Staying on Track in Fistula Management

Iowa Affiliate WOCN Fall Conference 2023

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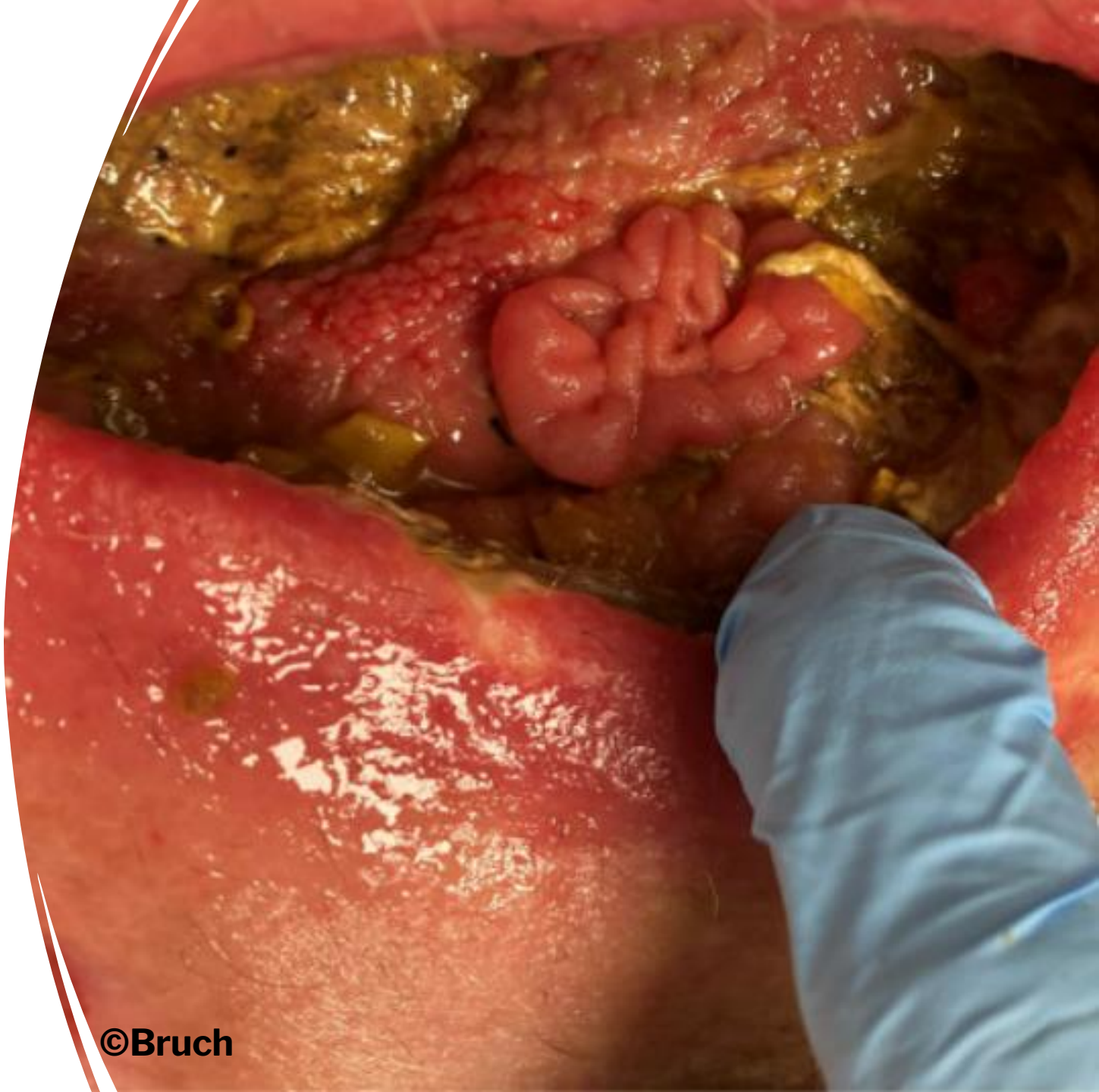


Learning Outcomes

1

Describe fistula etiologic factors and classifications

2

Discuss medical management of fistula, including infection control, nutritional support, measures to minimize output, and containment options

