
Brisbane Liver and Gallbladder Surgery
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DISTAL PANCREATECTOMY AND SPLENECTOMY **(REMOVAL OF THE TAIL OF THE PANCREAS AND SPLEEN)**

*THIS INFORMATION REFLECTS THE PERSONAL PRACTICE OF DR KELLE SLATER ONLY
AND DOES NOT SUBSTITUTE FOR DISCUSSION WITH YOUR SURGEON*

YOUR ADMISSION DETAILS:

Your admission date is: _____

Date of your operation: _____

Fasting time from: _____

Greenslopes Private Hospital Admissions (Phone 1800 777 101) will contact you **the day before** you are due to enter the hospital to confirm the details.

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WHY DO I NEED THIS OPERATION?

The most common reasons to perform this surgery are:

- cancer of the tail of the pancreas,
- cysts of the tail of the pancreas – both benign and cancerous,
- chronic pancreatitis,
- swollen blood vessels to the spleen (splenic artery aneurysm).

The spleen is commonly removed with the pancreas because the blood supply to the spleen is intimately connected to it. In some non-cancerous conditions it may be possible to remove the tail of the pancreas without removing the spleen.

Cancer of the tail of the pancreas is a very serious condition that often presents when it is very advanced. Making a diagnosis of cancer of the tail of the pancreas with a biopsy prior to surgery is generally very difficult and may not be possible. The pancreas tends to develop a great deal of scarring or reaction that interferes with interpreting a needle biopsy. It is common to biopsy a cancer in this region and not obtain a diagnosis of cancer. This does not mean that cancer isn't present, it just means the biopsy has not obtained enough tissue. Thus, it is up to our judgment as to whether or not the patient has cancer and might benefit from this operation. The presence of cancer will be determined after surgery by the pathologist when they assess the pancreas under the microscope. A result from the pathologist can take anywhere from 2 – 7 days.

The decision to proceed to this type of surgery is very complicated and this is the reason why it is important to be operated on by a surgeon with a great deal of experience with operations for cancer of the pancreas. Our judgment will be valuable in determining whether or not a tumour is present and if it is removable. Sometimes distal pancreatectomy may be done with keyhole surgery. This technique is usually not suitable for cancer and is only used for tumours in the very tail of the pancreas.

Sadly, there are cases where at the time of surgery, we will determine that the cancer is not removable. This is commonly due to the finding of a secondary cancer in the liver. Another reason may be the cancer's relationship to vital blood vessels supplying blood to the liver. These blood vessels cannot be removed without threat to the patient's life. If this is the case, we may not be able to remove the cancer. This will be discussed fully with you and your family after the surgery.

WHAT DOES THE PANCREAS DO?

The pancreas has two purposes.

1. It produces insulin to prevent diabetes.
2. It produces digestive juices to help your body absorb food.

HOW DO I KNOW I HAVE A PROBLEM WITH THE TAIL OF MY PANCREAS?

Tail of the pancreas cancer has very few symptoms.

- Pain can occur and unusually signifies that the cancer is advanced. This pain is commonly in the back.
- Many times a problem with the pancreas is found during a scan for another reason and there are no symptoms at all.
- There may be a new onset of diabetes.
- There may be nausea, loss of weight and a loss of appetite.
- Some patients who smoke cigarettes suddenly do not feel like doing it anymore.

WHAT TESTS WILL I HAVE BEFORE AN OPERATION IS OFFERED?

Planning surgery for distal pancreatectomy and splenectomy requires a number of tests. These can usually be done within a week. These tests may be both invasive and non-invasive and must be performed before any decision regarding an attempt at curative surgery can be made. After each test, the situation is reassessed. The decision not to offer an operation can occur after any or all of these tests. The final decision about feasibility of surgery is made at the actual time of the operation. You will be included in the decision making.

You must be quite fit to undergo this type of operation. If you are over 80 years of age, serious consideration will be given to whether this operation will be of benefit. This is because even if you are healthy you may not have enough reserve to recover from this operation.

Some of the tests you can expect to have may include but are not limited to:

1. Blood Tests

Full blood count, kidney and liver function tests.

Tumour markers; it is important to remember, blood tests for cancer are not helpful in some people. They are used only as a guide and not for diagnosis.

2. CT Scan of the Chest and Abdomen

This is done to look for cancer outside the pancreas – distant spread of cancer to the lungs or liver. It also gives information about the artery and veins around the pancreas and their relationship or involvement with the tumour. In order to perform successful surgery, there must be no cancer distant to the pancreas.

