Bwrdd Iechyd Prifysgol Aneurin Bevan University Health Board

Abdominal wall reconstruction for complex abdominal wall hernia

Patient information

Department of General Surgery

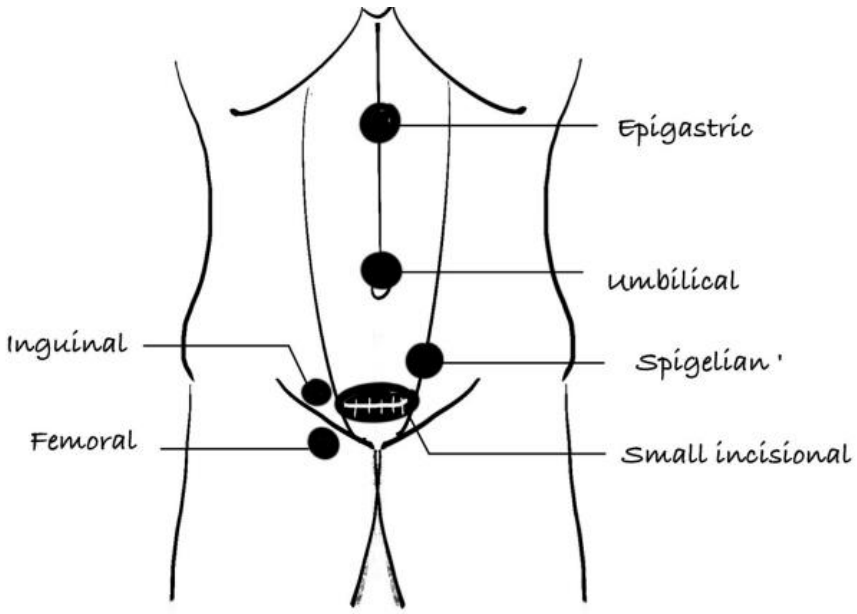
Your abdominal wall

The abdominal wall primarily comprises a group of muscles on either side joining in the midline, each with its own blood supply and nerve innervation. In addition to safeguarding the internal organs, these muscles play vital roles in breathing and exerting pressure during bladder or bowel evacuation.

What is an abdominal wall hernia?

An abdominal wall hernia is a bulge in the abdominal wall that occurs when an organ or tissue pushes through a weak spot in the muscle. These hernias can occur anywhere in the abdominal wall, but they are most common in the groin, umbilical area, midline, and lower abdomen.

Hernias often occur through weak tissues following previous abdominal operations. These are called **incisional hernias**. Incisional hernias usually occur due to sub optimal wound healing after the initial operation. Wound infections cause impaired wound healing resulting in an incisional hernia. Pre-existing medical conditions such as Diabetes, medications like steroids, smoking and higher body weight can significantly contribute to the development of incisional hernia.



Common simple abdominal wall hernia

What is a simple abdominal wall hernia?

Hernias shown in the above diagram are usually considered to be simple abdominal wall hernias.

1. Epigastric hernia – A hernia through the upper midline area.

2. Umbilical hernia – A hernia arising around the belly button area.

3. Groin hernia – Mainly of two types. Inguinal hernia and femoral hernia.

4. Spigelian hernia – A lateral hernia usually occurs below the level of the belly button.

5. Incisional hernia – Smaller, uncomplicated incisional hernias.

What is a complex abdominal wall hernia?

A complex abdominal wall hernia is a hernia that is difficult to repair because of its larger size, location and the significant weakness of muscles resulting in a bigger and complex defect in the abdominal wall. In most cases, if left untreated, incisional hernias can develop into complex hernias in this manner.

The number of previous attempts of hernia repair and patient-related variables such as higher body weight, smoking habits, and significant medical conditions like diabetes may contribute to categorizing your hernia as a complex one as well.

The aim of repair of abdominal wall hernia

- Improve the shape of your abdominal wall.
- Improve the function of your abdominal wall.
- Prevent future complications of hernia such as strangulation of the bowel.
- Prevent further recurrences of the hernia.

