

# Drain care in surgery

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# Indication

- To prevent the accumulation of fluids (blood, pus and infected fluids)
- Prevent the accumulation of air (collapse dead space)
- To characterize fluids (early identification of anastomosis leakage)

# Indication: Schwartz 10<sup>th</sup> edition

**Drain Management.** The four indications for applying a surgical drain are:

- To collapse surgical dead space in areas of redundant tissue (e.g., neck and axilla)
- To provide focused drainage of an abscess or grossly infected surgical site
- To provide early warning notice of a surgical leak (either bowel contents, secretions, urine, air, or blood)—the so-called *sentinel drain*
- To control an established fistula leak

# Type of drain

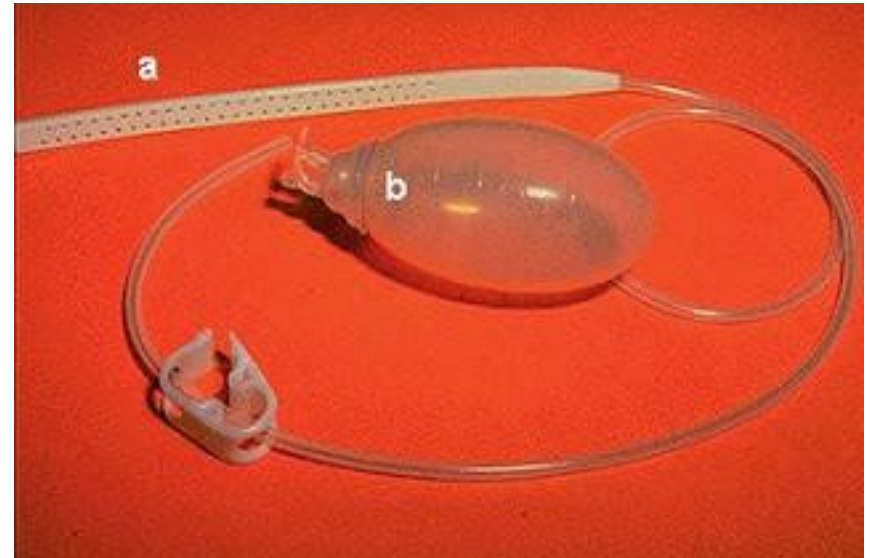
- Open or closed system drain
- Active or passive drain
- Silastic or rubber material drain

# Open and closed system drain

**Open likely to increase risk of infection**



**Closed likely to reduce risk of infection**



# Open and closed system drain

**Open drains are often used for large contaminated wounds such as perirectal or perianal fistulas and subcutaneous abscess cavities.**

