



Evaluation & Management of a Patient with Soft Tissue Infection (Inc NSTI)

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| Description of the Activity | <p>General surgeons are frequently asked to consult on adult and pediatric patients with potential soft tissue infections. In the emergency department, inpatient, and outpatient settings, surgeons must be able to determine if an infection is present and develop and execute a treatment plan.</p> |
| Functions | <ul style="list-style-type: none">❖ Nonoperative/Preoperative<ul style="list-style-type: none">➤ Synthesize information from a patient's history, physical examination, medical records, and existing diagnostic evaluations to develop a differential diagnosis.➤ Determine if additional diagnostic studies are needed, including radiologic and laboratory evaluations.➤ Identify the severity of infection and systemic involvement, and perform expeditious preoperative management, including obtaining intravenous access, performing resuscitation, and administering antibiotics (selection should include antibiotics with activity against endotoxin, with appropriate dosing and timely administration).➤ Identify and manage perioperative risk factors for the development of soft tissue infection (eg, diabetes mellitus, immunocompromised state).➤ Determine the need and timing for operative intervention.<ul style="list-style-type: none">▪ Plan for a scheduled reassessment if managing the patient nonoperatively.➤ Develop a safe anesthetic and pain management approach consistent with a patient's age, diagnosis, and comorbidities.➤ Communicate with all health care team members regarding the plan of care.➤ Obtain informed consent with cultural humility.<ul style="list-style-type: none">▪ Describe the indications, risks, benefits, alternative therapies, and potential complications of the planned procedure, and incorporate a discussion of the goals of care.▪ Ensure patient/caregiver comprehension using applicable language services and audio/visual aids.▪ Ensure that the patient/caregiver(s) can ask questions, and address any expressed concerns, taking patient/caregiver preferences into account.▪ Document the consent discussion.❖ Intraoperative<ul style="list-style-type: none">➤ Manage the perioperative environment, including room setup, equipment check, preprocedural time-out, specimen processing, counts, wound classification, and debriefing functions.➤ Develop an initial operative plan that demonstrates understanding of a patient's pathology, anatomy, physiology, indications, contraindications, and potential complications.➤ Collaborate with perioperative health care professionals to create and maintain an intraoperative environment that promotes safe patient care.➤ Position the patient to expose the operative field, taking precautionary measures to prevent iatrogenic injury.➤ Perform operative interventions:<ul style="list-style-type: none">▪ Identify, drain, debride, or resect infected or necrotic tissue to viable tissue.▪ Identify the potential need for amputation (preserving life over limb).▪ Perform operative steps while minimizing operative time. |



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| | <ul style="list-style-type: none">➤ Integrate new information discovered intraoperatively, and modify the operative plan if necessary:<ul style="list-style-type: none">▪ Identify involvement of adjacent tissue and the potential need for amputation.▪ Demonstrate understanding of when a return to the operating room for repeated examination and debridement is necessary.▪ Perform wound management.▪ Demonstrate understanding of when specialty consultation is needed.▪ Identify the condition of physiologic futility (inability to control infection).❖ Postoperative<ul style="list-style-type: none">➤ Initiate and oversee postoperative management, including wound management (dressing changes, need for further debridement, closure), multimodal pain-control strategies, disposition, initiation and use of adjunctive therapies, and ongoing resuscitation, in collaboration with members of the health care team.➤ Communicate with a patient/caregiver(s) with cultural humility to ensure understanding of postencounter needs, outcome expectations, and the follow-up plan.➤ Identify and manage the most common complications of soft tissue infection.<ul style="list-style-type: none">▪ Challenges in skin closure and wound coverage▪ Inadequate drainage or debridement▪ Multisystem organ failure➤ Develop a postencounter plan that considers patient-specific barriers to care, including:<ul style="list-style-type: none">▪ Disposition▪ Wound management▪ Support services |
| Scope | <ul style="list-style-type: none">❖ In scope<ul style="list-style-type: none">➤ Cellulitis, abscess (including pilonidal abscess)➤ Infected pressure ulcers➤ Necrotizing soft tissue infection: cellulitis, fasciitis, myonecrosis❖ Out of scope<ul style="list-style-type: none">➤ Bite or envenomation➤ Chemical, electrical, or radiation burns➤ Lymphedema➤ Thermal injury➤ Calciphylaxis➤ Hidradenitis (except acute abscess and cellulitis)➤ Postoperative wound infection (included under postoperative complications) |