3. Endoscopic Ultrasound – EUS

This is done under a light anaesthetic by a skilled gastroenterologist. A flexible telescope with an ultrasound mounted in the camera head is inserted via the mouth into the stomach. Because the pancreas is behind the stomach an excellent view of

the pancreas can be obtained. The pancreas can be biopsied. This is the most common way to get a biopsy of the pancreas. If the diagnosis is obvious from the CT scan, however, this test may not be performed.

4. Heart and Lung Tests

These are performed to assess your fitness for major surgery. This will depend on your age and other health problems. The tests may be an ultrasound of the heart (Echocardiogram), lung function tests and exercise tests.

5. MRI

If there is some doubt about the diagnosis an MRI can sometimes be of benefit.

6. Key hole surgery or diagnostic laparoscopy

This is done under general anaesthesia in the operating theatre. A small cut is made in the belly button and the tummy cavity is blown up with gas. A camera is inserted. There may be 1 or more additional cuts made to move things around. This test is done to look for small lumps of cancer that may have spread around the abdominal cavity. This is relatively common in advanced pancreatic cancer and if present, is not curable. This type of advanced cancer is not seen well on scans.

If all these tests prove to be favorable for surgery, we will discuss operation with you.

WHAT ARE THE CONSEQUENCES OF LIFE WITHOUT A SPLEEN?

The spleen is part of the immune system – it is there to filter bacteria and release cells to fight these bacteria. It also helps the body to remove worn out red blood cells and stores platelets - another component of blood.

Generally, day-to-day life without a spleen goes on as normal. The risk of infection is not great, but is however lifelong. The risk of infection is higher in the first twelve months after the surgery. The risk only applies to certain bacteria (Pneumococcus, HIB and Meningococcus) and for this reason, you will receive vaccinations and preventative antibiotics. You will be given the antibiotic Amoxicillin 500mg a day, (an alternative will be prescribed if you are allergic to penicillin.) The vaccinations will cover you lifelong and the antibiotics need only carry on for twelve months i.e. the high risk period. You will get your vaccinations either before the operation or as you leave the hospital.

It is also recommended that you have a yearly Influenza vaccination. Yes, influenza is a virus, but getting the flu can lower your resistance to harmful bacteria.

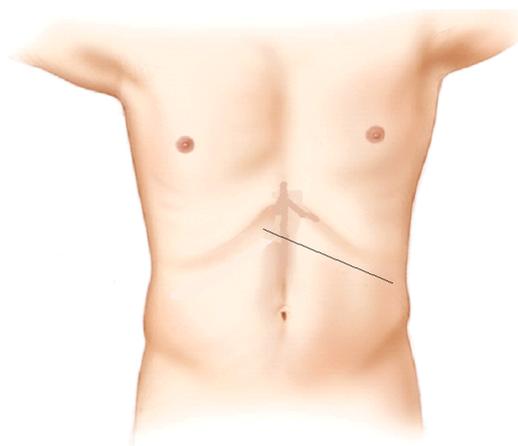
Even though, the risk of life threatening infection after splenectomy is very low, patients and their families must always be aware they are susceptible to these infections and seek help early if they feel unwell or have an unexplained fever or confusion. You should have a

pack of antibiotics with you if you travel overseas in case you become unwell. If you are visiting malaria prone countries you need to take suitable precautions.

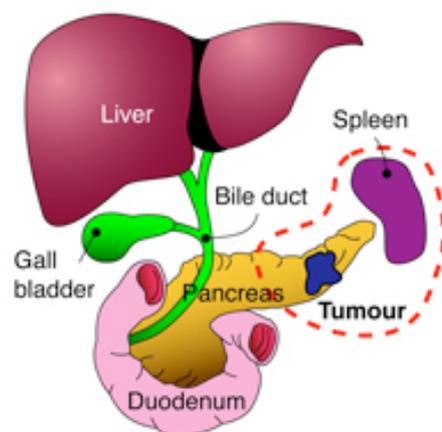
The other problem after splenectomy is a temporary elevation of the platelet count. Platelets help the blood to clot. They are stored in the spleen and after its removal the levels rise. This increases the risk of clots in the legs and lungs. I will check your platelet count in the week after discharge (a blood test) and let you know if you have to begin taking aspirin. This deactivates the platelets. You will continue to take this until the platelet count is normal. This usually takes 1-2 months.

WHAT DOES THE OPERATION INVOLVE?

Distal pancreatectomy and splenectomy is performed as follows:



The incision will be on the left just under the ribs.



