Patient information for talc pleurodesis

Full name of procedure:
Thoracoscopic talc pleurodesis, talc slurry pleurodesis

Short name:
Talc pleurodesis

Reason for procedure:
Pleurodesis is performed in the presence of a pleural effusion. An effusion is a collection of fluid around the lung, in the space between the ribs and the lung. It puts pressure on the lung, collapsing it and causing breathlessness.
The commonest causes of pleural effusion are:

- Cancer (malignant effusion)
- Liver failure
- Heart failure
- Kidney failure

The pleural effusion in heart, liver and kidney failure is usually not treated with talc pleurodesis. Cancer which has spread to the lungs is the commonest reason to perform the procedure. In some cases the pleurodesis is used for pneumothorax (collapsed lung).

The aim of the procedure is to make the lung surface stick to the inside of the ribs, obliterating the space where the fluid collects, preventing any more fluid collecting. The procedure works best when performed early, before too many taps have been done and before the effusion traps the underlying lung.

Description of procedure:
There are two ways of doing the procedure – either using a telescope and camera under general anaesthetic (thoracoscopic), or at the bedside through a chest drain inserted under local anaesthetic. The surgeon will decide which approach is better for you.

1. **Thoracoscopic (VATS) talc pleurodesis**
   The procedure is performed under general anaesthetic. The lung being operated on is collapsed by the anaesthetist to allow

the surgeon access to the lung and the pleural cavity (the body compartment where the lung is located).

The procedure is performed using video-assisted thoracoscopy (keyhole surgery). Two incisions, each an inch long, are made between the ribs. A camera is placed through one, while instruments are placed through the other.

All fluid is removed from the pleural cavity.

The surgeon may take a biopsy (sample of tissue) from the lung or the lining of the lung (pleura) and may divide adhesions which are preventing the lung re-expand.

Talc powder is puffed into the pleural cavity to cover the surface of the lung and the inside of the ribs. (Talc is similar to the talcum powder one uses in the bathroom but is prepared sterile to medical grade).

The talc induces an inflammatory reaction which glues the lung to the inner surface of the ribcage. In time these mature into scar tissue forming permanent adhesions. With the lung adherent to the chest wall there is no space for a fluid collection to develop.

2. **Bedside talc slurry pleurodesis**
   Sometimes it is appropriate to perform the talc pleurodesis through a chest drain at the bedside. (When no biopsy is needed and no adhesions to divide for instance.)

   Drain insertion
   Local anaesthetic is injected into the skin over the ribs (usually under the arm. A cut is made and a tube (chest drain) is inserted, sutured to the skin and attached to a drainage bottle. All fluid is drained (sometimes this will be done in the days before the pleurodesis itself is done).

   Pleurodesis

The talc is mixed with saline solution in a large syringe to create a “slurry”. The drain is clamped and the syringe connected to the drain. The slurry is injected and the drain re-clamped.

You will then be placed in a series of positions by the nursing staff - one side first, then the other, with the head up followed by head down – each position for about 10 minutes. This distributes the talc slurry over the surface of the lung and the ribs.

After an hour or so the drain will be unclamped to allow excess talc and saline to drain out. The drain is usually removed the following day after a check X-ray.

Benefits of the procedure:

Pleurodesis

- Removes all fluid
- Allows the lung to re-expand
- Improves breathing, especially on exertion
- Prevents fluid coming back
- Reduces the need to attend hospital for regular pleural aspirates (tap)

Risks of the procedure:

Anaesthetic complications:

As with all procedures performed under general anaesthesia reactions to the anaesthetic can occur. While these are uncommon, the more severe reactions can affect the heart (heart attack or abnormal heart beat), the lungs (asthmatic attack or pneumonia) or the brain (stroke or fit).

Complications of the operation: Any procedure performed by a surgeon has risks of injury, complication or death. Complications specific to pleurectomy are:

- **Air leak** - where the lung has been stapled, sewn, cut or where adhesions have been divided there is the potential for leakage of some air from the lung. If the lung is slow to heal or if the lung is slow to fully

re-inflate the air leak may persist for a number of weeks. Where this is the case a portable flutter bag drain will be applied and you will be allowed home with district nurse supervision and weekly medical review.

- **Postoperative pain:** There will be pain from the thoracoscopy port sites, especially those through which a drain will be left after the operation. Local anaesthetic will be injected around the incisions to tide you through the first 12 - 24 hours. You will have a patient controlled analgesia system (PCAS). Using this you will be able to give yourself a shot of painkilling medication as you require it. You will be encouraged by the physiotherapists to use enough medication to allow you to move around your bed, breath deeply and cough as required. The requirement for pain killers decreases quickly over a few days, especially after the drains are removed. You will be changed to painkilling tablets at that stage. You will be able to take these home when you are discharged from hospital.
- **Failure of the lung to re-expand** – failure of the lung to re-expand will reduce the success of the procedure. If only a small pocket of fluid remains this is not a problem. The lung may expand over the subsequent weeks which is why we sometimes leave a drain in place connected to a flutter valve bag. However, if at surgery we see that the lung has a poor chance of expanding, we may insert a Pleur-X catheter instead of the talc. This is a small tube coming through the skin. The district nurse can apply a special vacuum canister to this at your home or the clinic any time fluid builds up. You do not need to come to the hospital for this.
- **Infection** – infection can occur after any surgical procedure but a foreign material like talc can make this worse. It is particularly a problem if the lung does not expand and is another reason why we sometimes use a Pleur-X catheter.

Warning:
If you are taking any drug which thins the blood, this may increase the risk of bleeding. An alternative may need to be prescribed up to two weeks before the procedure and you may need to be admitted earlier than planned. Please advise your surgeon (or contact his secretary) if you are taking any of the following drugs:

- Warfarin
- Aspirin
- Plavix (Clopidogrel)
- Drugs for treating arthritis such as :
    - Voltarol (diclofenac),
    - Indocid (indomethacin),
    - Brufen (ibuprofen),
    - Ketoralac,
    - Mobic (meloxicam),
    - Celebrex (celecoxib),
    - Vioxx (rofecoxib),
    - Advil,
    - Neurofen,
    - Feldene.

Contact numbers:

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Keywords to search the internet

Thoracoscopy
Pleurodesis, talc
Malignant pleural effusion

Useful websites

http://www.cancersupportivecare.com/pleural.html
https://www.moffitt.usf.edu/pubs/ccj/v4n2/pharma.html
http://www.cancerhelp.org.uk/help/default.asp?page=5291