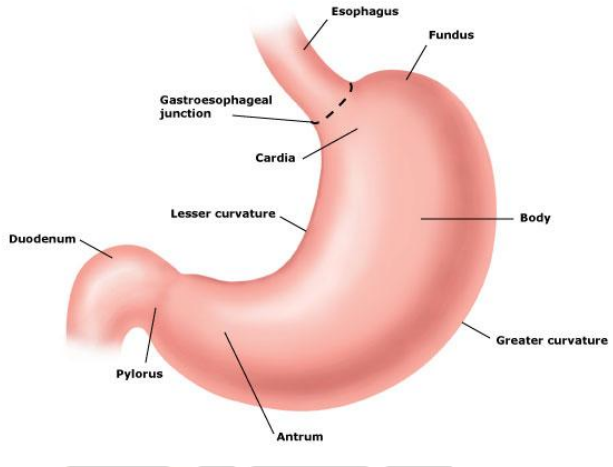
GASTRIC CANCER INFORMATION

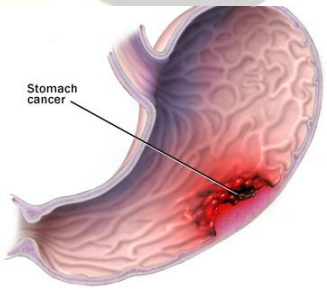
What is Stomach?

The stomach is the main food storage tank of the body. The stomach also secretes a mixture of acid, mucus, and digestive enzymes that helps to digest and sanitize our food while it is being stored. The wall of the stomach has five layers:



- **Inner layer or lining (mucosa)**: Juices made by glands in the inner layer help digest food. Most stomach cancers begin in this layer.
- **Submucosa**: This is the support tissue for the inner layer.
- **Muscle layer**: Muscles in this layer contract to mix and mash the food.
- **Subserosa**: This is the support tissue for the outer layer.
- **Outer layer (serosa)**: The outer layer covers the stomach. It holds the stomach in place.

What is Stomach Cancer?



Stomach cancer usually begins in cells in the inner layer of the stomach. Over time, the cancer may invade more deeply into the stomach wall. A stomach tumor can grow through the stomach's outer layer into nearby organs, such as the liver, pancreas, esophagus, or intestine. Stomach cancer cells can spread by breaking away from the original tumor. They enter blood vessels or lymph vessels, which branch into all the tissues of the body. The cancer cells may be found in lymph nodes near the stomach. The cancer cells may attach to other tissues and grow to form new tumors that may damage those tissues. The spread of cancer is called metastasis.

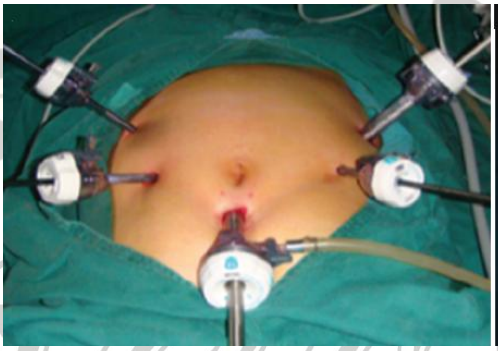
General Preparations for Surgery.

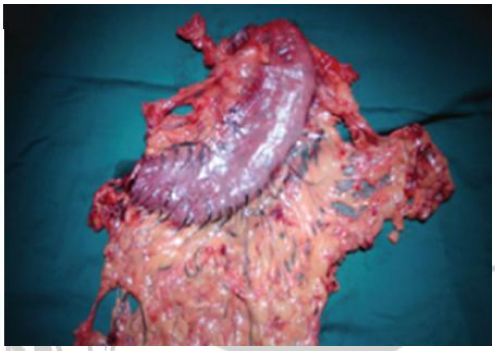
In preparation for surgery a thin flexible tube would be passed through your nose into stomach (nasogastric tube) to clear the contents in the stomach. This may be started a couple of days before surgery, if you have an obstruction. This tube will be maintained for few days after surgery. To prevent complications such as infection, you will be given antibiotics at the time of your operation. To stop a blood clotting in your legs

from happening a small injection of a drug known as anticoagulant will be given in your upper arm daily after the operation. You will be given some form of therapy in-order-to clear your bowel (if required). **Under a general anesthesia**, a urinary catheter is placed in the bladder and you would be positioned for access to the abdomen and pelvis. A thin tube will be passed into your stomach trough your nose to drain the stomach (if not passed before). This may be kept in place for few days after surgery.

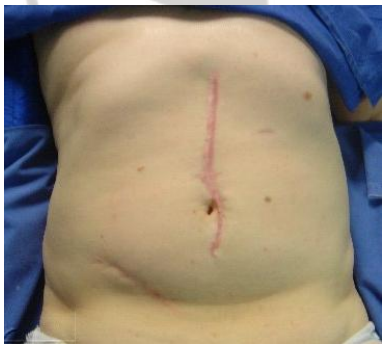
Approaches to Surgery:

☐ **Staging Laparoscopy**: One or more tubes are put into the abdomen and instruments passed down the tube to examine the inside of the abdomen and pelvis using a camera and video monitor. Sometimes, bands of fibrous tissue grow around the bowel or other organs. If so, the doctor may need to cut these. The surgeon looks for any signs that may make major surgery not viable (like spread of disease). If definite signs of spread of cancer or inoperability are found the procedure would be abandoned.