The section of pancreas and spleen to be removed is marked with the dotted red line.

WHAT TO EXPECT IMMEDIATELY AFTER SURGERY

Pain Relief

For the first few days after surgery, there may be a moderate amount of discomfort at the site of the operation. This is the case even if you have key-hole surgery.

You will have some form of pain relief. There will usually be a choice of:

- Epidural (if medically suitable) – this is a fine tube placed in the back that delivers local anaesthetic to the nerves around the spinal cord. It is highly effective and you will still be able to walk with it in place. There are small risks associated with epidural including infection and very rarely permanent paralysis. The anaesthetist will discuss this with you.
- Patient Controlled Analgesia (PCA) and a “Pain buster” - a button you will press that causes strong pain killers (like morphine) to run straight into your IV line,

combined with a tiny catheter in the wound providing local anaesthetic. These devices are very safe and have locking mechanisms to prevent overdose.

IT IS VERY IMPORTANT THAT YOUR RELATIVES DO NOT PUSH THE PAIN BUTTON FOR YOU AS THIS WILL RESULT IN AN OVERDOSE OF MEDICATION THAT MAY STOP YOU BREATHING AND LEAD TO DEATH.

Your anaesthetist will discuss the pros and cons of each method, prior to surgery. Either option may not be suitable for every person.

Every effort will be made to minimise your discomfort and make it bearable. Your nurse will be monitoring your level of pain frequently.

When you are back on a normal diet, you will be converted to oral pain relief.

Drain tubes

You will have a number of plastic tubes in your body following surgery. They will vary depending on your particular case. They will be removed at variable times following your surgery under our explicit direction. All tubes, except for the IV in your hand will be put in place under anaesthesia.

- Central venous line: in your neck (placed under anaesthesia) to give you fluids and pain relief after surgery.
- Urinary catheter: tube placed in your bladder so you don't have to get up to pass urine.
- Abdominal drain tubes: two or three soft plastic drains coming out of your abdomen that are placed around the pancreas to drain any fluid, bile or pancreatic juice, so it does not collect in your abdomen.
- Nasogastric tube: a tube in the nose used to drain stomach fluid, so you do not vomit.
- Arterial line: a fine catheter inserted into the artery at the wrist to monitor the blood pressure.

Eating

The spleen and pancreas are just behind the stomach. As a consequence, your stomach may take a few days to begin to work again. You will not have anything to eat or drink for the first few days after surgery. An intravenous drip will provide you with the necessary fluids. In most cases you will have a nasogastric tube (NG) in your nose that will remove the stomach contents until it recovers. We will let you know when you will be able to eat.

It is normal to have a sore throat for a few days after the surgery.

People who drink more than two cups of coffee a day may notice a caffeine withdrawal headache and irritability a few days after surgery.

Urinating/Bowel Movements

During the first few days after the surgery, the tube placed in your bladder will drain your urine. You will probably not have a bowel movement until several days after the surgery.

Intensive Care

It is usual that you will be looked after in intensive care for at least the first day after your surgery. Your continued stay here will depend on your condition.

Other Medications and Preventative Measures

You will be given a blood thinner once or twice a day as a small injection under the skin. This helps to prevent clots in the legs or deep venous thrombosis (DVT) that may travel to the lungs and be life threatening. If you are in a high risk group for DVT, you may be sent home with this injection for several weeks after surgery. You or a family member will be taught how to give the injections.

You will be asked to wear TED stockings throughout your hospital stay. These help with DVT. You may stop wearing these when you are able to get up and walk easily by yourself.

In many instances you will be given a medication to decrease the acid secretions in the stomach. This prevents stomach ulcers that may occur after major surgery.

You must not smoke at all.

Alcohol can be toxic to the pancreas. After surgery, alcohol should be avoided for at least three months, and after that it is recommended that alcohol consumption be no more than one standard drink a day with at least two alcohol free days a week.

Activity

You can expect your nurse and physiotherapist to help you to get out of your bed on the first day after surgery. You will be able to walk short distances even with all of the tubes and intravenous lines. As each day passes your tolerance for walking and sitting in a chair will increase. This is extremely important to prevent pneumonia, clots in the legs and loss of general condition.

Your Incision

You can expect to have a waterproof bandage over your incision for the first several days. We will remove the dressing at the appropriate time. You will be able to shower with the waterproof dressing on. It is quite common to have a small amount of leakage from the wound.

