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Pancreas surgery 胰腺手术



**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 pancreas?

The pancreas is an organ located behind the stomach and near the first part of the small intestine. It is divided into four sections: the head, neck, body, and tail. It produces insulin and digestive juices and hormones that help break down fats, carbohydrates and proteins and regulate blood sugar levels.

What is pancreatic cancer?

Pancreatic cancer begins in the tissue of your pancreas. It typically spreads rapidly to nearby organs. It is seldom detected in its early stages. The most common type of pancreatic cancer is adenocarcinoma, followed by neuroendocrine tumours. Another type of pancreatic growth is Intraductal Papillary-Mucinous Neoplasm (IPMN). It is a tumour that grows from the main pancreatic duct or from side branches of the duct. An IPMN may be benign (not cancerous) when diagnosed. But, it has a chance of becoming cancer.

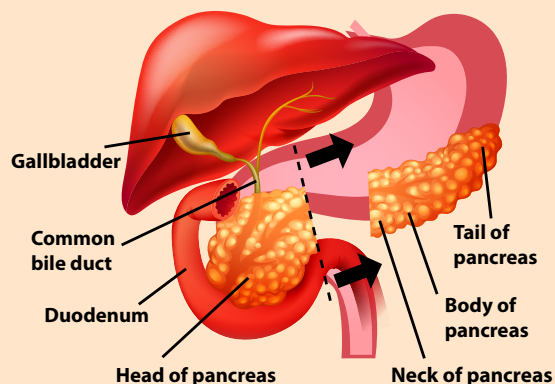
What are the treatment options available?

Pancreas surgery is mainly performed to remove pancreatic cancer or a suspicious tumour (e.g. primary adenocarcinoma, neuroendocrine) or cyst. Biopsy of the tumour or cyst may be performed before the surgery if necessary.

There are two main types of pancreatic surgery:

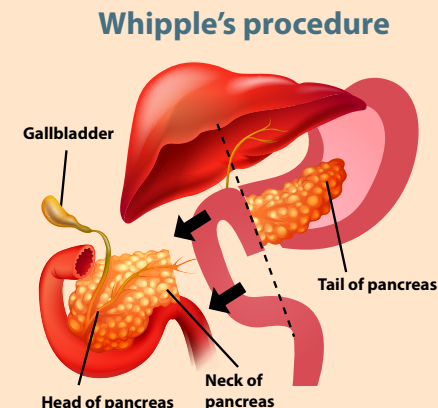
Distal pancreatectomy or subtotal pancreatectomy

– This is a procedure to remove the left side of the pancreas (body/ neck and tail).



Pancreaticoduodenectomy

(Whipple's procedure) – Whipple's procedure is a procedure to remove part of the pancreas (head and neck/uncinate process), the gallbladder, the common bile duct, and part of the small intestine and stomach. The remnant stomach, bile duct and pancreas will be joined back to the small intestine.



Alternative treatments include:

You may choose to opt out of surgery. However, if left untreated, the possible complications include persistent pain and disease progression. There are other possible alternative treatments for pancreatic cancer, but they are not curative in nature:

Chemotherapy – Pancreatic cancer may respond to chemotherapy to a certain extent.

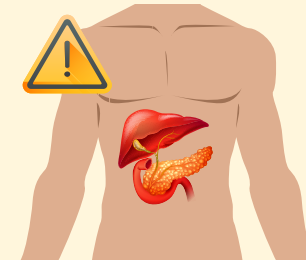
Clinical trials – Clinical trials test new drugs, surgical techniques and strategies. There may be suitable clinical trials available for selected patients. Please consult with your doctor for advice.

Combination of treatment options may be offered to optimise the treatment results.

What are the risks and complications?



Pancreatic fistula: If the pancreas joint does not heal properly, it is possible for the pancreatic juice to leak. While leakage typically stops on its own, some people may need further intervention or surgery.





Delayed gastric emptying: Removal of part of the stomach can sometimes affect the normal motility and result in delayed passage of fluid and food into the small intestine. It typically resolves on its own, but for some cases, assisted feeding through a tube or parenteral nutrition may be required.