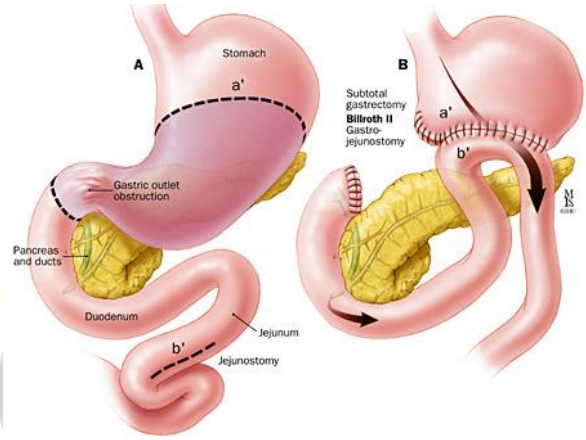
☐ **Laparoscopic Gastrectomy (Minimal Access Cancer Surgery-MACS):** The surgeon proceeds & completes the surgery using laparoscopic techniques. The surgical steps of open & laparoscopy are same. Only the modality & equipment used differ. During laparocopic procedure if the surgeon perceives that it is not advisable to proceed laparoscopically, the surgeon may decide to open the abdomen (covert). Sometimes abdomen will have to be opened before deciding inoperability. A further plan would be discussed with you in these cases. When surgery is feasible, the surgeon may decide to proceed laparoscopically depending on the amount of disease. The tumor is finally removed using a small (5-7cm) incision.



☐ **Open Surgery**: Under a general anaesthetic a long incision (cut) is made on your abdomen. The surgeon examines the abdominal organs, looking for any suspicion of disease spread. If any such areas are found, small samples may be taken for microscopic examination.

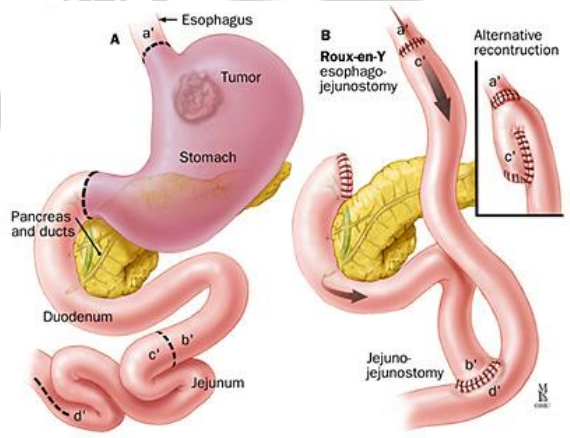
The Procedure:

The extent of stomach removed depends on the region & extend of disease. This can be determined only at the time of surgery. Surgery can be Sub-total gastrectomy or total gastrectomy.



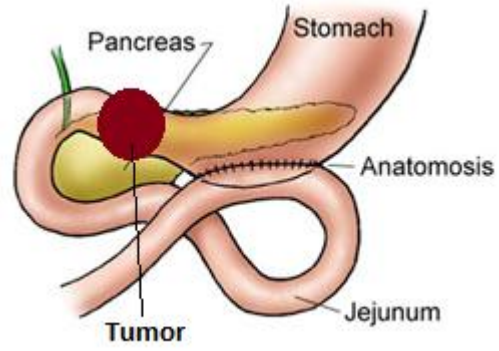
Sub-total gastrectomy means an operation to remove the lower part of the stomach. Associated lymph nodes also removed to give better results. The surgeon decides how much of the stomach and first part of the small bowel (duodenum) need to be removed and ties off the blood vessels supplying blood to that area. Clamps are placed across the freed area of stomach and small bowel and the diseased tissue is removed and sent for pathological examination. The free end of the small bowel is closed with stitches or staples. A loop of small bowel is placed next to the cut end of the stomach and a new opening is created between the stomach and the small bowel. Rarely a **proximal gastrectomy** may be performed where only the upper portion of stomach is removed.

Total gastrectomy means removing all of the stomach and joining a loop of small bowel to the food pipe (oesophagus) to restore continuity to the bowel. The surgeon detaches the stomach and its lymph nodes from their supporting tissues and blood supply and sends them for pathological examination. The spleen, part of the pancreas and the omentum (a fatty sheet attached to the stomach) are very close to the stomach and are also be removed. As the first part of the small bowel (duodenum) cannot reach the oesophagus, its free end is closed with stitches or staples and a mobile loop of small bowel is sewn to the free end of the oesophagus. The secretions from the duodenum then drain into the bowel through a new connection slightly lower down.



