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Science Internship Program: Radiology

Civic Education
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Science Internship Program: Radiology
An Inventory of Surgical Sutures
Securing Catheters to Patients

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Abstract

- Deficiency of information regarding the suturing of catheters to patients in interventional radiology (IR).
- Documentation was kept of IR specialists securing a variety of catheters to patients.
- Results are beneficial to students as well as future researchers.
Background

- Sutures fasten edges of wound/incision
  - Allow opening to heal
  - Prevent materials from entering/exiting
- Commonly used to connect skin to skin
- Sutures in IR used to connect skin to catheter
Problem/Purpose

• Instruction and public material on suturing techniques are insufficient
  – Only includes sutures connecting derma
• Lack of established techniques and terminology regarding the suturing of catheters to skin
Hypothesis

• If we created documentation of medical specialists suturing a variety of catheters to patients, then there would be an established record of various techniques novices can reference, as well as an archive for academic researchers to access for the fabrication of an analysis.
Methodology

• Any prior publications of specific sutures for IR
• General suturing
• Documenting sutures done by IR professionals
  – Patient approval
• Commonalities between IR professionals’ techniques
• Commonalities among general sutures
Data

• 10 IR specialists participated
• 21 photographs documented; 8 patients overall
• 3 different types of catheters compared
  – Tunneled
  – Dialysis
  – Pheresis
WARNING

THE FOLLOWING PHOTOGRAPHS CONTAIN GRAPHIC IMAGERY
Results

Top:
• Horizontal mattress suture
• 4 surgical knots

Bottom:
• Horizontal mattress suture
• 3 surgical knots
Results

Top:
• Sub-cuticular suture
• 3 surgical knots

Bottom:
• Sub-cuticular suture
• 1 surgical knot on catheter hub/wings

Tunneled Hickman Catheter

Dialysis Catheter
Results

Top:
• Horizontal mattress suture
• 2 surgical knots on catheter; 1 surgical knot on hub/wings

Bottom:
• Vertical mattress suture
• 2 surgical knots on catheter; 1 surgical knot on hub/wings
Results

Top:
• Purse-string suture
• 3 surgical knots on catheter; 1 surgical knot on hub/wings

Bottom:
• Purse-string suture
• 3 surgical knots on catheter; 1 surgical knot on hub/wings
Conclusions

• Multiple commonalities between IR specialists
• Well-established suturing techniques used around the base of the catheters
  – Mattress suture
  – Sub-cuticular suture
  – Purse-string suture
Recommendations

• Library of photographs and videos of technique
• Refine categories
• Documentation of IR specialists’ techniques among multiple departments and institutes
• Suture techniques of non-vascular catheters (biliary, nephrostomy, abscess drainage)
References


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