Bleeding: If bleeding happens after the operation, you may be given a blood transfusion, require further intervention or undergo another surgery.



Wound infection: Infection slows down wound healing. Hence it should be treated promptly with antibiotics and dressings.



Nutritional malabsorption: Decreased production of pancreatic enzymes can make it difficult for the body to absorb nutrients from food. This can lead to diarrhoea and other gastrointestinal difficulties. You may need to take tablets to aid digestion after surgery.



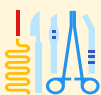
Diabetes: If a significant portion of the pancreas is removed, there is a chance that this may result in you becoming diabetic. If this happens, you may need to take regular insulin injections or medications to regulate your blood sugar levels.



Weight loss: Some patients may lose 5-10 percent of their total body weight due to a loss of appetite after the surgery.



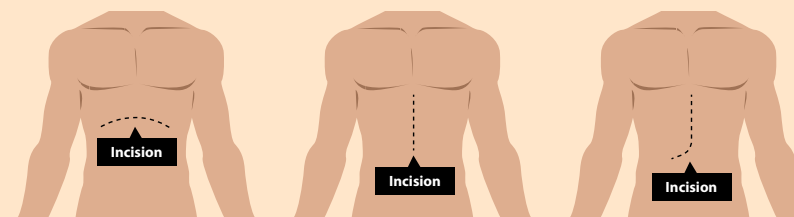
Overwhelming Post-Splenectomy Infection (OPSI): If your spleen is removed, there is a small risk for infection. You will be given vaccinations either before or after surgery to reduce the chance of infection.



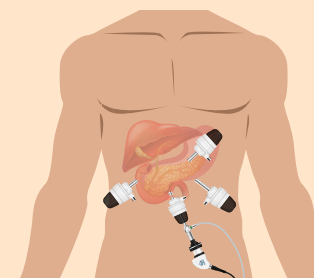
Others: Other possible problems are similar to those seen with major surgeries. These include blood clots, injury to other organs, urinary tract and lung infections. Precautions will be taken by the surgeon to minimise these complications e.g. prophylactic antibiotics, use of calf compressors etc.

What to expect during a pancreas resection?

Open surgery



Minimally invasive surgery



General anaesthesia will be given regardless of the type of surgery. A surgical cut (incision) will be made to enter the abdomen. In some cases, a minimally invasive approach (key-hole or robot-assisted) may be suitable and recommended for you. The advantages of this approach are less pain, a shorter hospital stay and faster recovery. The surgery usually takes about 6 to 8 hours, but the time may vary depending on the approach and complexity of the case.