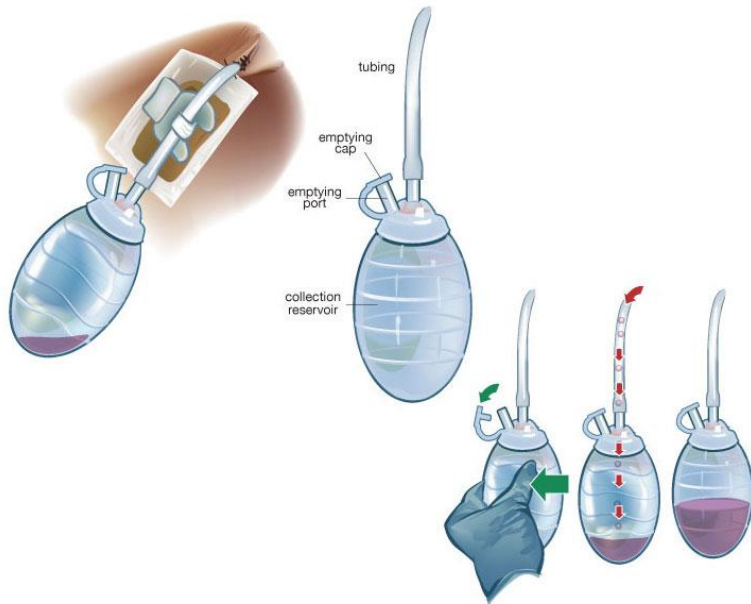


**Vacuum assisted close suction drain is to decrease local wound edema and to promote healing**



# Active and passive drain

**Active: Maintain under suction**

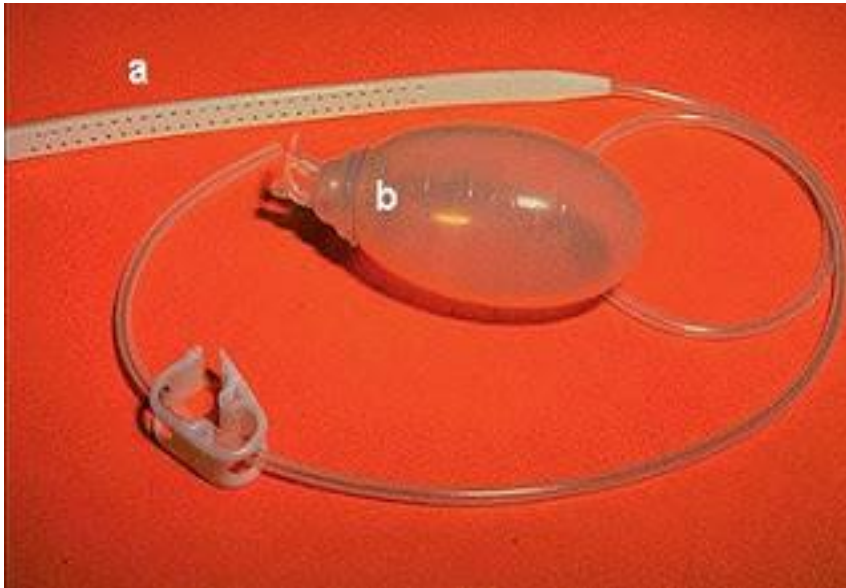


**Passive: No suction**



# silastic or