Types of mesh we use

In almost all cases of complex abdominal wall hernia repair a mesh will be used to strengthen the abdominal wall without undue tension in the tissues. Evidence from around the world has shown us that a repair with a mesh gives better outcome results than a suture repair, reducing the chance of recurrences.

Essentially three types of meshes

- Synthetic mesh
    - These types of meshes are made of strong non-absorbable synthetic material and they are designed to remain in your body permanently.

- Hybrid mesh
    - These meshes typically take around 12-18 months to be absorbed by the body, during which they offer essential reinforcement for the healing process of hernia repair.

- Biologic mesh
    - These types of meshes are composed of human or animal tissue and are utilized in complex situations, such as when there is an infection present in the operating field.

Following your discussion with the surgeon, the decision regarding the type of mesh to be used will be based on several factors, including:

- Type and size of your hernia
- The surgical approach and the specific body plane where the mesh will be placed.
- Risk of developing wound infection
- Your preference and views regarding the type of mesh to be utilized.

Your fitness for this procedure

Before your operation, you will undergo an assessment of your fitness for the procedure, which may be conducted by an anaesthetist or during a preassessment clinic. Based on this assessment, you might require specific preoperative optimization. Additionally, the anaesthetist team will advise on the most suitable postoperative care setting for you, which could range from ward-based care to a high-dependency unit or intensive care unit (ITU) depending on your individual needs.

Preoperative Botox injections

In certain cases of complex abdominal wall hernias, preoperative optimization may involve the administration of Botox injections to your abdominal wall. If this treatment is deemed necessary, your surgeon will provide you with a separate information leaflet detailing the procedure and its implications.

Repair of complex abdominal wall hernia

Complex abdominal wall hernias usually require more complicated and prolonged surgical procedures, which almost always require the use of a mesh to reinforce weakened abdominal muscles. After freeing up the hernia contents (In most cases this is mostly a part of your bowel) from surrounding tissues and reducing them back in the abdominal cavity, the second step of the procedure would be to close the defect in the abdominal wall.

Sometimes your surgeon would separate layers of the abdominal wall muscles, cut, and release them on either side, to bring them closer to meet in the midline without undue tension. This is called “Component separation”. This would result in more extensive dissection on the sides of your abdominal wall.

At this point, to strengthen the repair, your surgeon would lay a mesh in between the muscle layers and anchor it to the surrounding tissues. After this your skin will be closed and waterproof dressings will be used to cover the wounds. Quite often we use drain tubes in the soft tissue spaces to drain excess body fluid. These operations can take anywhere from 1-8 hours, depending on the size and complexity of your hernia. Pressure dressings and abdominal binders would be used to prevent further fluid collection called seromas.

You are expected to use these abdominal binders at home at least for 4-8 weeks after the procedure.

Your journey after the procedure

In most cases, you will be moved to a general surgical ward for post-operative care immediately after you recover from your procedure. However, based on the recommendations of our anaesthetists, some patients may be transferred to an Intensive Care Unit (ITU) or a High Dependency Unit (HDU). This decision might depend on any pre-existing medical conditions you have or unexpected complications that arise during the procedure. Additionally, you will be given an abdominal binder to help prevent fluid accumulation in the superficial tissues. Once your pain is managed and you're moving comfortably, our goal is to discharge you with appropriate follow-up arrangements as an outpatient.

Postoperative pain

Complex procedures involving extensive dissections of abdominal wall tissue may lead to a notable amount of postoperative pain. Your anaesthetist will engage in discussions with you regarding effective measures for pain relief, which may include options such as epidural anaesthesia and patient-controlled anaesthesia.

DVT Prophylaxis

During your hospital stay, you will receive blood thinning injections to mitigate the risk of developing blood clots in your legs and lungs. In the majority of cases, you will be prescribed the same medication to continue at home for 28 days following discharge.

Postoperative complications

As with any major operation, there are potential complications that may arise following your procedure. While our goal is to minimize these risks to the best of our ability, it is important for you to be aware of these potential complications. This awareness will enable us to obtain your informed consent for the procedure, ensuring that you have a clear understanding of the associated risks. The complications listed here are not exhaustive.