Extended gastrectomy may be required when the disease involves important adjacent structures (pancreas). This procedure is done only in selected patients as the complications are high. Please consent if you would like your surgeon to consider this procedure.

One or more drains may be left close to the operation site to remove secretions. A **feeding tube (feeding juejunostomy)** may be placed into your abdomen to continue feeding if there are problem associated with your bowel. This may be maintained to few days after surgery. The abdominal wound is then closed.



Palliative Gastro-jejunostomy: In cases when the disease is not operable & if there is obstruction to outflow (gastric outflow obstruction) from stomach, a bypass between stomach & small bowel would be performed (subject to availability of space to do this). This would reduce your vomiting & allow you to have feeds. You may be considered for gastrectomy after chemotherapy to reduce the tumor size.

What will happen after my operation?

You will be nursed in the ICU for at least the first few days after your operation depending on your progress. The reason for staying could be something as relatively minor as needing to counteract the epidural's affect on your blood pressure with a medication that requires heart monitoring. You will have a tube that passes down your nose and in your abdomen (drain). This allows any fluid to be removed so that you don't feel sick. You may also have a small feeding tube (jejunostomy) to the left side of your abdomen. This allows you to be given liquid nourishment in the short term. It is usually removed before you go home, but can be left in for 2-3 weeks if necessary.

Eating and drinking.

You will only have very small amounts of cold water to keep your mouth wet at first. You will start by taking "clear fluids"(possibly one day after surgery). Following this you will proceed to "free fluids" which are all liquids including milk based and strained soups without bits or lumps. Usually it will take a few days for you to be able to tolerate normal food.

One of the most noticeable things after this operation is that you will no longer be able to manage to eat the same amount of food as you used to. The only way of ensuring that you still get sufficient calories is to **eat smaller amounts but more regularly.** Where you may have been used to having three meals a day you will now need to adopt a small frequent meal pattern, ideally we advise five to six small snacks/meals per day with nourishing drinks. You may need to continue with nutritional supplements.

Weight loss is highly likely. Because the stomach has been removed, the storage capacity is greatly reduced so you will manage considerably less. You will feel full quickly and will be uncomfortable if you try to eat any more. However after some weeks to months you will notice that you can eat a little more. Most patients report that their meal sizes are about 50% compared to before the operation. The dietitian will support you with this aspect of your recovery but everyone finds it difficult at first. Many patients, over a period of several months, adapt well to the new internal plumbing and can eat well.

Getting about after the procedure.

We will help you to become mobile as soon as possible after the procedure. If, on the first day, you cannot get out of bed, we will encourage you to move your legs in bed to prevent blood clots forming. This helps improve your recovery and reduces the risk of certain complications. If you have any mobility problems, we can arrange nursing or physiotherapy help.

Leaving hospital.

People who have had a gastrectomy will probably stay as an inpatient for about 9 to 14 days. The time that you stay in hospital will depend on how quickly you recover from your operation, the type of operation, and surgeon's opinion. Following discharge we will give you a copy of your discharge summary.

Resuming normal activities including work.

Most people who have had this procedure can resume normal activities six to eight weeks after leaving hospital. This will also depend on whether you are having other treatments. You might need to wait a little longer (i.e. three to six months) before resuming more vigorous activity.

Are There Any Special Measures Required After The Procedure?

Further treatment will be based on microscopy examination. A **combination of chemotherapy with radiotherapy** may be advised. If chemotherapy was given before surgery to reduce the size of the disease, you would be advised to continue with chemotherapy after surgery.

Anaemia. The stomach is important in the absorption of iron and Vitamin B12. These are required for the formation of red blood cells. If you become depleted in iron or B12 you may become anaemic (low blood count). If this occurs it usually happens months to years after the surgery. Because of this risk we will check

your blood count every six months or so. If the levels of the B12 or iron are low supplements can be given. Iron tablets are available and B12 injections can be given as a simple injection every three months.

During your operation, the main nerve (vagus nerve) to the intestines has to be cut. This usually has some effects on the bowel function and is called "**Dumping syndrome".** One of the commonest effects is that you can have attacks of unexpected diarrhoea. This is sometimes associated with some discomfort or pain in the abdomen and sometimes dizziness and feeling very hot. It usually occurs shortly after eating and the effects normally disappear within an hour or so. Ordinarily, food is partially digested in the stomach and then released gradually into the intestines. Dumping syndrome occurs when the food you have eaten passes into your small intestine more rapidly as a consequence of the surgery. This does not affect everyone and those who 1experience it usually find that it improves with time. The dietician can advise you on changes to your diet that can reduce these effects.

What are the alternative treatments available?

Currently, the only known way of **curing stomach cancer** is **surgery**. Often other treatments, such as chemotherapy and radiotherapy, are combined with surgery. These are tailored to the individual patient.

Cancers involving only the mucosa (stomach lining) can sometimes be safely removed by an endoscopy (telescope passed through the mouth into the stomach) under sedation. This technique is called endoscopic mucosal resection or EMR. These are only for very early cancers.