British Society of Interventional Radiology
The Royal College of Radiologists
63 Lincoln's Inn Fields
London WC2A 3JW

Radiologically Inserted Gastrostomy (RIG)

This information sheet explains about the RIG procedure. It describes what the procedure involves, the risks, and what to expect when you come to the Interventional Radiology department for treatment.

Please note that this leaflet is not meant to replace discussion between you and your doctor. You should raise any questions you may have with the doctor who has referred you for, or is performing, the procedure.

What is a Radiologically Inserted Gastrostomy?

A RIG (Radiologically Inserted Gastrostomy) is a plastic tube which is inserted either directly through the skin (percutaneously) into the stomach or inserted through the mouth (per oral) into the stomach and out of the skin. This allows liquid food, fluid and medicine to be given directly into the stomach. This process is achieved using imaging to guide the placement of the tube into the stomach safely.

Why do I need a RIG?

A gastrostomy is considered when someone is unable to get enough food to maintain their weight and needs by eating or drinking through the mouth. This can be due to a blockage, previous surgery or radiotherapy or be due to swallowing difficulties from other conditions such as stroke, motor-neurone disease and other conditions. A gastrostomy ensures that food, fluid and medicine can safely be delivered into your stomach without causing issues that would otherwise arise if you were to eat or drink.

You need to ensure you get the right amount of nutrition and are able to take your medications to prevent you from getting ill. While nasogastric tubes (NG tubes) can provide nutrition in this way, they are mostly used as a temporary measure as they are relatively uncomfortable and will require more frequent changing. A RIG provides a more comfortable and long-term feeding solution.

How do I prepare for a RIG?

You will be asked not to eat for six hours before the procedure, however you can still drink clear fluids such as water. If you are not already an inpatient, you will need to be admitted to the hospital on the morning of or day before your procedure. You must ensure to tell staff prior to the procedure if you have any allergies or if you are on blood thinners. If you do not have a nasogastric tube in place, one will be inserted. Usually, some X-ray dye is given down this tube the evening before the procedure to help make the procedure easier for the doctor performing it.

How is a RIG performed

Staff will do pre-procedure checks with you before your procedure begins.

For this procedure, you will be in a hospital gown and lie flat on your back on an x-ray table. You will usually be given a small amount of sedation and pain relief through a cannula in your arm and have a monitoring device placed on your finger to keep an eye on your vital signs throughout.

You will then have the skin over your stomach cleaned with an anti-septic solution and you will be covered with a surgical sterile drape. Local anaesthetic will be used to numb the area where the doctor will be working. You will still feel pressure but shouldn't feel anything sharp.

There are two methods for placing the RIG tube and the doctor will discuss with you beforehand which method will be implemented. The two methods will be explained below:

"Push" Percutaneous Method

The nasogastric tube will be used to inject air into and inflate your stomach so that it lies closer to the skin surface. It is helpful if you try not to burp. To ensure the wall of the stomach remains adjacent to the skin during and after the procedure, special sutures called gastropexy sutures are placed to anchor the stomach to the skin surface. These sutures will later be removed by a district nurse after you are discharged. After the gastropexy sutures are placed, a hollow needle will be passed into the stomach under X-ray guidance and

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a guidewire placed through this in the stomach. Once the guide wire is in the stomach, the needle will be removed and a series of small tubes, each one slightly larger than the first, will be passed over this wire to form a tract large enough to fit the RIG tube comfortably. Once wide enough, the RIG tube will finally be placed through the skin and the guide wire will be removed.

At the tip of the RIG inside the stomach, there will be a balloon which will be filled with 5-10ml of sterile water so that the RIG will not fall out of the stomach later on and ensures it is held in place.

"Pull" Per Oral Route Method

The nasogastric tube will be used to inject air into and inflate your stomach so that it lies closer to the skin surface. It is helpful if you try not to burp. A needle will be inserted into your stomach through the skin and placement of that needle will be confirmed with contrast (dye) injection and a guidewire passed into the stomach through the needle. A plastic tube is placed over the guidewire to stop the wire being able to slip out and the guidewire will then be fed through the junction where the gullet (oesophagus) and stomach meet and then advanced further until the guidewire comes out of your mouth.

There will now be a guidewire passing from outside your body, through your mouth and then out again through the skin overlying your stomach. This is now used to place the gastrostomy tube through your mouth. There is a disc that prevents the gastrostomy tube from being able to be pulled right out through the skin at the stomach and this will lie at the inner side of the stomach wall. At the end of the procedure, correct placement will again be confirmed with contrast injected through the gastrostomy to see it is in the correct location.

With either method, the procedure takes around 30 minutes.

Who performs the procedure and where?

An Interventional Radiologist is a doctor specialising in image guided procedures. This procedure takes place in an interventional radiology suite, an operating theatre usually in the X-ray department where there is specialised X-ray equipment. Radiographers and nurses will also be present to operate the X-ray equipment and be on hand to provide support and to ensure the procedure goes as smoothly as possible.

What are the potential risks/complications of RIG?

While this procedure is largely safe and major complications are rare, there are potential risks and complications which you will need to be aware of. These will be outlined again to you before you sign a consent form.

Significant bleeding is rare but can require a further procedure in some cases. There is also a risk of introducing infection. Air escaping into the tummy during the procedure can cause pain for a few days while the body naturally resorbs it. Another rare complication is unintended damage to the stomach or to surrounding structures such as other parts of the bowel or the liver. This can require further procedures or surgery.

There are long-term risks of having a gastrostomy which include breakages, blockages, dislodgement and skin problems around the site.

What happens afterwards?

After the procedure, you will be monitored for any complications and usually transferred to a ward. There will likely be a protocol at your hospital for introducing fluid and feed. Monitoring of this depends on your needs and involves a team including specialist nutrition nurses and dieticians.

When you are going home with your RIG, you will be given information on how to look after it, including how to clean around the insertion site, how to administer the feed the dietician has prescribed and how to flush the tube regularly to prevent it from blocking. The water in the balloon will need changed regularly and the gastrostomy tube itself will also require changing. Once the tract is established, this can be done easily in the community or an out-patient department. In most cases, these aspects will have been discussed with you in advance of the RIG procedure also.

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