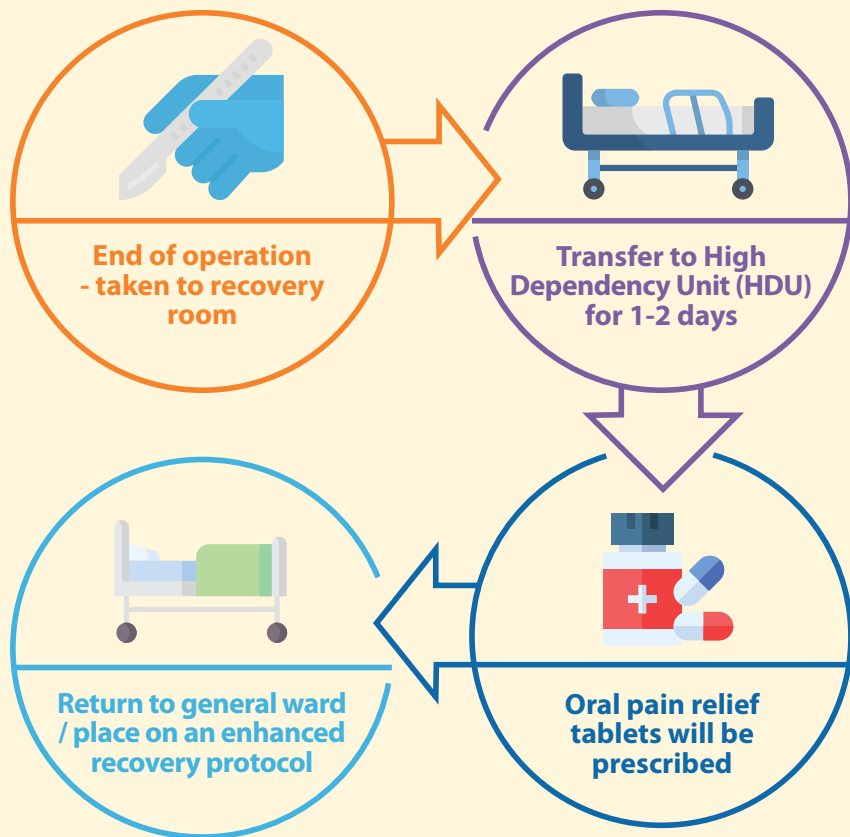
Length of hospital stay



The usual hospitalisation period is between 7–14 days if there are no complications.

Post-surgery

After the surgery, your doctor will advise you on when you will be allowed to drink fluids or have a light meal. This will depend on your clinical condition.



Pain management



Pain will be controlled through epidural or Patient Controlled Analgesia Pump (PCA) for 2-3 days immediately after surgery. After which, your doctor may prescribe you with oral pain relief tablets. Details will be discussed during your clinic visit with the anaesthetist before your surgery.

胰腺简介

胰腺位于胃的后方，靠近小肠的第一段。胰腺分为头、颈、体、尾四个部分。胰腺功能包括分泌消化液和胰岛素，前者可以帮助分解脂肪、碳水化合物和蛋白质，后者则可调节血糖水平。

什么是胰腺癌？

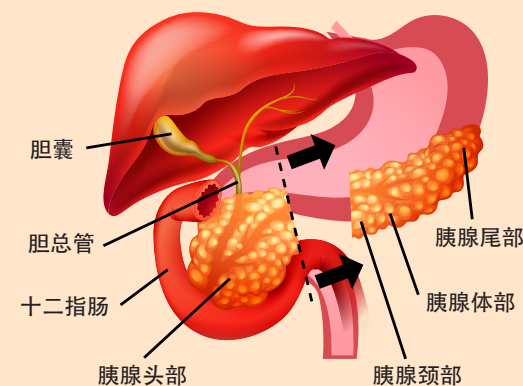
胰腺癌始于胰腺组织。它通常很迅速地扩散到附近的器官，同时也很少在早期被发现。胰腺癌有很多类型，最常见的是胰腺腺癌，接着是神经内分泌肿瘤 (Neuroendocrine tumours)。另一种胰腺肿瘤是导管内乳头状黏液性肿瘤 (Intraductal Papillary-Mucinous Neoplasm (IPMN))。它是在胰管细胞内发生的肿瘤。虽然IPMN是一种良性肿瘤，但是它有可能发展为胰腺癌。因此，IPMN被视为一种癌前状态。

胰腺癌有哪些治疗方法？

胰腺手术主要用于切除胰腺癌或可疑肿瘤（例如原发性腺癌、神经内分泌肿瘤）或囊肿。必要时可在手术前对肿瘤或囊肿进行活检。

胰腺手术有两种：

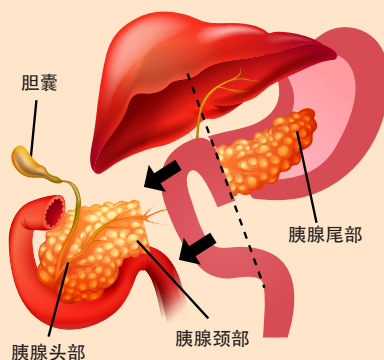
胰腺尾端切除术或胰腺次全切除术 - 胰腺尾端切除术或胰腺次全切除术是一种切除左侧胰腺（体/颈部和尾部）的手术。