3

Demonstrate pouching techniques for fistula management

4

Understand WOC nurse role in management of Vesicovaginal, Rectovaginal, or Enterovaginal fistulas

Fistula Facts

Definition: A fistula is an abnormal connection or passage between the gastrointestinal tract and the skin or atmosphere

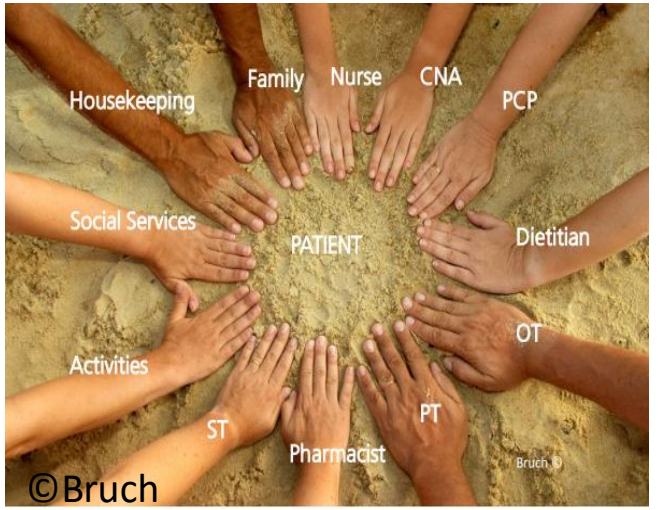
Mortality rate has been as high as 40% but in the past decade has decreased to 5.5-30% usually due to sepsis but also malnutrition, fluid and electrolyte imbalance and multiorgan failure

A **TEAM** is required to manage the patient with a fistula:

WOC Nurse, surgeon, pharmacist, dietician,

social worker, provider, radiologist,

social worker, PT,OT, spiritual counselor



Fistula Terminology

Enterocutaneous Fistula (ECF) abnormal connection between the GI tract and the skin

Enteroatmospheric Fistula (EAF) abnormal connection between GI tract and atmosphere,
(often develops in an open surgical wound)

The definitive indicator if an ECF or EAF
is the passage of GI secretions into an open wound or through an unintentional opening in the skin

Nix, D., & Bryant, R. (2022) Fistula Management In: Carmel, J., Colwell, J. & Goldberg, M. (Eds.), *Wound, Ostomy and Continence Nurses Society Core Curriculum: Ostomy Management (2nd ed.,* p 284). Wolters Kluwer

Fistula Classification

Location

- Internal within the body
- External exits through the skin

Involved structures

- Vesicovaginal - tract from bladder to vagina
- Rectovaginal - tract from rectum to vagina
- Colovaginal- tract from colon to vagina
- Enterocutaneous- tract from intestine to skin
- Colocutaneous - tract colon to skin

Fistula Classification

Volume of Effluent

- High Output >500mL/24 h
- Moderate Output 200-500mL/24 h
- Low Output <200mL/24h

Complexity

- Simple- short tract, no abscess, no other organ involvement
- Complex- Type 1 abscess, multiple organ involvement; Type 2, opens into base of wound

Etiology

- 25% of fistulas develop spontaneously and are the complication of an intestinal disease (most common IBD), cancer, ischemic bowel, radiation enteritis, perforated ulcer, appendicitis, diverticulitis, or trauma
- 75-85% ECF and EAF inadvertently (iatrogenic) after a medical procedure due to postoperative breakdown of anastomosis
- Risk factors include preop radiation, smoking, hypertension, atherosclerosis, diabetes mellitus, pelvic inflammatory disease, poor nutrition, advanced age, previous pelvic surgery
- Small bowel fistulas can be due to anastomotic leak, inadvertent bowel injury during dissection
- Poor blood supply, poor suture technique, inadequate bowel prep, extensive lysis of adhesions, and trauma surgery are also contributing factors

Medical management

1. Define Fistula tract
2. Maintain Fluid and Electrolyte Balance
3. Nutritional support
4. Minimize Fistula output
5. Control infection
6. Containment and Skin Protection