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| <p style="text-align: center;">1</p> <p>Limited Participation</p> <p>Demonstrates understanding of information and has very basic skills</p> <p>Framework: What a learner directly out of medical school should know</p> <p>The attending can show and tell.</p> | <ul style="list-style-type: none"> Obtains an H&P of a patient with a soft tissue infection with cultural humility; develops a differential that includes most common disorders (eg, cellulitis, abscess), requiring assistance for more complex presentations (eg, hidradenitis suppurativa) Respectfully communicates basic facts about the condition to a patient/caregiver(s) but inconsistently uses applicable language services and audio/visual aids Communicates the elements of an informed consent discussion but omits some elements when documenting the discussion Performs safe handoff of a stable patient to a new care team Seeks help in a timely manner when the severity of a patient’s disease requires it Demonstrates understanding of strategies that enhance the ability to provide timely patient care Inconsistently demonstrates understanding of the severity of infection and systemic involvement Initiates management of a patient’s comorbidities and treatment for soft tissue infection with supervision; needs help to determine the need and urgency of operative intervention; if nonoperative management is selected, inconsistently determines timing and responsibility for reevaluation | <ul style="list-style-type: none"> Demonstrates understanding of care coordination with the anesthesia and recovery unit teams for a stable patient with routine needs Seeks additional help in a timely manner when the severity of a patient’s disease requires it Identifies strategies that enhance the ability to provide timely patient care Requires active instruction to move the operation forward Identifies tissue planes only with active guidance and retraction Handles instruments inefficiently and with limited dexterity; demonstrates incomplete understanding of correct tissue handling Inconsistently identifies the extent of infected tissue | <ul style="list-style-type: none"> Communicates basic aspects of the operative procedure and ongoing management plan to a patient/caregiver(s) but needs prompting to clarify expected outcomes and the overall anticipated treatment course Works respectfully with other members of the health care team Demonstrates understanding of the need for a discharge plan for disposition, support services, wound management, and follow-up; identifies barriers related to disparities of resources and access Seeks additional help in a timely manner when the severity of a patient’s disease requires it Identifies strategies that enhance the ability to provide timely patient care Initiates basic postop management, including wound care; requires direct supervision to plan timing of dressing changes and further operative care Demonstrates understanding of the fundamental aspects of multimodal pain control strategies, adjunctive therapies (including antibiotics), and resuscitation but cannot implement them Identifies some of the most common complications of soft tissue infection, including postop bleeding and need for further debridement; requires supervision to recognize and manage the occurrence of systemic |



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| | | | complications (eg, AKI, septic shock) and is unsure of definitive wound management modalities |
| <p style="text-align: center; font-size: 24px; font-weight: bold;">2</p> <p style="text-align: center; font-weight: bold; text-decoration: underline;">Direct Supervision</p> <p style="text-align: center;">Demonstrates understanding of the steps of the operation but requires direction through principles and does not know the nuances of a basic case</p> <p style="text-align: center; font-weight: bold; text-decoration: underline;">Framework:</p> <p style="text-align: center;">The learner can use the tools but may not know exactly what, where, or how to do it.</p> <p style="text-align: center;">The attending gives active help throughout the case to maintain forward progression.</p> | <ul style="list-style-type: none"> ● Evaluates a patient with a soft tissue infection and orders diagnostic testing as indicated, including imaging and lab evaluation ● Respectfully communicates basic facts about the diagnosis to a patient/caregiver(s), customizing communication to overcome barriers and cultural differences and using applicable language services and audio/visual aids ● Communicates the elements of an informed consent discussion in a straightforward case and consistently documents the discussion ● Performs safe handoff of a complex patient to another care team or oversees the transition of a complex patient from the ED to the OR or ICU ● Responds to a consult for soft tissue infection in a timely manner ● Demonstrates understanding of the limits of the knowledge/skills of the health care team caring for a patient with soft tissue infection and seeks appropriate help ● Demonstrates understanding of the severity of infection and systemic involvement; initiates management of patient comorbidities and treatment for soft tissue infection ● Determines the need for operative intervention but may not recognize its urgency; if nonoperative management is selected, demonstrates understanding that reevaluation is necessary but needs | <ul style="list-style-type: none"> ● Displays coordinated hand movements for simple maneuvers; uses common surgical instruments ● Coordinates a multidisciplinary operative management strategy with consulting services such as urology or plastics in a straightforward case ● Performs basic debridement in a timely manner but is unable to complete the entire debridement ● Identifies limits in the knowledge/skills of the health care team caring for a patient with soft tissue infection and seeks appropriate help (eg, senior residents, additional services such as plastics or orthopedics) ● Displays tissue handling that may intermittently result in tissue trauma; requires redirection to maintain the optimal tissue plane ● Demonstrates limited ability to integrate operative findings into the operative plan | <ul style="list-style-type: none"> ● Communicates details of the operative procedure and ongoing management plan to a patient/caregiver(s) but omits some elements when discussing expected outcomes and the overall anticipated treatment course ● With supervision, develops a postcounter plan that considers patient-specific barriers to care, including disposition, support services, wound management, and follow-up; coordinates between care teams to ensure safe transition of care ● Respectfully works and collaborates with other members of the health care team ● Prioritizes response to potential postop complications ● Identifies limits in the knowledge/skills of the team caring for a patient with soft tissue infection and seeks appropriate help for advanced wound care ● Initiates and manages a patient's comorbid conditions but requires direction to recognize and mitigate their effects ● Initiates postop management, including wound care; requires direction to manage complex wounds, including planning the timing and type of dressing changes and determining further operative care |



