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Abdominal wall reconstruction (AWR)

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يسهل الوصول إليه، يرجى التحدث إلى أحد الموظفين لترتيب ذلك لك.

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This is a patient information booklet for patients who are expected to have abdominal wall surgery to correct a complex weakness in the abdominal wall.

After reading this booklet, and if you still have any questions or queries, please get in touch with us through the contact details at the end of this booklet.

What is the abdomen?

The abdomen, often called the belly or the stomach area, is a hollow area between the chest and the pelvis that contains the bowel, with fat surrounding it, and other vital organs.

What is the abdominal wall?

The abdominal wall is the outer casing of the abdomen. It is formed of:

- Skin and underlying fat
- Muscles, which are:

⇒ the rectus muscle (six-pack muscles) in the centre of the abdominal wall.

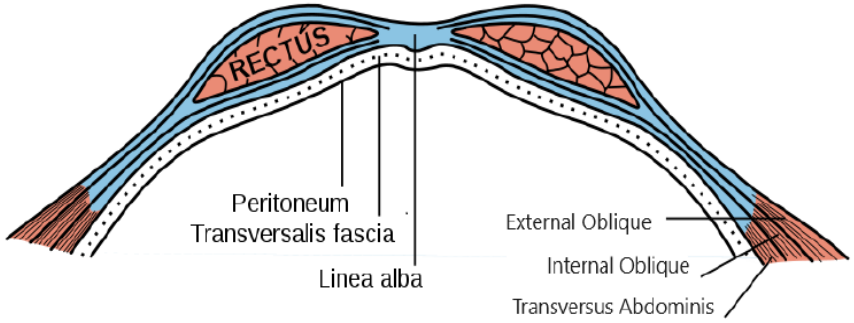
⇒ 3-layered muscle wall on the sides and the flanks arranged as an outer, middle and inner muscle layers.

Notes

Notes

⇒ Fascia: strong tough tissue that surrounds and supports the muscles.

The abdominal wall function is to protect the vital organs in your abdomen, support those organs by keeping them inside the abdominal cavity where they belong and help with movement and stability through the action of different muscles.



Cross-sectional view of the abdominal wall

What is a hernia and how does it develop?

A hernia is when some of the abdominal contents bulge through a weak spot, called a defect, in the abdominal wall. This could be due to different factors, either single or combined, like heavy lifting, pregnancy, persistent cough, obesity, birth abnormality of the abdominal muscles, trauma or surgery involving a cut through the abdominal muscles, which is called incisional hernia.

What is diastasis of recti?

Unlike the hernia, diastasis of recti means vertical separation of the six-pack muscles away from each other with widening of the space between them creating a gap in the midline of the abdomen that could represent itself by a bulging ridge in the middle of the abdomen.

What effect does a hernia or diastasis have?

Both hernias and diastasis recti can cause pain, discomfort, and impact the ability to perform the normal daily activities. Hernias if left untreated can cause serious complications such as bowel obstruction or strangulation (cutting off blood flow to the protruding tissue). Diastasis recti and large hernias can weaken core muscles, affecting core strength and appearance.

Still have a question?

Feel free to get in touch with your questions on the following numbers:

If you have not had your procedure yet, you can contact your consultant's secretaries from either department by asking the switchboard to put you through.

If you have already had your surgery and have questions or concerns about the wound or the dressings, you can contact:

- Plastics Dressing Clinic - Weekdays 09:00 am to 4:00 pm on 0151 430 1285
- Ward 3A - Out of hours and weekends on 0151 430 1520.

So, in summary, abdominal wall reconstruction is a major procedure that aims to improve the quality of life.

We take a great deal of care in the planning of this procedure, during the surgery and after surgery whilst you are in the hospital and after discharge. This is to ensure that you would actually benefit from this surgery, decrease the chances of complications and ensure good recovery.

We are one of the busiest abdominal wall reconstruction units in the country and sometimes there will be a significant waiting time for your operation. Your surgery might be performed by any member of the abdominal wall reconstruction team and not necessarily the surgeons you met in the clinic.

All cases are discussed in a multidisciplinary team meeting (MDT), which included general surgeons, plastic surgeon and anaesthetists, to ensure that the plan of management is tailored according to each individual circumstance and needs.

Note:

There may be students and observers present during your consultation as part of their ongoing training. Please let the staff know if you do not wish any students to be present during your attendance.

Please ask a member of staff if you would like a chaperone present during your procedure.

What are the options of management for such conditions?

1) Conservative:

Conservative management is not a permanent solution. It can provide temporary relief or postpone the need for surgery, especially when risks of surgery are a concern.

