Use of Packing for Surgical Wounds

Maggie Benson
Clinical Problem Solving II
Purpose

- Present patient management s/p Incision and Drainage in an outpatient setting

- Examine evidence for the use of wound packing with a wound s/p Incision and Drainage
Patient Demographics

- 68 year-old Caucasian male
- Served in army
- Retired
- Lives with wife
Diagnosis

- Dx: Incision and Drainage (I & D) s/p cellulitis
  - Cellulitis ➔ bacterial skin disease
    - Swollen, red, warm, tender
    - Life-threatening if untreated
    - Bacteria enter skin through recent surgery, puncture wound, ulcer, etc
      - Possible causes: streptococcus or staphylococcus (MRSA)
  - More common in middle-aged and elderly
  - Risk factors: diabetes mellitus, immunocompromised state, alcoholism, intravenous drug use, prior cellulitis, poor circulation
  - Treatment: antibiotics, elevation, immobilization
## Diagnosis: Cellulitis vs. Cutaneous Abscess

<table>
<thead>
<tr>
<th><strong>Cellulitis</strong></th>
<th><strong>Cutaneous Abscess</strong></th>
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<tbody>
<tr>
<td>- Bacterial skin infection</td>
<td>- Bacterial infection that causes pocket of pus</td>
</tr>
<tr>
<td>- Inflammation and/or swelling</td>
<td>- Pain, inflammation, and/or swelling</td>
</tr>
<tr>
<td></td>
<td>- Can develop in areas of cellulitis</td>
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</tbody>
</table>

[Image of cellulitis](http://www.antimicrobe.org/images-Monographs/e1_Cellulitis_MRSA_1.jpg)

[Image of cutaneous abscess](http://www.microbiologybook.org/Infectious%20Disease(abscess1.jpg)
Diagnosis

• I & D ➔ indicated if abscess shows sign of pus
  • Procedure:
    • Sedation
    • Iodine wash
    • Incise abscess
    • Remove necrotic or devascularized tissue
    • Pressure irrigation with saline
    • Loosely pack wound with gauze
    • Apply dressing for absorption

• Follow-up 24-48 hours to remove packing and evaluate healing
Patient History

- Cut R hand while helping attach a trailer
- Began to get red and swelling up R arm → cellulitis
  - Did not result in cutaneous abscess
- Possible MRSA infection
- Given Vancomycin and received I & D 4 days later
- Sent to PT clinic 2 days after I & D for whirlpool treatment
- No relevant comorbidities

http://www.nhsdirect.wales.nhs.uk/encyclopaedia/c/article/cellulitis/
Examination

- Day 1
  - Un-bandaged
  - Whirlpool treatment
  - Measurements
  - Re-bandaged
Wound Examination

- Located in anterior metacarpal area of R hand
- Length: 3.0 cm  Width: 0.5 cm  Depth: 1.0 cm
- Drainage: serosanguineous
- Periwound: maceration
- ROM: unable to make fist with R hand
PT Evaluation

• Impairments
  • Soft tissue swelling
  • Decreased ROM in R hand
  • Occasional throbbing sensation and numbness

• Activity limitations
  • Unable to write with dominant hand
  • Unable to perform ADLs independently

• Participation restrictions
  • Unable to play golf
Prognosis

- **Prognosis = good**
  - Compliant with treatments and dressings
  - No report of pain
  - Active
  - No comorbidities
Goals

**Patient goals:** healing of wound, play golf

**Physical therapy goals:**

In 2 weeks:

1. Patient’s wound depth will decreased to ≤ 0.5 cm.
2. Patient will demonstrate compliance with wearing wound bandage.

In 4 weeks:

1. Patient’s wound will be healed.
2. Patient will be able to make full fist on R hand.
3. Patient will report no difficulty with ADLs using R hand.
PT Treatment

- Will be seen 2-3 times/week for 4-8 weeks

- Intervention:
  - Whirlpool at 98°F with Chlorizine of R hand while seated x 15 min
  - After whirlpool, bandage
    - Iodoform gauze
    - 2-4x4 sterile gauze
    - 1- ABD
    - 1- soft wrap
    - ACE bandage
    - Bandnet
<table>
<thead>
<tr>
<th>Days Post Initial Evaluation</th>
<th>Condition Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 days</td>
<td>Yellow drainage, depth decreased to 0.5 cm.</td>
</tr>
<tr>
<td>18 days</td>
<td>Minimal serosanguineous drainage, finger tips to palm, depth 1.5 mm.</td>
</tr>
<tr>
<td>21 days</td>
<td>No swelling, scant drainage, depth &lt;0.5 mm.</td>
</tr>
<tr>
<td>25 days</td>
<td>No depth or drainage.</td>
</tr>
<tr>
<td>27 days</td>
<td>Closed wound, thick scaring, ROM but no fist.</td>
</tr>
<tr>
<td>34 days</td>
<td>DISCHARGED, advised contrast bath and gentle exercises.</td>
</tr>
</tbody>
</table>
Outcome

