ACE procedure

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Antegrade continence enema (ACE) is an operation designed to help with emptying the bowel. This procedure is done for two main reasons: either to help with constipation, or because there is leakage from the bowel. Some people have both problems. Other methods will usually be tried first and may include bowel training, dietary changes, medications taken by mouth or rectally (enemas or suppositories). If these methods fail, doctors may recommend bowel washouts using an ACE. This can also be called the Malone or MACE method.

This method of bowel management is not a quick fix and requires a great deal of commitment and hard work to establish a reliable washout routine. Once a good routine is achieved, it will only work if it is carried out regularly.

How does it work?

The ACE operation allows patients to self-administer enemas into the large bowel near to its start (the caecum), rather than the anus or back passage. By placing the enema in the caecum, the bowel is encouraged to contract and then evacuate. Because the washout is introduced into the right side of the colon, the whole length of the colon will usually empty, and a person should not need to have another bowel action for a day or even longer.

If the person’s reason for the ACE procedure is bowel leakage, this should mean that the bowel is empty and so there will be no stool in the rectum to leak. If the person is constipated, this should enable them to empty regularly and so avoid the discomfort associated with a full bowel. Most people use an ACE once each day. A few people only need to use it every other day. It can take 30 minutes to an hour for each irrigation, from start to finish.
What does the operation involve?

In most cases this operation can be performed as a laparoscopic (keyhole) procedure. The ACE operation connects the skin of the abdomen, usually low down on the right side, and the colon (large intestines), making a small passageway. The passageway is made from the appendix (if the person has one), or a small tube of bowel (if there is no appendix). This is brought on to the surface of the skin in a small opening or ACE stoma.

Before the operation

The operation is performed under general anaesthetic. It is important that the bowel is emptied before the operation. This may involve taking a medication by mouth, and/or washouts involving fluid inserted into the bowel using the rectum. During this bowel emptying process, no solid foods can be consumed and only fluids can be taken. Blood will be taken for routine tests done before any operation, and an ECG may be recorded which shows the activity of the heart.

Following the operation

After the surgery there will be a dressing over the wound on the abdomen, a drip in the arm and a catheter to drain the bladder. Some discomfort is to be expected, however painkillers will be available. Fluids can be taken straight away and a light meal can usually be eaten the next day. The stitches or clips will be taken out after 10 days. The person should expect to stay in hospital for five to seven days. The ACE will usually have a catheter (tube) into the stoma to ensure that the ACE does not heal over. This is held in place by a balloon which is filled with water to make sure that it does not fall out. This will stay in for four to six weeks and will be removed at an outpatient
appointment. The stoma site needs to be treated as a wound for the first five days. After that, the stoma should be kept clean by washing it once a day.

Washouts begin two to three days after the operation with small amounts of water and/or enema. These are done sitting on the toilet and are easily learnt with practice. There may be a resulting bowel action passed into the toilet within five to ten minutes. Some people experience cramping abdominal pain when the washouts are first done but this usually settles with time.

What are the risks?

All operations carry a degree of risk with some expected more than others.
Risks of this type of surgery include:
- Chest infection
- Blood clot in the legs or lungs
- Cardiac problems including heart attack
- Internal bleeding
- Wound infection
- Paralytic ileus – a prolonged period when the bowel stops working

Sometimes during the operation the surgeon discovers that it is not possible to carry out the procedure using a wholly keyhole approach. In this situation, a cut is made and the operation is done as an open procedure.
The ACE procedure is a relatively new operation, particularly in adults. A few people find that the ACE simply does not work. Either irrigation does not lead to a predictable bowel emptying, or there is still some soiling between irrigations. It is important to understand that it cannot be guaranteed how a person’s body will respond to the operation. Occasionally, the catheter can inadvertently perforate the ACE tube and this usually results in pain. When this pain settles down, the tube may
narrow down and prevent further passage of the catheter. This may require a further operation to put things right.

A rare complication is when the join between the ACE tube and the bowel leaks. Such leaks are serious and can cause peritonitis. Peritonitis is a very serious condition and it can cause serious complications, and even death, if not treated correctly immediately. This is why ACE operations are only performed if all other treatments have been tried. Other rare complications of the ACE procedure include volvulus (a bowel obstruction in which a loop of bowel has abnormally twisted on itself) and wound dehiscence (the premature ‘bursting’ open of a wound along surgical suture).

What are the benefits?

This operation can relieve the symptoms of chronic constipation and/or faecal leakage. This can lead to a great improvement in lifestyle and avoid the need for a stoma operation.

What are the alternatives?