Conservative management options for hernias include:

- Watchful monitoring: Monitoring the size of the hernia and symptoms over time, especially for small hernias that are not causing significant problems.
- Lifestyle adaptations: Avoiding heavy lifting, maintain good body posture and maintaining a healthy weight to reduce strain on the abdominal muscles.
- Supportive belts: Wearing hernia belts to provide temporary support and relief some of the discomfort.
- Physiotherapy: Certain exercise could help strengthen abdominal muscles to provide support. This is more likely to be of benefit in cases of diastasis of recti.

If a hernia grows larger, develops complications, or doesn't improve with conservative approaches, surgery is usually the recommended course of action to repair the hernia and avoid further problems.

2) Local repair:

If the hernia is small enough or localised to a certain area, local surgical repair can be performed to the site where the hernia has occurred, and the surgical techniques used can vary depending on the size and location of the hernia, as well as the patient's overall health.

3) Abdominal wall reconstruction (AWR):

In complex abdominal wall hernias, the defect in abdominal wall is too big, or there are multiple defects, or the muscles have separated away from each other significantly, a more complex surgery could be needed that is usually called Abdominal wall reconstruction (AWR).

What is AWR and what are its benefits?

Abdominal wall reconstruction is a surgical procedure designed to repair and strengthen the muscles and tissues of the abdominal wall. It is usually considered when there is a complex abdominal wall hernia, significant weakness or damage to the muscles of the abdomen or wide separation of the muscles.

The main goals to be achieved from abdominal wall reconstruction are dependent on each patient’s condition, but in general the ultimate goal is to improve the quality of life.

You are likely to be given blood thinners after the surgery to decrease the chances of this happening.

- ### Re-operation or further surgery:

If any significant complications are to happen, you might need to go back to theatre for another surgery.

- ### Increase pressure inside the abdomen:

As the muscles are tightened, the pressure inside your abdomen is expected to increase slightly, but if the rise in pressure is significant, it could affect the abdominal organs and you might need to be taken back to theatre to deal with it.

- ### Life-threatening potential:

The possibility of developing the above mentioned risks, together with risks of anaesthesia, in any major abdominal surgery could impose a very minimal risk of life threatening events. The risk of death is less than 1% in our patients having this operation.

- Recurrence of the hernia:

On some occasions, your hernia might come back due to several factors including your general health or post operative recovery.

- Prolonged hospital stay:

Hospital stay is usually 2-7 days, but it could be longer depending on your health conditions recovery, or development of any complications.

- Long rehabilitation:

It could take you longer than expected to be able to recover and perform your normal activities and exercises.

- Chest infection:

Due to having general anaesthesia, lying in bed and possible reduced mobility for a period of time, chest infection could happen. It could prolong your recovery and require treatment for example with antibiotics.

- Blood clots:

Due to a period of reduced mobility, during and after the surgery, the blood flow on the veins of the legs and pelvis could slow down, increasing the chances of blood clots, called Deep Venous Thrombosis (DVT). It is rare but serious as those clots could travel to the heart and the lungs, called Pulmonary Embolism (PE).

This can be achieved by improving the integrity of the abdominal wall by supporting it, repair of hernia or muscle separation, restore core strength which enhances the individual ability to perform daily activities and improve the shape of the abdomen by reducing the visible bulge.

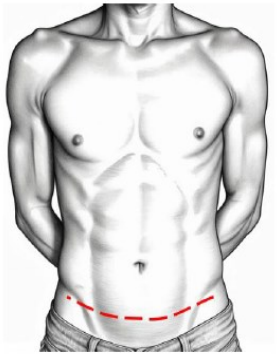
What exactly does this surgery involve?

Abdominal wall reconstruction addresses several issues to achieve the required results, those issues can be divided into 2 main components, the skin and the muscles/fascia.

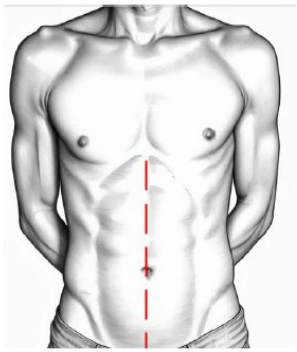
On many occasions, there is excess abdominal skin and fat that can be removed. This excess could be present in the first place or due to stretching of the skin overlying a big hernia.

Depending on the amount of excess skin and fat, and the pattern of this skin excess, different approaches can be considered to get rid of this excess skin and fat with scar pattern as shown overleaf.

