑧ ±1

肝脏切除术的方式



传统的肝脏切除手术是通过一个大的反 L 形腹腔切口进行，而现代方法则采用微创方式，也被称为腹腔镜/机器人手术。这样能够减轻疼痛，把留下疤痕的可能降到最低，并可让患者更快恢复。您的医生会与您讨论最适合您的手术方案。

住院时间



您预计将需要至少 3 到 7 天的术后观察。

手术后

手术后，医护人员会密切观察您的恢复过程，同时进行术后疼痛管理。及早进食和下床活动有助于术后恢复。