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| <p>3</p> | <p>help to determine timing and responsibility</p> <ul style="list-style-type: none"> Manages a patient not requiring drainage or debridement with antimicrobial therapy | | <ul style="list-style-type: none"> Implements multimodal pain control strategies, adjunctive therapies (including antibiotics), and resuscitation with prompting Demonstrates understanding of the most common complications of soft tissue infection, including postop bleeding and need for further debridement Demonstrates understanding of systemic complications (eg, AKI, septic shock) but inconsistently manages them Demonstrates understanding of definitive wound management modalities but inconsistently implements them |
| <p>3</p> <p><u>Indirect Supervision</u></p> <p>Can do a basic operation but will not recognize abnormalities and does not understand the nuances of an advanced case</p> <p><u>Framework:</u> The learner can perform the operation in straightforward circumstances.</p> | <ul style="list-style-type: none"> Communicates the medical condition of a straightforward patient across barriers and cultural differences to elicit a personalized care plan in a shared decision-making process; uses teach-back to ensure understanding Conducts an informed consent discussion related to operative management of soft-tissue infection with cultural humility and completely documents the discussion Supervises safe transition of care by junior residents in a complex situation, including emergency transition to the OR or ICU Responds to a complex patient with a soft tissue infection in a timely manner and with appropriate attention to detail Demonstrates professional behavior in a complex or stressful situation, such as a | <ul style="list-style-type: none"> Leads coordination of care or a safe transition of care to a separate OR team for a critically ill patient requiring multiservice management Demonstrates attention to detail in a complex debridement Demonstrates professional behavior in a complex or stressful situation such as a decision to amputate primarily Exhibits confidence and self-awareness of limits in knowledge/skills Displays coordination and dexterity when handling tissue; demonstrates respect for tissue Develops an operative plan that includes patient positioning; demonstrates understanding of a patient's pathology, anatomy, physiology, indications, contraindications, and potential complications | <ul style="list-style-type: none"> Communicates details of the operative procedure and ongoing management plan to a patient/caregiver(s) using a variety of methods to ensure understanding; clarifies expected outcomes and the anticipated treatment course in a sensitive and caring manner Respectfully communicates and coordinates the contributions of all health care team members regarding the plan of care Develops a postencounter plan that considers patient-specific barriers to care, including disposition, support services, wound management, and follow-up; coordinates health care teams to ensure safe transition of care Demonstrates professional behavior in a complex or stressful situation, such as |