Other Important Information

You can expect to see your primary surgeon every day. On weekends or in times when your surgeon is operating elsewhere, you will see one of the practice partners. All are very

experienced in this type of surgery and commonly assist each other in the operating theatre.

We will make every effort to keep you informed of your progress. We are always honest and open with you and your family. Feel free to ask questions.

Length of Stay in Hospital

On average most patients will expect a 1 - 2 week hospital stay. This time, however, differs greatly for individual patients. Some stay shorter, some much, much longer. You will not be discharged before you can walk unaided and care for yourself.

WHAT ARE THE COMPLICATIONS THAT MAY HAPPEN IMMEDIATELY AFTER SURGERY FOR DISTAL PANCREATECTOMY AND SPLENECTOMY?

This is complex surgery with many potential complications. In the hands of surgeons who are experienced, the complication rate is usually very low.

The most serious and specific complications that may be seen after this operation include:

Pancreatic Fistula or Leak

After the tumour is removed from the pancreas, the cut end of the pancreas is stapled and sutured closed. The pancreas is a very soft, fatty organ and in some patients this suture line may not heal very well. If this happens patients develop leakage of pancreatic juice. Pancreatic leak of any degree occurs in approximately 10 – 20% of patients. The consequences of this may be very minimal or may be very serious.

If there is a significant leak, you will need either a drain tube to control the secretions, this will usually be placed by the x-ray department or may need to be drained again in the operating theatre by opening up the full wound. This re-operation occurs in 1 – 4% of patients undergoing this procedure.

The drain tube will remain in place until the pancreas dries up – this can unfortunately take MONTHS.

Gastroparesis – paralysis of the stomach

It is quite common (about 10% of patients) for the stomach to remain paralysed for a short time after a distal pancreatectomy. You may experience vomiting that requires the re-insertion of the tube down your nose into your stomach.

Other immediate complications of this surgery

Like all major surgery there are a number of serious complications that may occur. These must be dealt with on a case-by-case basis. Some of these complications are:

- Death: approx. 0.5% of all patients having this type of operation.

- Bleeding: either in the first 2 – 3 days requiring return to surgery or delayed bleeding from a ruptured artery some weeks after surgery. You may require a blood transfusion. This can be fatal.
- Complications of removal of the spleen (see below).
- Infections: wound, pneumonia, urine, bile duct, intra-abdominal related to a pancreatic leak, epidural related, IV line related.
- Damage to the hand because of the arterial line.
- Punctured lung secondary to the IV line in your neck.
- Clots in the legs that may travel to the lungs.
- Stomach ulcer that may bleed - this may present as a vomit of blood or black bowel motions.
- Heart attack and stroke.
- Urinary catheter complications: unable to pass urine after the catheter is removed especially in men.
- Permanent or temporary damage to nerves in the arms, legs and neck due to prolonged immobilisation on the operating table. This may result in loss of feeling or movement.
- Wound pain and prolonged numbness under the wound.
- Hernia of the wound.
- Anaesthetic risks: there is a small risk of severe allergy, inhalation of vomitus, drug reaction and even death during an anaesthetic.

AFTER DISCHARGE

What are the long-term complications of the Distal Pancreatectomy?

Some of the long-term consequences of this operation include the following:

Poor absorption of fat

The pancreas produces a substance (enzyme) that digests food and especially fat. In some patients, removal of part of the pancreas can lead to a decreased production of this enzyme. Patients complain of diarrhoea that is very oily and floats in the toilet bowl. Treatment consists of taking oral pancreatic enzyme pills (Creon) and usually provides excellent relief from this problem. About 10-30% of all pancreatectomy patients may require these supplements.

Diabetes

Another role of the pancreas is to produce insulin that controls blood sugar levels. During the operation the neck and tail of the pancreas are removed. Therefore, the risk of developing diabetes is present.

In general, patients who are diabetic at the time of surgery or who have an abnormal blood sugar level that is controlled on a diet have a high chance of needing insulin permanently after the surgery. Patients who have completely normal blood sugar prior to surgery with no history of diabetes and do not have chronic pancreatitis or obesity have a lower probability of developing diabetes after the operation.

Alteration in diet

After a distal pancreatectomy operation there may be a significant change in the amount of food people can eat. Because the propulsion of the stomach can be temporarily affected, it is easy to feel full very quickly and not take in enough calories. This is part of the reason for the weight loss experienced after this operation. It is also very common to have an occasional vomit at home. If the vomiting occurs every day after discharge, this is not normal and should be reported to us.