Some hospitals now offer a variation of the ACE procedure that does not require a formal stoma to be created. However, some form of small tube called a percutaneous endoscopic gastrostomy (PEG) or button device is left in place at all times. The tube is inserted under general anaesthetic, either using a laparoscope or a colonoscope. A piece of the bowel is pulled to the surface of the skin, and the button or PEG tube is inserted. Once this has healed, washouts can be given whilst sitting over the toilet. The advantage of this procedure is that it is easy to stop just by removing the tube. For some patients, the tube can be placed into the left hand side of the bowel. This usually means shorter washout times. However, this option will not be suitable for everyone.
The other alternative is the formation of a stoma – this being either an ileostomy or a colostomy depending on the reason for the ACE. This involves wearing a pouch permanently adhered to the abdomen wall to collect stool.

**ACE at home**

Results are not instantaneous and it may take several weeks or months for the bowels to settle into a regimen. Eating regular healthy meals and performing the irrigation at a similar time during the day will help establish a pattern. Most people find it convenient to irrigate the ACE in the evening, as things are less rushed than in the morning. Half an hour after a meal is a good time, as the colon often has increased activity after a person has eaten and so maximises the likelihood of good bowel clearance. The bowel has the best chance of establishing a pattern if times are not varied too much.

Some people experience some abdominal cramping with the enema. This is not anything to be concerned about as it can take the body a while to get used to the washouts. Each day the amount of enema and saline put into the catheter will be increased a little until a bowel action occurs. Once larger volumes are used, the person will usually find it more convenient to use an irrigation bag instead of a syringe for the water. Most people end up using 200-500ml of water, but some use a litre or more of water. It may take about six to eight weeks to get into a routine and for the washouts to work effectively. It is useful to experiment with different combinations of enema and water. The balloon catheter will be taken out at a follow-up appointment four to six weeks after the operation. An intermittent catheter will then be used. This means that the ACE only has a catheter in it whilst the washout is performed. Sometimes introducing the catheter will cause the bowel to contract, which makes insertion of the catheter difficult, but this can usually be resolved by waiting for the contraction to pass.
There is no rule about how far to insert the catheter; about six inches is fine for most people, but a few get leakage of water around the catheter unless they insert it further. The catheter needs to be held in place during the irrigation as the natural activity of the bowel will tend to push it out.

There should be no restriction on what the person can do because of their ACE. Confidence may be increased by use of a small dressing or stoma cap over the ACE in certain situations, such as sport, but this is down to personal preference. The time taken to get back to normal activities varies for different people but most people need about four weeks of rest.

**Possible long-term effects**

The surgeon who performs the procedure will endeavour to make sure that the ACE is continent and does not leak. Some people get minor leakage, especially immediately after the washout. This is more likely if a length of bowel, rather than the appendix, has been used to form the ACE. To combat this problem, the person can wear a stoma cap over their ACE as this will collect any leakage and filter out any smell from wind. Wind can sometimes be a problem but there are dietary changes that can be made to help this, such as reducing the intake of fibre-rich foods.

Some people get abdominal cramps either during or after irrigation. It is important that the irrigant used is body temperature i.e. the temperature of a warm bath. The irrigant should be infused slowly and often this will help with cramps. If they persist, medical advice should be sought.

The main problem, experienced by a few people, is that the ACE has a tendency to become narrow (stenosed) or to close up with time, especially if it is not used regularly. It is therefore recommended that
a catheter is passed into the ACE every day, even if the person is not irrigating every day. The catheter just needs to be slipped in and taken straight out again. If the ACE does get tighter, or it is difficult or uncomfortable to pass the catheter, medical advice should be sought. It is important that the ACE is not allowed to heal over completely.

It is also possible that the bowel may stop responding to irrigation with time. It is difficult to determine if this will happen but if this does occur, different fluids or different amounts can be tested to see if this helps. A person can simply decide to stop using ACE. It is also possible to close the ACE if it is causing problems.

Follow-up

If you have any problems or any questions immediately after you go home, please call the ward on which you had your operation. If you have a problem after a few days at home, please contact your GP.

You will be seen in the Outpatient Department four to six weeks after your discharge. This is to remove the balloon catheter and to teach you to use the intermittent catheter.

If you have any further questions please do not hesitate to ask. Contact details for the Colorectal Clinical Nurse Specialists Tel: 0121 3714501 (answerphone)
Useful Contacts

Bladder and Bowel Foundation
Helpline: 0845 345 0165.
http://www.bladderandbowelfoundation.org

Core
Tel: 0207 486 0341
http://www.corecharity.org.uk
Please use the space below to write down any questions you may have and bring this with you to your next appointment.
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