胰十二指肠切除术

(Whipple 手术) - 这手术涉及切除部分胰腺（头部和颈部），胆囊，胆总管以及部分小肠和一部分的胃，胆管和胰腺将连接回小肠。

Whipple 手术



其他治疗方法包括：

如果患者选择不治疗，可能的并发症包括持续疼痛和癌细胞扩散。胰腺癌还有其它的替代治疗方法，但这都不属于治愈性质的疗法：

化疗 - 化疗对胰腺癌可能有某些程度上的治疗作用。

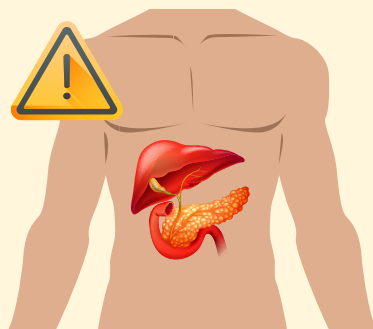
临床试验 - 临床试验会测试新的药物、手术方式和治疗计划。部分患者可能会有合适的临床试验供其选择。具体情况请咨询您的医生。

医生可能会为患者采取**综合**治疗方案，以达到最佳治疗效果。

手术的风险和并发症



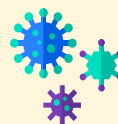
胰瘘：如果胰腺连接处未正常愈合，胰液有可能渗漏出来。虽然渗漏通常会自行愈合，但有些患者可能需要进一步接受干预或手术。



胃排空障碍：切除部分胃有时会影响正常的胃蠕动，导致液体和食物进入小肠的时间延迟。这种情况通常会自行好转，但某些患者可能需要通过插胃管或静脉输入肠外营养液作为辅助疗法。



出血：如果术后发生出血的情况，患者可能需要输血。在严重情况下，患者需进一步接受干预或手术来止血。



伤口感染：感染会延迟伤口的愈合，因此患者应及时使用抗生素和敷料进行治疗。



营养吸收不良：胰腺酶分泌减少会使身体难以吸收食物中的营养。这可导致腹泻和其他胃肠不适状况。



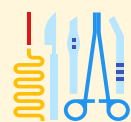
糖尿病：如果切除了胰腺的一大部分，有可能导致患者患上糖尿病。如果发生这种情况，患者可能需要定期注射胰岛素或服用药物来调节血糖水平。