rubber drain

**Silastic inert and minimal tissue reaction**



**Rubber intense tissue reaction and allow tract to form**



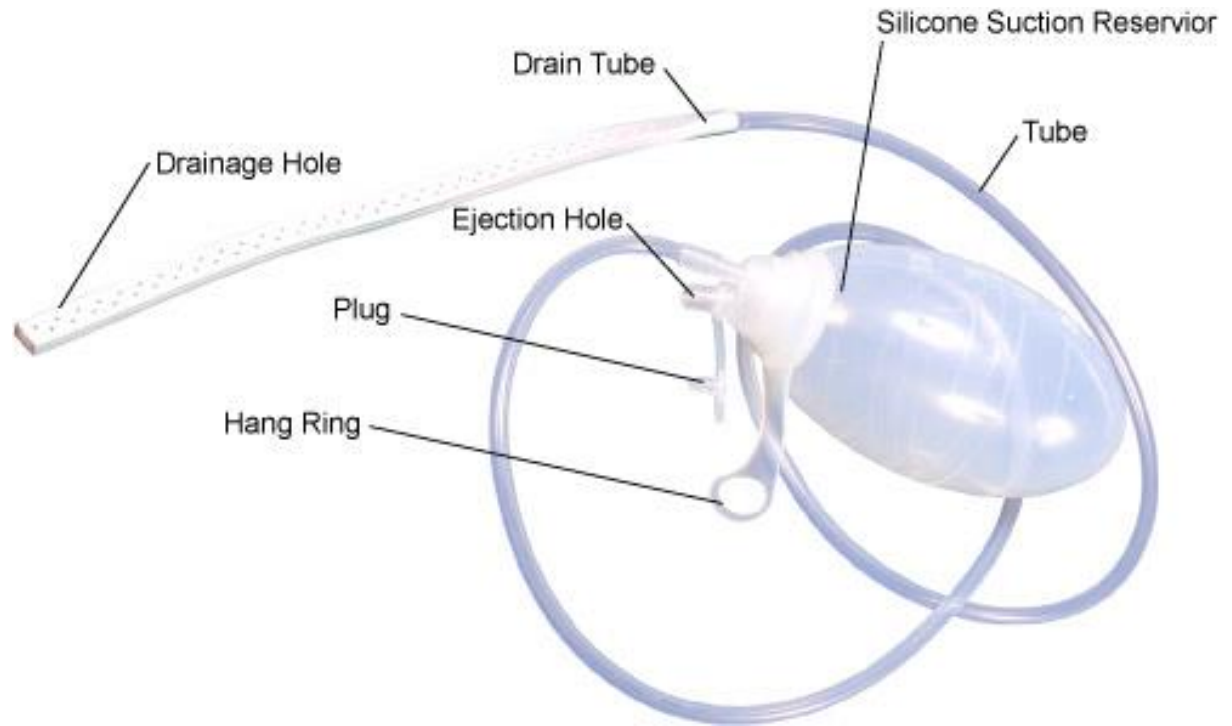


# Redivac drain



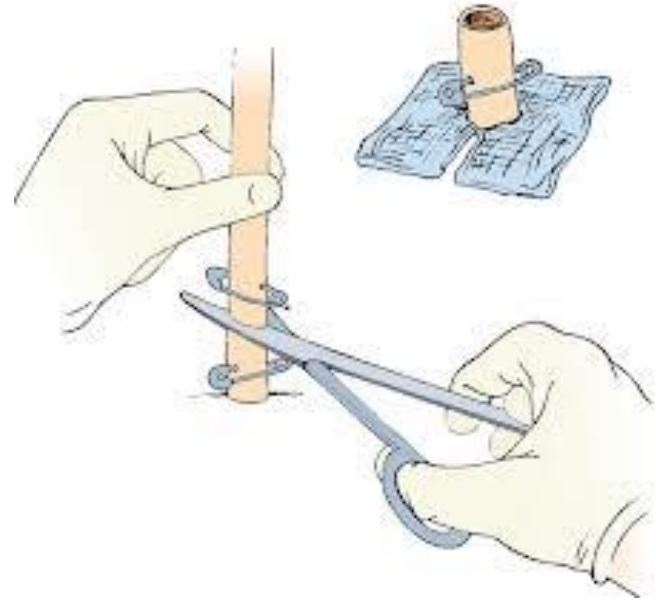
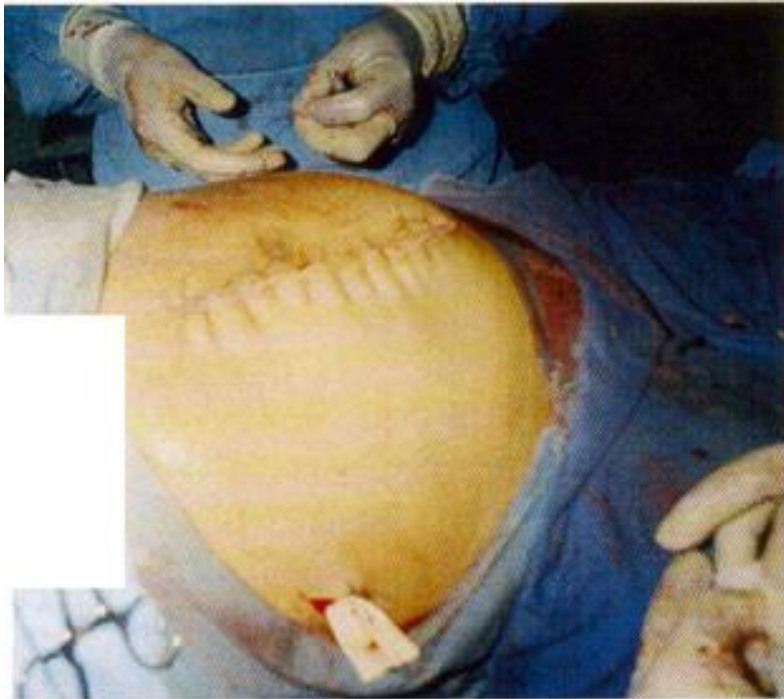
Protect drain  
collapse