We generally recommend that patients eat smaller meals and snack between meals to allow better absorption of the food and to minimise symptoms of bloating or fullness. This means eating small amounts of food 6-8 times per day.

We also recommend the use of high calorie drinks like Ensure, Sustagen or Resource. They are a relatively low volume and pack in a lot of calories.

It is also a good idea to take an inexpensive over the counter multivitamin each day leading up to and after the operation.

If you experience diarrhoea, you should let us know as this can be a sign that the body needs pancreas supplements. This irritating problem is very treatable.

Loss of weight

It is common for patients to lose up to 5% of their body weight. The weight loss usually stabilises very rapidly and most patients after a small amount of initial weight loss are able to maintain their weight and do well.

How you may feel

You will feel weak or "washed out" when you go home. You might want to nap often. Even simple tasks may exhaust you. You may lose your taste for food. You might have trouble concentrating or difficulty sleeping. You might feel depressed.

These feelings are usually transient and can be expected to resolve but may last many months after this tremendously arduous operation.

It is common to have discomfort, pulling and numbness of the wound for many months after the operation. It becomes more pronounced about a month after surgery. It is not agonising, but it can be annoying if you don't understand that it is normal. It takes a full year for a wound of this nature to settle completely.

Going home

You will not be sent home until you are walking unaided and able to care for yourself. You may need to have help at home preparing meals and cleaning because you will be tired for a month or two. It is a good idea to have someone at home with you for the first week.

Your medications

I will discuss with you which medications you should take at home. This will usually include some sort of painkiller. You can expect to go home with stomach medication to prevent ulcers that you may need to take for several weeks. If your spleen has been removed, you may need a daily antibiotic tablet for up to a year and an Aspirin tablet daily for several weeks.

Your incision

Your dressing will be removed before you leave the hospital and if it is not leaking it will be left open to the air. You may wear clothes over the top of it.

It is very common to have a small or even large leakage of clear fluid from one of the drain sites, several days or weeks after the operation. If this occurs at home, do not panic. Just call the surgery the next day for advice.

It is very common to have a prickly end of a stitch poking out of the end of the wound. This happens as the stitches dissolve. If it bothers you, you may snip it off with a pair of scissors. Otherwise it will disappear about 8 weeks after the surgery. If you are very thin, you may be able to feel the deep stitches that are not dissolvable if you push hard with your finger. If this bothers you, it is relatively easy to cut the offending stitch out several months after the operation.

Your incision may be slightly red along the cut. This is normal. You may gently wash dried material around your incision and let water run over it. Pat the wound dry with a towel. Do not rub soap or moisturizer into your incision for at least 4 weeks or until it is fully healed. After this you may rub vitamin E cream along the wound.

It is normal to feel a ridge along the incision. This will go away. It is normal to have a patch of numbness under the wound.

You may see a small amount of clear or light red fluid staining your dressing or clothes. If it is minor cover that part of the incision with a pad. If leakage is severe, you should contact our office or the Emergency Department.

Over the next few months your incision will fade and become less prominent.

Activity

Listen to your body, if it is hurting, don't continue with the activity.

Do not drive until you have stopped taking narcotic pain medication and feel you could respond in an emergency.

You may climb stairs.

You may go outside, but avoid travelling long distances until you check with us at your next visit.

Do not lift more than 10kg for 6 weeks. (This is about the weight of a briefcase or a bag of groceries). This also applies to lifting children, but they may sit on your lap.

You may start some light exercise when you feel comfortable.

You may swim after 4 weeks

Heavy exercise may be started after 6 weeks - but use common sense and go slowly at first.

You may resume sexual activity when you feel ready.

WHAT SHOULD I BE AWARE OF IN THE DAYS BEFORE MY OPERATION?

Hospital

The hospital will call you the day before your operation to confirm your admission time. They will also let you know about any hospital excess you may have to pay.

Fasting

You must have nothing to eat or drink for six hours prior to surgery. (You may take sips of water up until 2 hours before the operation and you may take your medications with a sip of water). You must not chew gum or smoke on the day of the operation.