体重减轻：有些患者可能会因术后食欲不振而造成体重减轻 5% 到 10%。

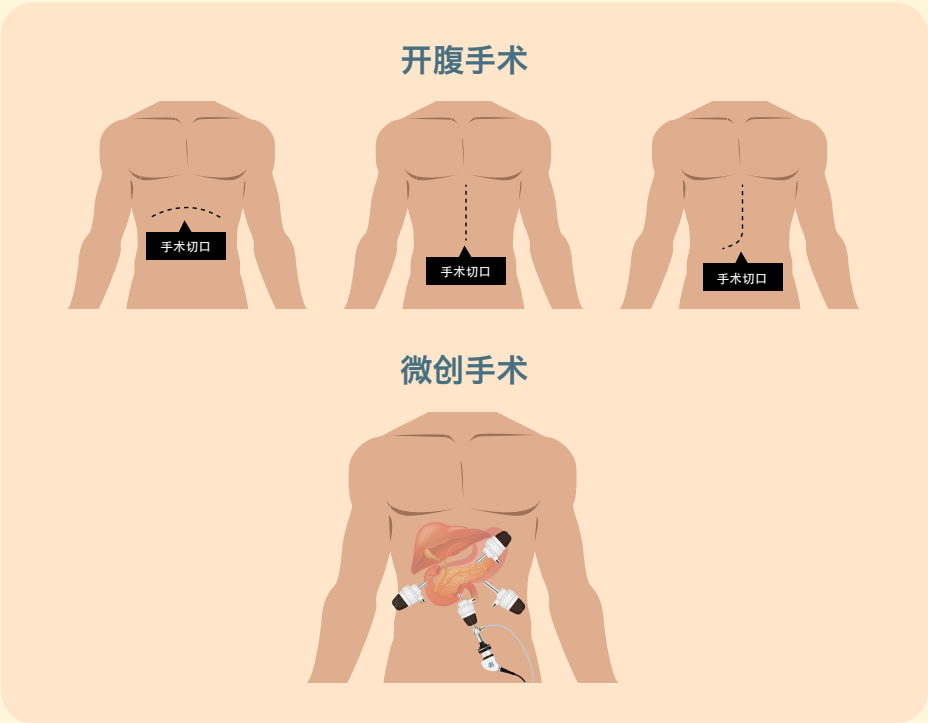


脾切除术后爆发性感染 (Overwhelming Post-Splenectomy Infection (OPSI))：如果患者的脾脏被切除，就存有发生严重性感染的风险。为了降低被感染的风险，医生会建议患者在手术前或手术后两周接种疫苗。



其它：其它可能出现的问题与其它大型手术类似，包括血栓、其它器官损伤、尿道和肺部感染。外科医生会采取预防措施，例如使用预防性抗生素、腿部压迫带等，以尽量减少这些并发症。

胰腺切除术涉及哪些操作？



进行胰腺切除术时，患者会接受全身麻醉。外科医生会通过手术切口进入腹腔。医生也会建议合适的患者进行微创手术方法（内窥镜或机器人手术）。微创手术可减少术后疼痛，缩短住院时间，以及快速康复。手术通常需要 6 至 8 小时，但具体时间可能会因手术方法和病情复杂程度而有所不同。

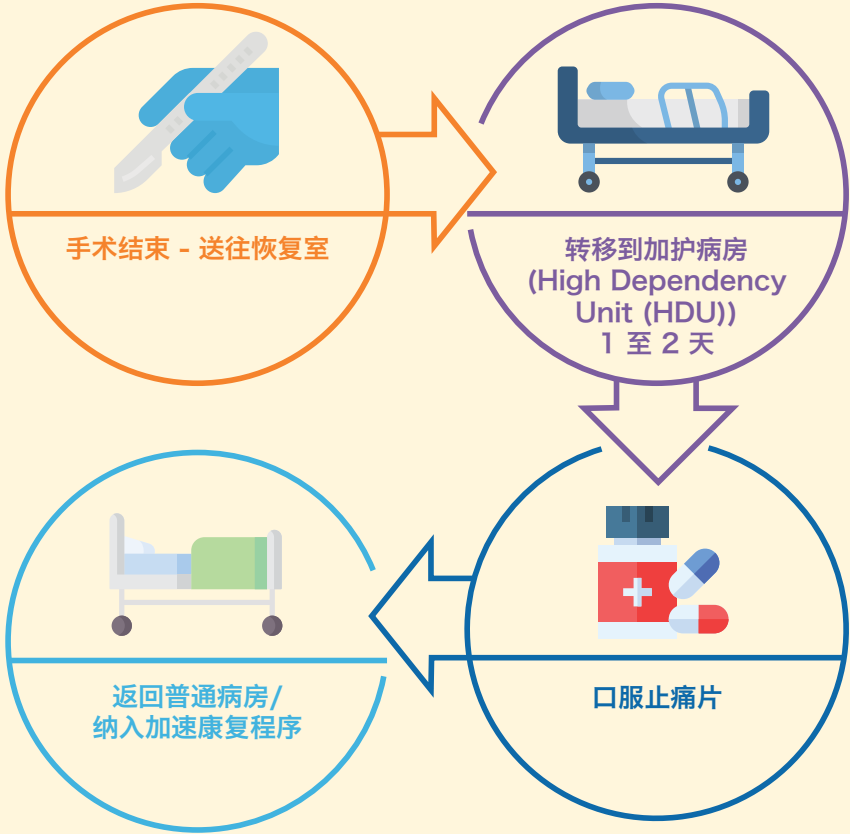
住院时间



如果未出现并发症，住院时间一般为 7 至 14 天。

术后

手术后，医生会根据患者的临床状况给予适合的饮食医嘱。



疼痛管理



术后的 2 至 3 天，医生将通过硬膜外麻醉或病人自控镇痛泵 (Patient Controlled Analgesia Pump (PCA)) 来控制疼痛。之后，医生可能会开一些口服止痛片。患者将在术前看诊时与麻醉师讨论详细情况。