Spontaneous closure within 6-8 weeks occurs in 20-40% with advanced wound care and parenteral nutrition

Simple fistulas have a 90% closure rate while complex <10%

Spontaneous Closure "Recipe"

- Transfer to tertiary care center and subspecialty care
- Balanced electrolytes
- Transferrin >200mg/dL
- No Inflamed intestine, infection , or sepsis
- Output <200mL
- No bowel obstruction

Cartoon_1.jpg - Cliparts.co

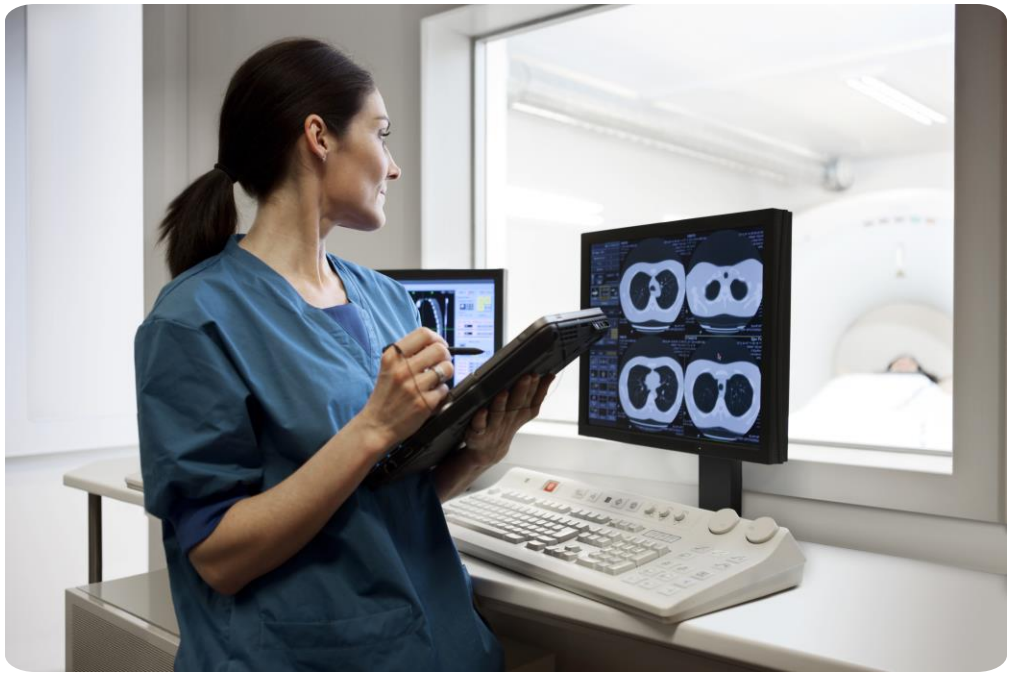
(Gribivskaja-Rupp & Melton (2016) in Nix and Bryant Fistula Management chapter WOCN core curriculum 2023)

