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ANTERIOR CERVICAL DISCECTOMY AND FUSION

GENERAL

The spine is a column of interconnecting and alternating bones and cartilages (discs) that supports your entire body. Behind each bony segment, there is a bony arch that forms a ring. The layering of these rings creates a tunnel and within the tunnel there is a fluid-filled tubular sac. The spinal cord and the nerves are located within this sac. The spinal cord is located within the cervical and thoracic segment, whereas the lumbar spinal nerves are located within the lumbar (lower) segment of the spine. The spinal nerves and the spinal cord may be compressed within this tunnel resulting in irritation and damage.

Sometimes, the spinal cord or nerves are compressed by disc cartilage material or bone spurs sprouting from the edges of the bone. As the spinal cord is in the way, surgical approach from the back in not safe or feasible. In these situations, an approach to remove the offending disc cartilage or drill out the bones spurs from in front is necessary. This is the safest and most direct route to the offending material in order to free up the spinal cord and the nerve sac.

PURPOSE OF PROCEDURE

The purpose of an anterior cervical discectomy and fusion is to remove the offending disc cartilage and/or the bone spurs in order to relieve pressure on the underlying spinal cord from a front-on approach. After removing the disc or spurs a space is left where the disc cartilage used to be and as it is unsafe to leave this empty, an artificial cage made out of titanium or “space-age” plastic will be inserted. Inside this cage, special cement that promotes bone growth will be packed. To maintain stability whilst this cage and cement is healing, a very thin titanium plate is applied to the spinal bone and secured with titanium screws. This forms a “clamp” connecting the two bony segments.

AIM

The success of any operation depends on achieving the aims. The goals of an anterior cervical discectomy and fusion are:

- To reduce the chance of worsening or damage to the spinal cord.
- To improve arm function including helping to reduce pain in the arms, regain strength in the arms and help with numbness and tingling within the arms.
- To prevent quadriplegia and permanent spinal cord damage.
- To stabilise the spine so that the patient can mobilise safely.

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WHAT THIS WILL NOT DO

This procedure will not directly alleviate the patient's neck or back pain. It will stabilise the spine, allowing the patient to exercise and undergo rehabilitation/physical therapy to strengthen the muscles in the back and neck. By gaining strength in the neck and back muscles pain will be improved.

This operation will make the patient taller by a few millimetres. By doing so there is a stretch of the neck muscles. It is quite common to expect pain between the shoulder blades after surgery as the patient becomes taller!

PROCEDURE

This operation is carried out under general anaesthesia with the patient lying on the back. A small horizontal cut is made around the front of the neck near the Adam's apple. A direct access between the oesophagus and the neck vessels exists to allow entry to the front of the spine. An X-ray is done to check the correct level. Once the level has been confirmed, using microsurgical techniques, the disc cartilage material is removed. A fine drill is used to remove any bone spurs. These actions will free up the spinal cord and the spinal nerves.

A specially measured cage is put into the gap left after removing the disc. This will stabilise the spinal column and restore the lost height. A thin titanium plate is then inserted and secured using screws into the bones. A drain is inserted to drain any excess bruising or fluid. The wound is then closed using dissolving stitches. The drain will be removed the next day.

POST-OPERATIVE

For post-operative care please refer to the accompanying handout.

The patient is encouraged to mobilised as soon as feasible. As the spine is now fused and protected, the patient can bend and twist the neck slowly and carefully without any concerns. A spinal collar is never used after a fusion as this impedes the activation of the muscles of the neck. The quicker the muscles re-activate the better the outcome.

It is expected that the patient will gain height after surgery but by doing so, the muscles in the back between the shoulder blades will have to stretch upwards leading to some shoulder blade pain. This is normal and will improve once the patient moves further.

There may be some tingling or even shooting pain down both arms shortly after surgery. This is normal. This is related to the freeing of the compressed nerves. Moving of the neck and arms will help make this better. Patients can usually be discharged home the next day or at most within 48 hours after surgery.