# Jackson-Pratt drain



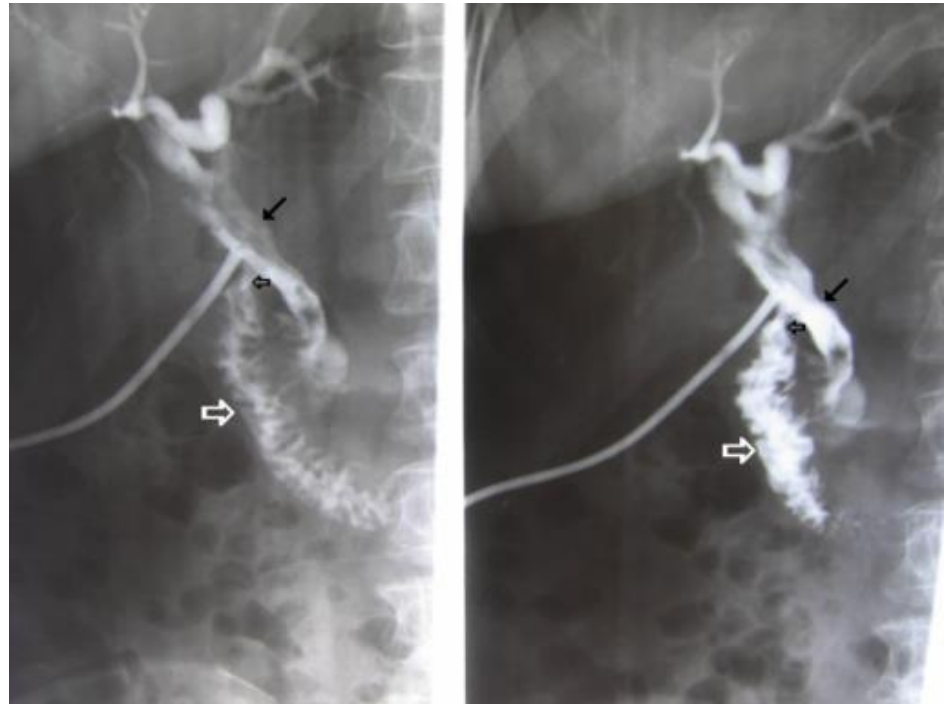
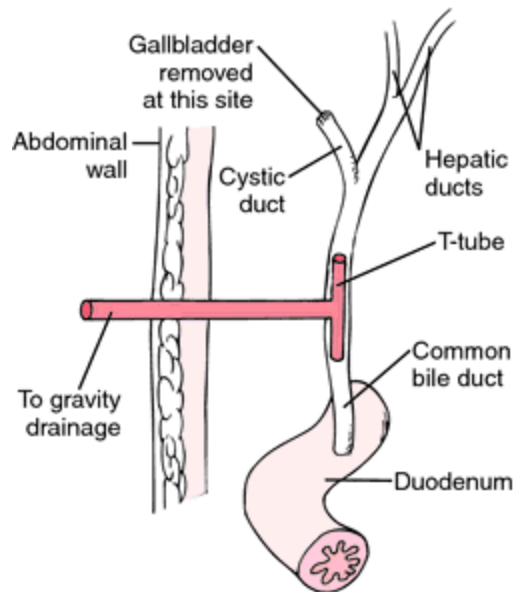
Less traumatic, common use in abdomen