Knowledge tester

Reducing fistula output is associated with increased spontaneous fistula closure

True or False

Defining Fistula Tract

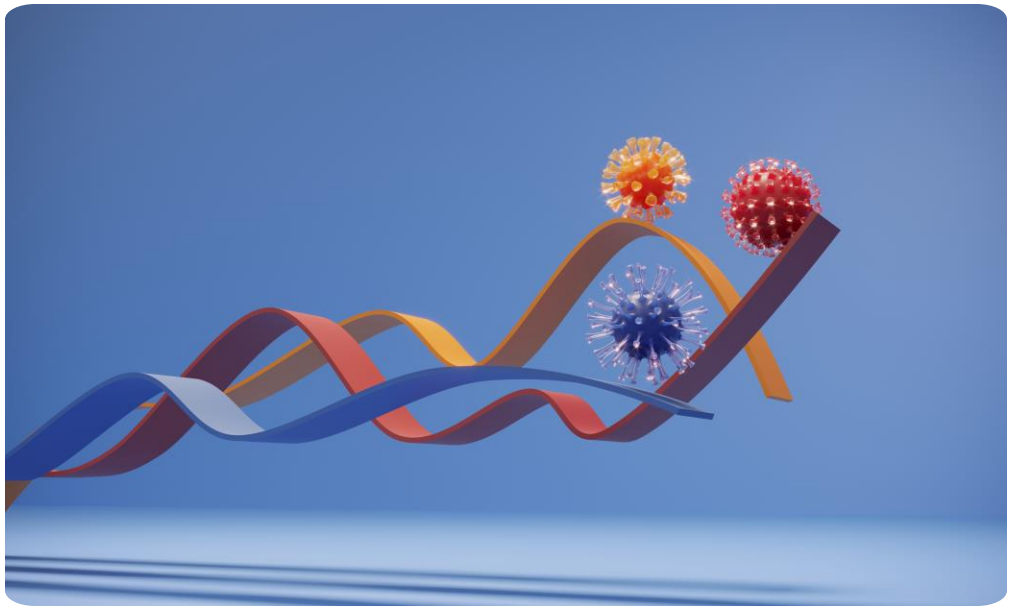


Patient should remain NPO until diagnostics can be done

Radiologic exams may include:

- Fistulagram
- Ultrasonography
- Plain Radiography
- Magnetic Resonance Imaging (MRI)
- Positive Emission Topography (PET) Scan
- Computerized Tomography

Infection Control



Sepsis and sepsis associated malnutrition are major factors in mortality

- Monitor for S/S intra-abdominal abscess
- Mass may or may not be palpable
- In postop patients analgesia and antibiotics may mask S/S
- Dx by bloodwork and usually Computerized Tomography (CT) scan
- CT guided aspiration can be done and drains left in place
- Cultures should be done to guide antibiotic therapy

Maintain Fluid and Electrolyte Balance

- 8-10L fluid flows through the GI tract each day based on oral intake, normal intestinal function reabsorbs 98% with only 200-300ml excreted in stool
- Volume and concentration of fistula output are considered when replacing fluid
- Monitoring weight, labs. Tissue perfusion, and fistula output is needed
- High output fistula are at greatest risk for fluid/electrolyte imbalances

Nutritional Support

Goals

- Nutrition
- Fluid and Electrolyte Balance
- Support cutaneous closure whenever possible

Route

- Depends on location and ability to ingest, absorb and tolerate
- Total Parenteral Nutrition (TPN) with bowel rest can be associated with bacteremia and line sepsis
- Enteral intake helps maintain the integrity of the bowel

Is Spontaneous Closure Possible?

BOX 18-3 FACTORS THAT PREVENT SPONTANEOUS CLOSURE

- Compromised distal suture line/anastomosis (i.e., tension on suture line, improper suturing technique, inadequate blood supply to anastomosis)
- Distal obstruction
- Foreign body in fistula tract or suture line
- Epithelium-lined tract contiguous with skin (pseudostoma)
- Presence of tumor or disease in site
- Previous irradiation to site
- Crohn's disease
- Abscess
- Hematoma