Medications

- If you are on blood thinners such as Aspirin, Warfarin, Plavix, Iscover, Clopidogrel, Pradaxa, Dabigatran, Rivaroxaban, Xarelto or anti-inflammatory drugs (Brufen, Mobic, Voltaren, etc), they can cause bleeding during surgery. We will advise you about what to do with these drugs prior to surgery. You must let us know about these drugs and the decision to stop them is based on each individual patient's needs.
- Diabetic medications: we will give you advice on whether to take your diabetic medications on the morning of surgery or not. Some diabetics will be admitted the night before the operation.
- If you are on Prednisone, you should not stop this drug suddenly.
- Cholesterol lowering medication should not be taken when you are fasting.
- If you are taking any alternative medications e.g. St John's Wort, fish oil or garlic, you should stop these tablets one week before surgery as they may result in excess bleeding.
- You may continue to take a multivitamin.
- Continue to take all other medications, even on the morning of surgery with a small sip of water.

Income Protection Insurance and Centrelink

If you have income protection insurance, start doing the paperwork required to claim before the operation. Centrelink claims take many weeks to process. It is difficult to recover well when you are worried about finances. Before any major surgery it is wise to get your affairs in order including an Advance Health Directive, Will and Power of Attorney.

Queensland Cancer Council

Call the Queensland Cancer Council 13 11 20 as they have a number of general support financial assistance programs in place if needed.

Family

This is the time to rely on family and friends for support. If you receive offers of home cooked meals and household help, accept them happily. That way you can concentrate on getting better.

Other things to know

- You must bring all relevant x-rays to the hospital with you.
- If you smoke, it is in your best interests to stop completely as soon as you can. See your GP for alternatives or call Quitline (13 18 48) if you wish to seek advice.
- You should also abstain from drinking alcohol 24 hours prior to any surgery.
- Bring all your current medications with you to the hospital.
- Bring comfortable pyjamas, personal toiletries, small change for newspapers etc.
- Do not bring large amounts of cash or valuables.

WHAT WILL THIS SURGERY COST ME?

I largely work as a 'no-gap' doctor. This means that the surgeon fee for your operation will be sent to your health fund and there will be no 'gap' or extra amount of money to pay. There are always exceptions and decisions regarding this are made on a case-by-case basis.

If you do not have private health insurance or if you have overseas insurance, you will be given a quotation for surgery, anaesthetic and hospital fees and must pay in full **prior** to the operation.

Outpatient consultations are not covered by the health funds and there will be a charge for these meetings. You will get a proportion of this money back from Medicare. There is no fee to be paid for normal care after the operation.

If your Body Mass Index is >35 , the surgery is far more difficult and the risks of complications including pancreatic leak is higher. If it is medically suitable, we may recommend a period of weight loss before contemplation of this operation, so it can be done more safely. This may involve a supervised weight loss program called INTENSIV to get the best results in the shortest time. This will occur an extra out of pocket expense.

We use a drug after your surgery called Octreotide to slow down the juices made by the pancreas. It incurs an out of pocket expense of \$300 - \$400. We feel that this decreases the risk of a pancreatic leak. Please let us know if you do not wish for us to use this drug.

There may be other out-of-pocket fees from your anaesthetist and any other specialists who are asked to look after you. You should ask them ahead of time any out-of-pocket costs. Ask us who will be performing your anaesthetic and you can make enquiries with them about any out-of-pocket expenses.

There may be extra costs for x-ray, pharmacy and pathology. You have a right to gain 'informed financial consent'. Fees from other practitioners are beyond our control and you should ask for the costs from each person who is asked to look after you. Patients have a choice when it comes to paying for their health care and you are fully within your rights to shop around.

If you do not live in Brisbane, you will be responsible for all accommodation, hotel, meal and transport costs for you and your family. There is some monetary assistance available for private patients through the Patient Travel Subsidy Scheme (PTSS) providing assistance to patients and in some cases their carers, to enable them to access specialist medical services that are not available locally. Please see Queensland Health's Patient Travel Subsidy Scheme site for details <http://www.health.qld.gov.au/iptu/html/ptss.asp>. Greenslopes Hospital web site has an extensive list of hotels available in the local area <http://www.greenslopesprivate.com.au/For-Visitors/off-site-accommodation.aspx>

ABOUT YOUR SURGEON

Dr Kellee Slater MBBS (Hons) FRACS

2006 – Present	Staff Surgeon Hepatopancreatic-Biliary-Liver Transplant Princess Alexandra Hospital and Greenslopes Private Hospital Brisbane, Queensland
2004 – 2006	Hepatobiliary and Liver Transplant Fellowship Princess Alexandra Hospital Brisbane, Queensland
2002 – 2004	Liver and Kidney Transplant Fellowship University of Colorado Hospital Denver, Colorado, United States of America
2002	Fellow of the Royal Australian College of Surgeons (FRACS) General Surgery
1989 – 1994	MBBS (Honours) University of Queensland