# Penrose drain



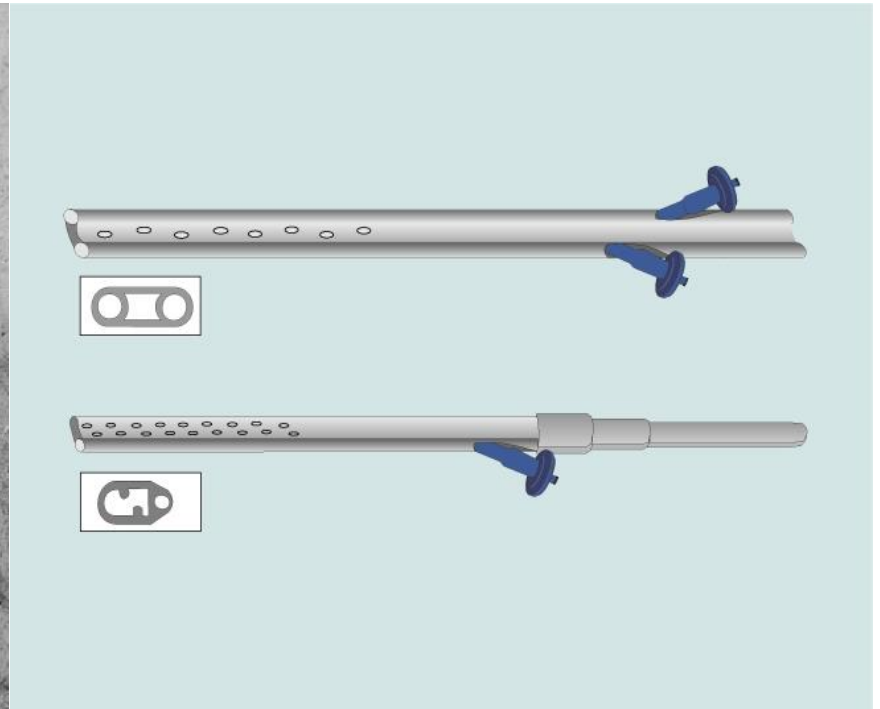
May need safety pin, slowly pull out for promote deeper healing

# T-tube drainage



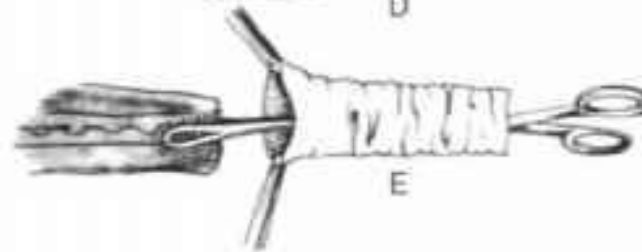
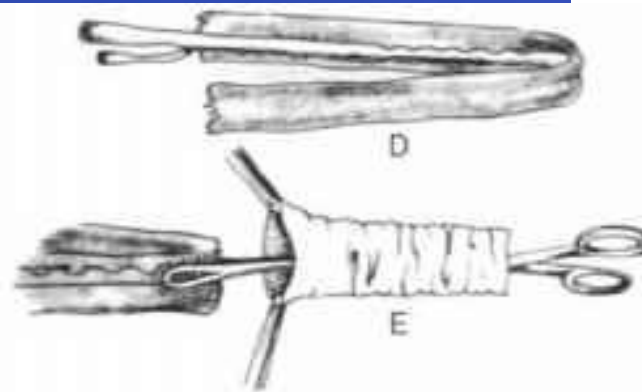
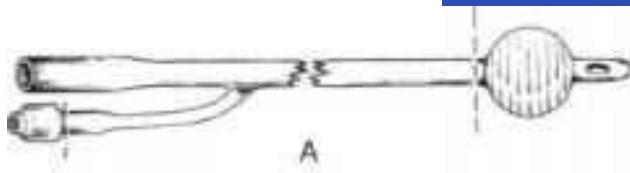
Wait for 7 day to t-tube cholangiogram  
Wait for at least 4 wk to remove

# Sump drain



Drain with air vent plus saline irrigation

# Sump drain



# General guidance

- If active, the drain can be attached to a suction source.
- Ensure the drain is secured, dislodgement can increase the risk of infection and irritation to the surrounding skin.
- Accurately measure and record drainage output.
- Monitor changes in character or volume of fluid.

# Evidence and controversy

- There is insufficient evidence showing that routine drainage after colorectal anastomoses prevents anastomotic and other complications.
- Damage may be caused by mechanical pressure or suction and drains may even induce an anastomotic leak.



# Evidence and controversy

- Drain use after elective laparoscopic cholecystectomy increases wound infection rates and delays hospital discharge.
- We could not find evidence to support the use of drain after laparoscopic cholecystectomy or open cholecystectomy.

# Evidence and controversy

- Many gastrointestinal operations can be performed safely without prophylactic drainage
- Prophylactic drainage is indicated after esophageal resection and total gastrectomy

Thank you for your attention

Question?