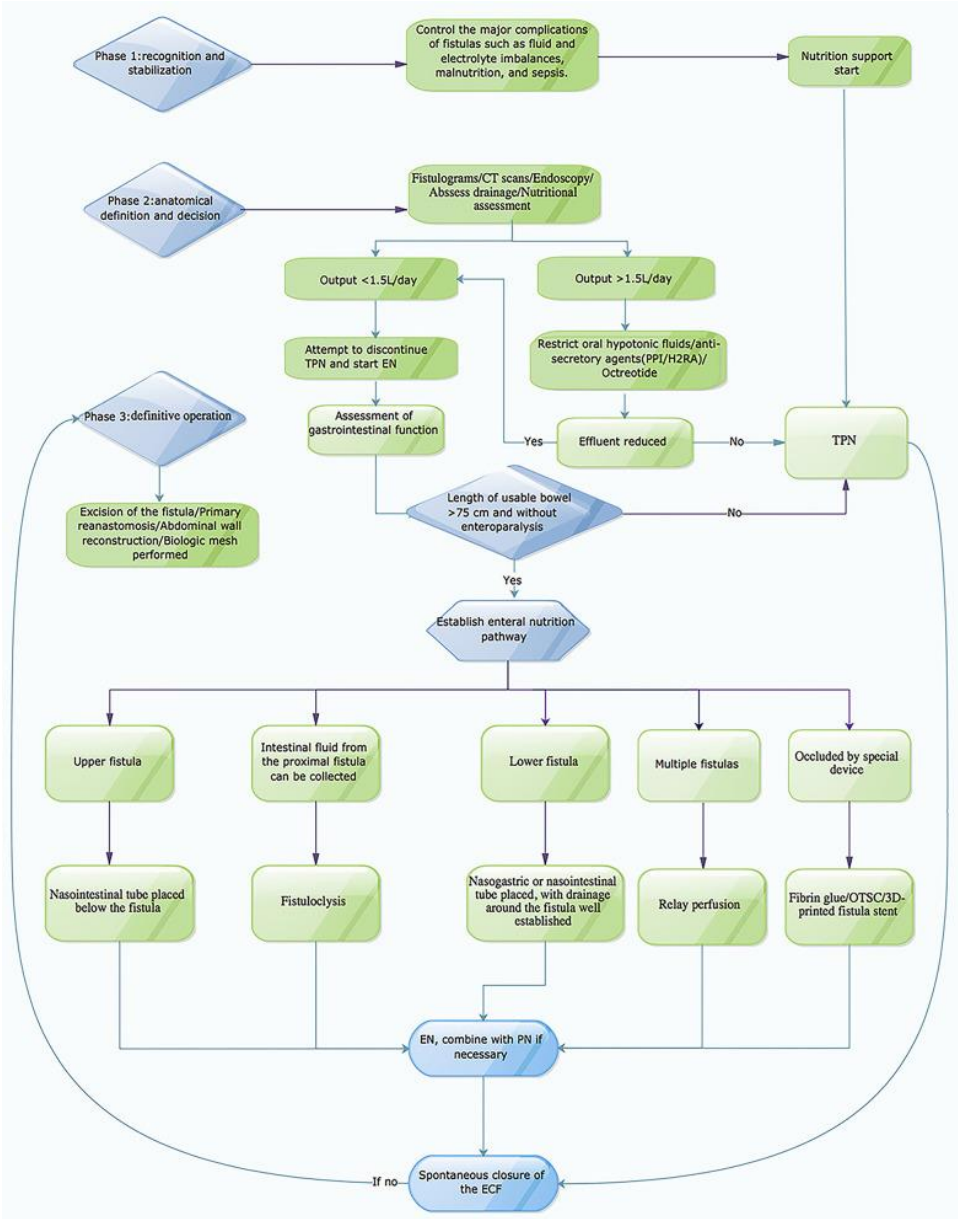
Adapted from Bryant, R., & Best, M. (2015). Management of draining wounds and fistulas. In R. Bryant & D. Nix (Eds.), *Acute and chronic wounds: Current management concepts* (5th ed.). St. Louis, MO: Mosby. (In Print.)

Once a pseudostoma occurs the fistula will not close spontaneously

Nix, D., & Bryant, R. (2022) Fistula Management In: Carmel, J., Colwell, J. & Goldberg, M. (Eds.), *Wound, Ostomy and Continence Nurses Society Core Curriculum: Ostomy Management (2nd ed.,* p. 289). Wolters Kluwer

Please refer to article below for discussion of this algorithm for ECF Management

Tang, Q. Q., Hong, Z. W., Ren, H. J., Wu, L., Wang, G. F., Gu, G. S., Chen, J., Zheng, T., Wu, X. W., Ren, J. A., & Li, J. S. (2020). Nutritional Management of Patients With Enterocutaneous Fistulas: Practice and Progression. *Frontiers in nutrition*, *7*, 564379. https://doi.org/10.3389/fnut.2020.564379



GI Fistula Endoscopic Closure Techniques

- **Stent placement**: **FCSEMS**(fully covered self expandable metal stent), **PCSEMS**(partially covered expandable metal stent), **SEPS**(self-expanding plastic stent)
- **Clipping**: **TTSCs**(through the scope clip) and **OTSCs**(over-the-scope clip)
- **Endoscopic Suturing**
- **Endoscopic vacuum therapy: endo sponge**
- **Cardiac Septal occluders**

Bhurwal, A., Mutneja, H., Tawadross, A., Pioppo, L., & Brahmbhatt, B. (2020). Gastrointestinal fistula endoscopic closure techniques. *Annals of gastroenterology*, *33*(6), 554–562. https://doi.org/10.20524/aog.2020.0543

Measures to minimize Fistula output

WHY?