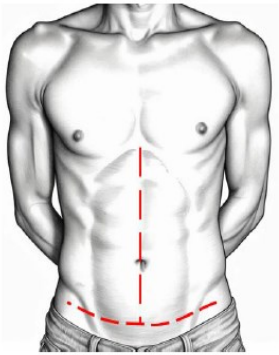
Also, most of the time your belly button (umbilicus) will be removed and if applicable, a new one with be formed at the end of the procedure.



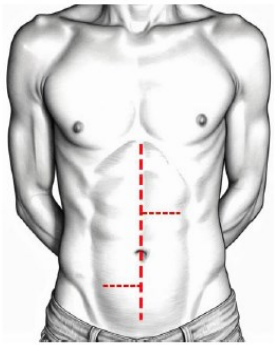
Transverse skin excision
(one hip bone to the other)



Vertical skin excision
(rib bones to pubic bone)



Fleur-de-lis
(Vertical and transverse incisions)



Free style
No specific pattern – depending on the site of the problem.

Note: The above illustration represents the possible patterns of the scars. Differences in the shape or pattern of the scar might be present due to different needs of every patient. Also, minor changes to the expected pattern of the scar might happen in the procedure if it is in the patient's best interest. Those possibilities will be discussed before and after the surgery.

- ## Drains application:

Drains are tubes coming out through the skin to drain out any excess blood or fluids, stopping them from staying in your body. Once the amount of fluids coming out into the drains become reasonably low, they are removed. You may need to stay in the hospital until the drains are removed.

- ## Seroma:

This is a collection of fluid under the skin. This is usually managed conservatively and rarely would require an intervention to drain it out.

- ## Bowel injury:

Bowel is handled with great care during surgery, yet in certain situations due to the complexity of the hernia or the presence of extensive scarring around the bowel, injury could happen. This is very uncommon, but if this is to happen, bowel is repaired during the surgery. However, if that was not obvious during the procedure, you might need to be taken back to theatre for a second procedure.

- ## Vessel injury:

Damage to a major vessel could happen and leads to bleeding in or after the surgery. Depending on which vessel is affected there may not be a need to repair these. However if on the rare occasion this occurs assessment and intervention can be arranged by the appropriate surgical team.

- Delayed healing:

Some people might take a longer time to heal especially if any wound complications develop. Other factors like smoking, diabetes, use of certain medications like steroids or other health conditions could impact healing of wounds.

- Numbness and alerted sensation:

Different areas of the skin might be temporarily or permanently numb or have a slightly alerted sensation particularly around or along any scars.

- Residual bulge or Asymmetry:

Abdominal wall reconstruction is mainly a functional procedure with a view of having a good aesthetic outcome, so some bulge might remain, or both sides of the abdomen might not be fully symmetrical.

- Loss /flattening of reconstructed umbilicus (if applicable):

The new belly button might flatten or change in shape over time.

- Skin excess on the ends of the scars (standing cones):

Mostly this will settle by time, but if this is not happening further surgery might be considered to improve it.

Muscle defect or weakness is addressed by trying to repair the defect and reinforce the repair or the weak muscle by putting a mesh behind the muscle. Different surgery techniques can be used depending on each individual case.

In this type of surgery, the six-pack muscles are separated, and any accompanying hernias are repaired, and the mesh is put in the space behind the six-pack muscles only, or mesh is extended between the layers of the muscles on the sides of the abdomen and the flank. The muscles are then pulled back towards each other, and the fascia (tough fibrous layer) is sutured.

If the defect is too big to be closed even after doing the above-mentioned techniques, the mesh is used to cross or “bridge” the edges of the defect, replacing the fascia or the muscles that should have been there. The above techniques can be done separately or in combination depending on what would be in the patient’s best interest based on clinical examination, imaging, and findings during the procedure.

Note: If you already have a stoma, which is an opening on the abdomen that is connected to your bowel, the position of the stoma on the skin may vary after the procedure, usually moving slightly higher. However, this will be discussed with you in detail by the treating team.

What are the types of mesh that can be used?

A mesh can be:

- Non-absorbable: Means that it does not dissolve, and it remains forever. It gives very strong support, but can not be used in all situations, especially when being in contact with the contents inside the abdomen (bowel, bladder, gall bladder, liver etc).

- Absorbable: They are made from materials that dissolve after enough time for your body to heal and to support the repair. The most common used mesh for this category in our hospital is Phasix™ mesh, which dissolves after 12-18 months and gives support 3 times that of the body's own tissues.