Immediate:

• **Postoperative bleeding**
Operations of this nature involve significant tissue dissections, which can leave areas prone to bleeding. While most bleeding is managed during the initial operation, there are rare occasions where patients may need to return to the operating room if bleeding becomes significant and requires further control.

• **Bowel injury**
Although rare, bowel injury during these procedures constitutes a significant complication. We take every precaution to prevent such injuries during the operation. If we identify any damage to the bowel, we will repair it immediately during the procedure. In some cases, this repair may necessitate the removal of a portion of the bowel if it is deemed unhealthy.

Despite our efforts, there is a risk of bowel leakage from repaired or unrecognized damages postoperatively, which could lead to sepsis. In such instances, patients may need to return to the operating room for further management. In some cases, we may need to create a stoma bag, which could be temporary or permanent, depending on the situation.

• **Bowel ileus**
Occasionally, your bowel may not resume normal function immediately after the operation, making it challenging to tolerate food or drinks. In such cases, we typically manage this by allowing your bowel to rest, which may involve the placement of a drainage tube through your nose. While these episodes usually resolve on their own, they could prolong your hospital stay beyond the usual duration.

Intermediate:

• **Wound infections and tissue breakdown**
This complication is particularly significant and is known to occur more frequently in smokers, obese patients, and those with diabetes. Therefore, it is crucial to cease smoking, strive for weight loss, and ensure optimal control of diabetes before your operation. Doing so can help reduce the risk of this complication and contribute to a smoother recovery process.

• **Increase in intrabdominal pressure**
When we reduce your hernia back into the abdominal cavity, it can occasionally elevate the pressure within the abdomen. This heightened pressure may impact the blood supply to vital organs like your kidneys. In very rare cases, patients may need to return to the operating room to reopen the abdomen, mitigating any further damage to intra-abdominal organs.

• **Lung infections**
This complication is fairly common. We focus on optimizing your pain control and may provide chest physiotherapy if necessary to prevent it. In some cases, long-term treatment with antibiotics may be required as part of the management plan.

• **DVT and PE (Blood clots in legs and lungs)**
As mentioned previously, you will begin taking blood thinners, and stockings will be provided for your lower legs unless there is a contraindication. We recommend moving your legs frequently and initiating early mobilization to help prevent this complication.

Late:

• **Seroma**
A seroma is a build-up of body fluid underneath and around your wound site. To prevent this, we use drain tubes during the procedure and advise the use of abdominal binders postoperatively. Seromas typically resolve on their own and are managed conservatively. However, in some cases, they may require recurrent drainage or further operative management.

• **Mesh infection**
Though uncommon, this is another well-recognized complication. Typically, a trial of long-term antibiotic treatment is necessary. However, in some cases, further procedures may be required to remove the infected mesh.

• **Abnormal appearance of abdomen**
Sometimes, due to variations in the amount of tissue and skin left, the two halves of the abdominal wall may appear different. It's important to note that this is primarily a cosmetic complication and does not typically affect the functionality or health of the abdominal wall.

After you leave the hospital

After your operation, it typically takes 2-3 months for you to regain free mobility and return to your usual routines. It's important for you to continue wearing the abdominal corset to reduce the risk of seroma formation. During this period, we advise against lifting any heavy weights over 2-3kg. Experiencing a contiued level of pain, discomfort, and occasional numbness in your abdominal wall is not uncommon. We anticipate these symptoms will diminish over time as your body heals.

Wound care

In most cases, wounds should heal without complications, and you'll need to keep your dressings on for about a week. If there are no issues with healing, you can take your first shower or bath after about 5-7 days. If you experience any wound-related complications, the ward staff will coordinate with your GP and community nurses for further wound management.

When can you start driving and return to work

The general advice is to return to work and driving when you feel comfortable. A good test to determine if you're ready to drive is to try an emergency brake. If you don't feel any pain during this manoeuvre, it's safe to say you're ready. You may need to contact your insurance company in certain cases to check for any specific requirements related to your driving. The type of work you do will affect your return to work. For an example, if your work involves heavy lifting, the time needed for your return to work may be longer.

We hope that you found this leaflet helpful. If you require further information, please contact: 01633234112

"This document is available in Welsh /
Mae'r ddogfen hon ar gael yn Gymraeg".