Reduce loss of fluids, electrolytes and nutrients, and to protect skin around fistula opening

HOW?

Decrease oral or enteral intake-limit to amount needed to keep intestine healthy

Medications-Antidiarrheals, Proton Pump Inhibitors, Antimotility agents

Wound Ostomy Nurse Role in Fistula Management Strategies

1. Assessment to establish plan for skin protection and containment
2. Flexibility built into Care Plan
3. Innovation for a practical approach
4. Consider who is providing the care

As soon as the fistula is identified steps must be taken immediately to protect skin and contain effluent! (No need to await a medical diagnosis, this work up may take time)

Assessment/Documentation

1. **FOCUSED ASSESSMENT**

- Fistula Source
- Pain
- Fistula opening-location, length and width, Height
- Perifistular Skin-intact or impaired
- Abdominal contours and proximity to scars, skin folds, bony prominences, ostomies or drains
- Output/Effluent-Volume, consistency, color, odor
- Containment system and change frequency

ASSESSMENT/DOCUMENTATION

2. INTERVENTIONS

- Emotional support
- Changes in management plan with rationale if needed
- Education of caregivers, patient and family including skin assessment, s/s infection, management procedure

3. EVALUATION

- Indications of progress in closure
- Effectiveness of containment plan
- Patient/family response

4. FOLLOW UP PLAN

GOALS FOR TOPICAL MANAGEMENT

- Skin Protection
- Effluent Containment
- Odor Control
- Patient Comfort
- Accurate Assessment of Effluent
- Patient Mobility
- Ease of Care
- Cost Containment

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TABLE 18-3 Fistula Containment Options based on Output and Need for Access

OUTPUT VOLUME	<100 mL	<100 mL	>100 mL OR DRESSING CHANGE > EVERY 4 h	>100 mL OR DRESSING CHANGE > EVERY 4 h
Need for odor control	No	Yes	Yes or no	Yes or no
Need for frequent access	Yes/no	Yes/no	Yes	No
Containment options	Absorptive dressings and perifistular skin protectant (e.g., ointment, paste barrier)	Charcoal cover dressing (placed over absorptive dressings) with environmental deodorants and frequent dressing changes OR Ostomy pouch	Wound management system with window, emptied frequently or attached to a dependent bedside drainage collector OR Two-piece ostomy pouch emptied frequently Two-piece urostomy pouch emptied frequently or attached to a dependent bedside drainage collector (urinary or fecal spout)	Pouching systems OR Closed systems with suction or attached to straight drainage NPWT

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Containment Options: Dressings

- Skin protection
- Absorb Drainage
- Used in conjunction with skin barrier wipes, wand, sprays, barrier creams, ointments or paste
- Not indicated for high output fistulas unless used with suction system

Containment Options: Pouching

$ $$ $$$ $$$$

BE aware of cost when selecting pouching options

Accessories:

Wound/Fistula Pouching Pearls

PATTERN

BE SURE OF ORIENTATION

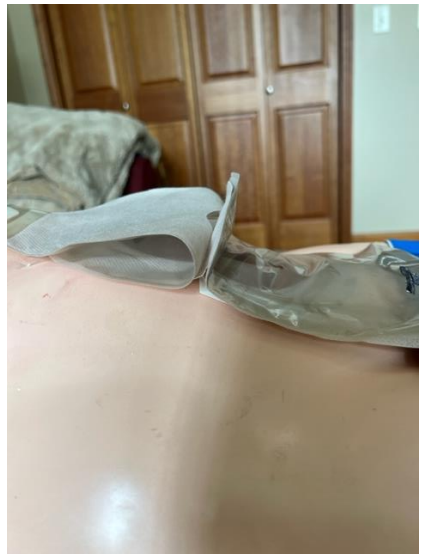
NO WASTE

PERFECT FIT

Containment Options: Suction

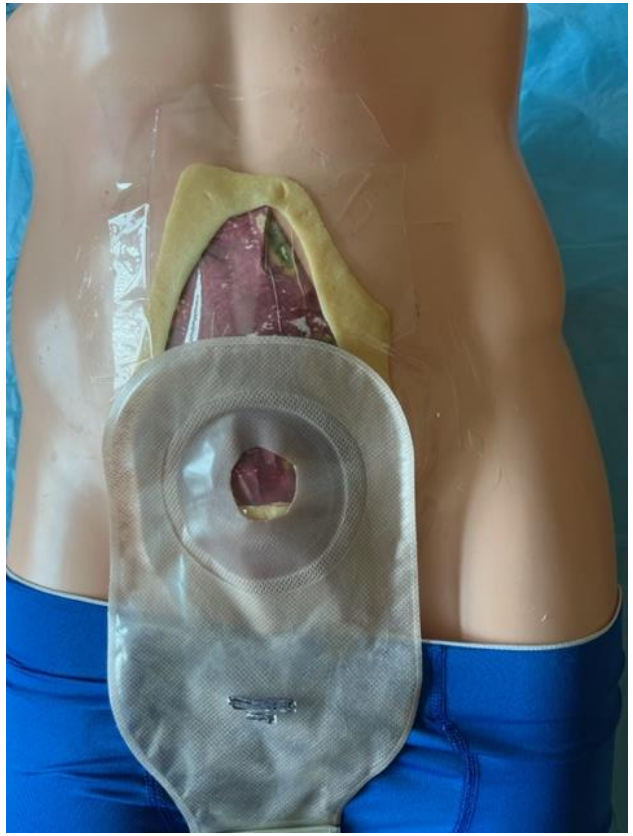
Low continuous suction on closed suction(dressings), Low intermittent suction recommended on pouches

Saddlebagging



By attaching barrier or 2 pouches together you can extend the cutting surface of the Barrier

Troughing



- Protect periwound/fistular skin with barrier
- Apply Transparent film Drape
- Cut opening in drape at bottom of wound
- Apply ostomy pouch to collect effluent

NEGATIVE PRESSURE WOUND THERAPY

Fistula must be isolated from wound

Case study Mr S

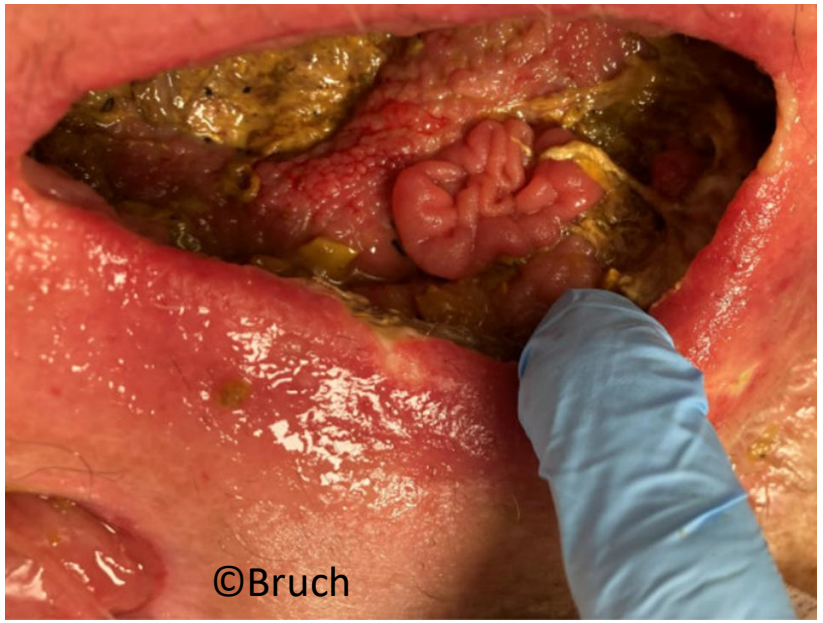
©Bruch

78 year old male presented from UIHC to local SNF facility for WOUND MANAGEMENT and therapies, with goal to return home with wife