The type of mesh used is based on several factors including the type of hernia, which layer of the abdomen the mesh needs to be placed in, the possible risks with the surgical wounds and assessment of the condition during the procedure.

Risks and complications:

Abdominal wall reconstruction is a major surgery, and it has its own risks. Those risks include:

- Pain:

Pain after any surgery is something that is inevitable, that is why pain management with pain killers will be started immediately after surgery and during your hospital stay. Yet, some degree of pain or discomfort could last for a longer period of time and that can be assessed and managed accordingly.

- Infection:

Wound infection might develop after surgery and could require treatment with antibiotics. If the mesh got infected, you may need another operation to have it removed.

- Bleeding:

This could happen shortly after the procedure, and if significant enough you might need to be taken back to theatre to control it. Rarely blood transfusion is required, this occurs in about 3% of cases.

- Wound breakdown:

Wound gapping could happen, it's usually managed with regular dressing to heal spontaneously unless quite significant, then you might need further surgery.

What are the factors that could have an impact on my surgery?

We address several factors when being seen in the outpatient clinic, but some of the main factors that need addressing are:

- Body weight:

This is one of the most important factors that guides our planning procedure. Higher body weight increases the chance of complications, like wound breakdown, delayed healing, chest problems and blood clots. Sometimes it would be too risky to proceed to the point that weight loss would be needed before considering surgery.

- Smoking:

This is also another important factor that could have significant impact on wound healing and breathing after surgery as the nicotine causes blood vessels to shrink decreasing blood supply to tissue. Also, the smoke affects how good your lung works. If you smoke, you will need to stop smoking for a period of at least 6 weeks before the surgery.

- Other pre-existing medical conditions:

This will be discussed with you depending if you do have any medical condition and if it does have an impact on surgery or recovery.

So, how does the setup of abdominal wall reconstruction work?

This type of surgery is done in our Trust in a combined team approach between General Surgery and Plastic Surgery departments. Once we receive a referral suggesting the presence of a complex abdominal hernia or defect, you will be seen by a surgeon from each department in the outpatient clinic, usually on separate occasions, for clinical assessment. Part of the assessment process involves having a certain type of scan called Computed Tomography (CT scan) that gives a highly detailed image of your abdomen. If this scan has not already been done by the time you are seen in the outpatient clinic, it will be arranged for you in our hospital.

All this information is then discussed in a meeting including all the General Surgeons and Plastic Surgeons who are involved in providing the abdominal wall reconstruction service to ensure the plan of management is tailored to your specific needs.

Before your surgery, you will be seen by a member of the anaesthetic team to assess how fit you are for this surgery and if any specific points need to be addressed or put into consideration. If you are fit enough, then your surgery will go ahead, and it is usually preceded by a session of Botox injections 6-8 weeks before your surgery.

What are Botox injections?

Botox™, or Botulinum toxin, which is originally a naturally occurring substance, that when injected in the muscles, it weakens them temporarily. This allows the muscles to move even further to close the defect and decreases the chances of the pressure building up to a high level in your abdomen after the repair is done.

Post operative period and recovery:

After the surgery you will come back to the ward for monitoring. Hospital stay is usually between 2-7 days after the surgery. The physiotherapy team will be seeing you from the first day to assess how fit you are to start moving and this will be tailored according to every patient's needs and demands, with particular focus on chest function and breathing. Once it is safe for you to go home you will be discharged from the hospital.

Following surgery your activity needs to be limited, like avoiding heavy lifting, to allow proper healing and this is usually for a period of six weeks. After that you can start building up activities and exercises gradually but carefully to strengthen your muscles, and it could take up to 3-4 months from the date of the surgery before you can perform heavy physical activities.

If you drive a vehicle, you can resume driving around 4-6 weeks after surgery if you can perform an emergency stop safely.

If you work, returning to work could be based upon what kind of work you do. Work with no significant strenuous activities, like desk jobs, can be restarted 2-3 months after surgery, or even sooner if your condition permits. However, if you do a job that requires more physical activity, you might need more time before restarting it.

Further advice will be given by the treating team and the physiotherapy team to help you make a decision about the right time to go back to work.

Further details about how the recovery period would go, exercise after surgery and the type of activities that can be done or should be avoided would be given to you in a separate information leaflet by the physiotherapy team.

Post operative clinic visits are usually as follows:

- 2 weeks: Dressing clinic review to assess wound healing.
- 3 months: Review in the General Surgery outpatient clinic.
- 6 months: Review in the Plastic Surgery outpatient clinic.

Follow up after that would be dependent on each individual assessment and could extend to a period of 3 years.