

Surgical Instruments and Catheter Damage During Ventriculoperitoneal Shunt Assembly

Objective

Investigate mechanical damage to shunt tubing by surgical instruments

Methods

Five instruments used in assembly:

- Adson without teeth
- Bayonet
- DeBakey
- Gerald
- Mosquito with shods



Rifampin catheters (n=80)

Barium catheters (n=80)



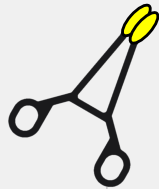
Technique A¹ (n=40) Technique B² (n=40) Technique A¹ (n=40) Technique B² (n=40)

¹Pushing *without* pulling the catheter onto valve inlet

²Pushing *and* pulling the catheter onto valve inlet

Results

Mosquito with shods:
6% failure



VS.

All other instruments:
≥50% failure



P-value = <.0005

Technique A:
5% failure



VS.

Technique B:
81% failure



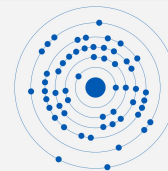
P-value = <.001

Rifampin catheters:
42% failure



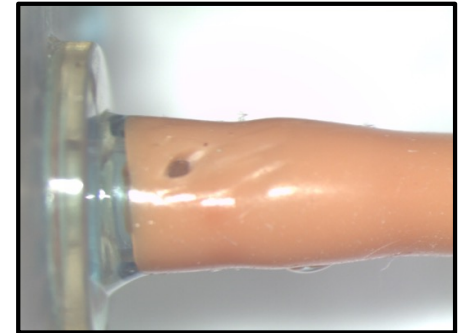
VS.

Barium catheters:
44% failure

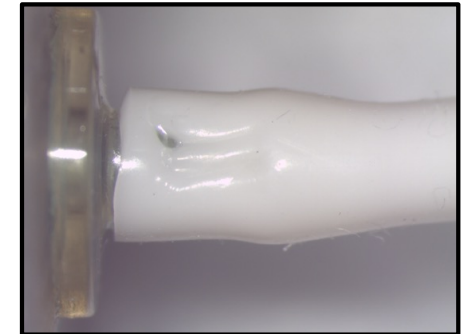


P-value = 0.9

Rifampin catheter damage



Barium catheter damage



Conclusions



Mosquito with shods is the superior shunt assembly instrument



Technique A is safer than technique B



No difference in damage between rifampin and barium catheters