Surgical Drains - Indications, Management and Removal

Surgical drains of various types have been used, with the best intentions, in different operations for many years. It is often open to question whether they achieve their intended purpose despite many years of surgery. There is a paucity of evidence for the benefit of many types of surgical drainage and many surgeons still 'follow their usual practice'. With better evidence, management of surgical patients should improve and surgeons should be able to practise based upon sound scientific principles rather than simply 'doing what I always do'. Lack of definitive evidence has not helped the resolution of some controversial issues surrounding the use of surgical drainage.

Indications

Surgical drains are used in a wide variety of different types of surgery. Generally speaking, the intention is to decompress or drain either fluid or air from the area of surgery. Examples include:

- To prevent the accumulation of fluid (blood, pus and infected fluids).
- To prevent accumulation of air (dead space).
- To characterise fluid (for example, early identification of anastomotic leakage).

Specific examples of drains and operations where they are commonly used include:

- Plastic surgery including myocutaneous flap surgery.
- Breast surgery (to prevent collection of blood and lymph).
- Orthopaedic procedures (associated with greater blood loss).
- Chest drainage. [4, 5]
- Chest surgery (with, for example, the associated risks of raised intrathoracic pressure and tamponade).
- Infected cysts (to drain pus).
- Pancreatic surgery (to drain secretions).
- Biliary surgery.
- Thyroid surgery (concern over haematoma and haemorrhage around the airway).
- Neurosurgery (where there is a risk of raised intracranial pressure).
- Urinary catheters.
- Nasogastric tubes.

Management

Management is governed by the type, purpose and location of the drain. It is usual for the surgeon’s preferences and instructions to be followed. A written protocol can help staff on the ward with the aftercare of surgical drains. [6]

Types of surgical drain

Drains can be:

Open or closed

- Open drains (including corrugated rubber or plastic sheets) drain fluid on to a gauze pad or into a stoma bag. They are likely to increase the risk of infection.
- Closed drains are formed by tubes draining into a bag or bottle. Examples include chest, abdominal and orthopaedic drains. Generally, the risk of infection is reduced.

Active or passive

- Active drains are maintained under suction (which may be low or high pressure).
- Passive drains have no suction and work according to the differential pressure between body cavities and the exterior.

Silastic or rubber

- Silastic drains are relatively inert and induce minimal tissue reaction.
- Red rubber drains can induce an intense tissue reaction, sometimes allowing a tract to form (this may be considered useful - for example, with biliary T-tubes).

General guidance

- If active, the drain can be attached to a suction source (and set at a prescribed pressure).
Further reading & references


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Peer Reviewer:
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Document ID:
2823 (v22)

Last Checked:
27/07/2015

Next Review:
25/07/2020

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