- Ulcerative colitis, total proctocolectomy and end ileostomy 4 years ago
- Diabetes with stage 3 CKD
- Nephrolithiasis
- Recurrent pancreatitis due to gallstone
- S/P Cholecystectomy with wound dehisence and SB fistula

Initial Assessment

- Current treatment orders using a wound management pouch to low suction
- Necrotic tissue and sutures in wound
- Output 1300ml per shift with stool flecks plugging suction
- Wear time a few hours to 48 hours
- Fistula has formed a pseudostoma 1 inch below skin level
- Loose nylon sutures within wound amid slough
- No output form existing ileostomy just below open wound
- Medication particles in effluent



Plan after 1st Assessment

- DC NPWT
- Contact surgeon for permission to remove sutures
- Pharmacy to review meds and change to liquid form
- Dietician to consult, is on protein supplement
- Add Metamucil in applesauce to thicken effluent (is on Imodium)
- Selective sharp debridement of necrotic tissue
- Treat extensive chemical irritant dermatitis
- Drainable pouching system applied to straight drainage
- Pouching system included ileostomy site
- Monitor I&O, BMP closely

Visit #2

- Periwound skin improved
- Selective debridement done
- Effluent is thickening now 3000ml in 48 hours
- Rolled under skin protected stoma powder, non alcohol skin protectant and barrier RING/paste
- Barrier ring around ileostomy

Visit 3

- Is allowed 500ml PO daily
- TPN and IV Hydration started due to Dehydration, renal failure, and malnutrition
- JP drain removed
- Insulin adjusted due to hyperglycemia after starting TPN
- Wife instructed on pouch changes

Visit 4

- Pouch lasting 5 d since starting TPN and limiting PO intake
- Plan to DC home with Home health
- Wife assists with pouch change
- Granules in effluent, protonix changed

Home Visit

- Is up and around more at home
- Pouches leaking daily for several days
- Weight is down 4 #
- Drinking over 2L per day
- Output over 3 L per day
- Deep creases developing due to weight loss
- Ribs protrudent

Trial and Error

More Challenges

Hypergranular nodules

Periwound Dermatitis

Post hospitalization

Last pictures

Post Radiation Patient

Crohn's Disease

Vesicovaginal, Rectovaginal, or Enterovaginal Fistulas

- **Vesicovaginal** (from bladder to vagina) is managed per urinary diversion using catheter, absorbant pads. Foley can also be placed in vagina threaded through a baby nipple to prevent leakage around tube.
- **Enterovaginal** (from small bowel to vagina) can be managed with a foley as described above, a larger tube is used due to thicker effluent.
- **Rectovaginal** (from colon to vagina) are usually managed per fecal diversion until tract heals, if not a candidate for surgery stool is thickened to help decrease leakage and vaginal hygiene is needed to prevent vaginal contamination and odor

Key Points for Fistula Management

- Fistula Management is both challenging and rewarding
- Fistula Management is an ART, requiring multidisciplinary collaboration, creativity, ingenuity, surveillance, and communication with all involved
- Education and emotional support are extremely important
- There are many pouching options and frequent pouching procedure changes may be necessary as body contours and wound changes
- Consider simplicity and cost when developing a management plan
- Never be afraid to Phone a Friend!!!

References

- Bhurwal, A., Mutneja, H., Tawadross, A., Pioppo, L., & Brahmbhatt, B. (2020). Gastrointestinal fistula endoscopic closure techniques. *Annals of gastroenterology*, *33*(6), 554–562. https://doi.org/10.20524/aog.2020.0543
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- Tang, Q. Q., Hong, Z. W., Ren, H. J., Wu, L., Wang, G. F., Gu, G. S., Chen, J., Zheng, T., Wu, X. W., Ren, J. A., & Li, J. S. (2020). Nutritional Management of Patients With Enterocutaneous Fistulas: Practice and Progression. *Frontiers in nutrition*, *7*, 564379. https://doi.org/10.3389/fnut.2020.564379