- Wound closure ✓ Goal met
  - Calloused area resolved
  - No erythema (cellulitis)
  - Minimal edema in digits

- Patient able to approximate finger tips to palm, unable to complete fist Goal partially met

- Some difficulty with ADLs Goal partially met

- Optimal Instrument: 4.5% to 3%
Intervention Question

For my 68 year-old male patient, does packing a wound s/p Incision and Drainage promote wound healing and if so, which dressing is more effective?
Routine packing of simple cutaneous abscesses is painful and probably unnecessary


- Prospective randomized control trial
- Level 1b
- Purpose: Determine whether packing of simple cutaneous abscesses after I & D is beneficial when compared to I & D alone
Methods

- Emergency department setting
- Inclusion criteria: 18 years or older with abscesses < 5 cm largest diameter on trunk or extremities
- Exclusion criteria: abscess >5 cm, pregnancy, comorbidities, steroid use, immunosuppressive state, abscess on face, neck, hands, feet, genital or rectal areas
- 48 subjects randomized into 2 groups: packing or no packing
- All subjects received trimethoprim-sulfamethoxazole (TMP-SMX), ibuprofen, and narcotic prescription
- Pain recorded 2x/day
O’Malley et al.

Methods

- Cleaned abscess → anesthetized → incised abscess → collected culture → irrigated with saline
- Packing group: ribbon gauze (1/4 inch non-iodophor-impregnated)
- Non-packing group: covered with sterile gauze and silk tape
- Instructed to not change dressing and returned in 48 hours
- Follow-up via phone call at 10-15 days post I&D
- Primary outcome: need for intervention
Results

- Packed group reported higher post op pain than non-packing group immediately post I&D and at 48 hour follow-up
- 34/48 subjects returned at 48 hours

Table 3. Interventions Thought Required by Blinded Physician at 48-Hour Follow-up

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Packing Group</th>
<th>No Packing Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irrigation of abscess cavity</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Extension of incision</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Need for second follow-up visit</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Change antibiotics based on culture results</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Repack abscess cavity</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>
O’Malley et al.

- Use of packing is painful and uncertain of benefits

Limitations

- Small pilot study
- No reports of changes in wound measurement
- Planned further investigation to determine if results can apply to a broader population at multiple centers
Use of silver-containing hydrofiber dressing for filling abscess cavity following incision and drainage in the emergency department: A randomized controlled trial

Alimov et al. Advanced Skin Wound Care, 2013

- Prospective randomized control trial
- Level 1b
- Purpose: Investigate rate of healing and pain level when using a silver-containing hydrofiber dressing after I & D compared to other dressing
Inclusion criteria: 18 years and older with cutaneous abscess greater than 2 cm in diameter or cellulitis that required I&D

Exclusion criteria: pregnancy, immunodeficiency, hypersensitivity to Aquacel Ag or components, multiple abscesses, diabetic foot, systemic manifestations, ischemic ulcer, previous abscess, facial abscess

92 subjects followed up 48-72 hours post I&D then 10-14 days after initial visit
Alimov et al.

Methods

• Subjects randomized into 2 packing groups
  • Intervention: Aquacel Ag
  • Standard care: Iodoform

• Primary outcome: proportion of subjects with greater than 30% reduction in surface area of abscess or cellulitis at first follow-up

• Secondary outcome: pain intensity level
Alimov et al.

Results

- 68 subjects returned to 1st follow-up
  - Subjects with abscess: Aquacel Ag group more likely to experience greater than 30% reduction in SA
  - **Subjects with cellulitis: no significant difference**

- Pain ratings for Aquacel Ag vs. Iodoform
Subjects with cutaneous abscess presented with faster wound healing and reduction in perceived pain when antimicrobial hydrofiber was used for packing in wound dressing than iodoform dressing.

Cellulitis improvement not affected by Aquacel Ag.

Limitations:
- Number of subjects unavailable for follow-up.
- Self-reported measures of pain.
- Single center w/ routine use of silver-containing dressing for burns.
Conclusion

- Packing may be painful and unnecessary
  - No reports of wound measurements
- Aquacel Ag gauze > iodoform for healing and pain
- Patient had cellulitis, not abscess
- Wound healed within ~5 weeks with no pain
- Further investigation is needed
References


Questions?