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| <p>The attending gives passive help. This help may be given while scrubbed for more complex cases or during a check-in for more routine cases.</p> | <p>patient's inability to comply with recommended care</p> <ul style="list-style-type: none"> Exhibits appropriate confidence and self-awareness of limits in knowledge/skills Manages most patient comorbidities associated with the development and presentation of soft tissue infection (eg, DM, immunocompromised state, anticoagulation use), including IV access, multimodal pain management, antibiotic administration (selection should include antibiotics with activity against endotoxin, with accurate dosing and timely administration) Determines the need for urgent operative intervention with consideration for a patient's overall condition Develops a plan for managing a patient with a straightforward abscess requiring drainage (either I&D or percutaneous drainage) Adjusts the care plan when a patient with a progressive soft tissue infection is decompensating or not improving, including proceeding to the OR for debridement | <ul style="list-style-type: none"> Demonstrates understanding of the principles of debridement; identifies the extent of infected tissue Makes most intraoperative decisions independently Integrates operative findings to modify the operative plan as needed; when applicable and with some supervision, identifies the potential need for amputation (preserving life over limb) and situations of physiologic futility in which infection cannot be controlled | <p>a patient's inability to comply with recommended care</p> <ul style="list-style-type: none"> Exhibits appropriate confidence and self-awareness of limits in knowledge/skills Initiates and oversees postop management of a patient's simple comorbid conditions; requires direction for a complex medical condition Initiates and oversees postop management, including wound care (eg, vacuum dressing, daily dressing changes), timing of dressing changes, and further operative management; requires assistance to manage complex wounds Uses multimodal pain control strategies and adjunctive therapies (including antibiotics) and guides ongoing resuscitation Develops a plan to manage common complications of soft tissue infection, including postop bleeding, incomplete excision or progression of disease, need for further debridement, multisystem organ failure, and septic shock; develops a plan for definitive wound management and skin closure with assistance |
| <p>4</p> <p><u>Practice Ready</u></p> <p>Can manage more complex patient presentations and</p> | <ul style="list-style-type: none"> Customizes communication based on a patient's characteristics and preferences across barriers and cultural differences in a critical or life-threatening situation; ensures patient/caregiver comprehension by using applicable language services and audio/visual aids | <ul style="list-style-type: none"> When caring for a complex patient, resolves conflicts or competing priorities between different services, including anesthesia or other surgical teams Coordinates an intraoperative consultation and caregiver decision-making process in a setting involving cultural and language barriers | <ul style="list-style-type: none"> Anticipates and develops a plan to mitigate common complications of soft tissue infection, including postop bleeding, incomplete excision or progression of disease, need for further debridement, multisystem organ failure, and septic shock; develops a |



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| <p>operations and take care of most cases</p> <p>Framework: The learner can treat all straightforward presentations of soft tissue infection and has a strong understanding of surgical options and techniques for less common scenarios.</p> <p>The attending is available at the request of the learner but is not routinely needed for common presentations, though input may be needed for more complex presentations.</p> | <ul style="list-style-type: none"> Conducts an informed consent discussion related to operative management of soft tissue infection with cultural humility, eliciting patient preferences and documenting risks and benefits individualized to the patient Coordinates transition to home care for a patient with significant wound care requirements and limited social/economic resources or cultural/language barriers If operative intervention is planned, coordinates with staff to facilitate expeditious movement to the OR, anticipating and addressing logistic impediments; with the anesthesia team, collaboratively develops a safe anesthetic approach that is consistent with a patient's physiologic status and comorbidities Helps get a patient to the OR when other staff members are having difficulty completing tasks and responsibilities in a timely manner Rapidly identifies the severity of infection and systemic involvement Expediently manages a patient's comorbidities associated with the development and presentation of soft tissue infection (eg, DM, immunocompromised state, anticoagulation use), including IV access, multimodal pain management, antibiotic administration (selection should include antibiotics with activity against endotoxin, with accurate dosing and timely administration), and resuscitation for septic shock | <ul style="list-style-type: none"> Provides assistance when others are having difficulty completing debridement Demonstrates coordination and dexterity with instrument handling and respect for tissue; displays debridement and dissection techniques that mirror those of a practicing surgeon with few extra maneuvers Demonstrates all required knowledge to develop an optimal operative plan that includes patient positioning; indicates understanding of a patient's pathology, anatomy, physiology, indications, contraindications, and potential complications Identifies the extent of infected tissue Makes all intraoperative decisions independently, only requiring assistance for a very complex presentation Integrates operative findings to modify the operative plan, determine dressing type, and anticipate future operative management for examination, debridement, and coverage; when applicable, identifies the potential need for amputation (preserving life over limb) or a situation of physiologic futility in which infection cannot be controlled | <p>plan for definitive wound management and skin closure</p> <ul style="list-style-type: none"> Independently initiates and oversees postop management, including complex wound care (eg, vacuum dressing, daily dressing changes), timing of dressing changes, and further operative management Uses multimodal pain control strategies and adjunctive therapies (including antibiotics) and guides ongoing resuscitation Initiates and oversees postop management of a patient's comorbid conditions and demonstrates understanding of their effects on the patient's course Provides assistance in a situation that impacts others' ability to complete tasks and responsibilities in a timely manner, including postop wound management and discharge Communicates respectfully and efficiently with all health care team members regarding the plan of care; constructively resolves conflicting perspectives when they arise Supervises the development and execution of a postencounter plan that considers patient-specific barriers to care, including disposition, support services, wound management, and follow-up; effectively coordinates between care teams to ensure safe transition of care in resource-challenged contexts Communicates necessary details of the operative procedure and ongoing |



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| | <ul style="list-style-type: none">• Determines the need and urgency for operative intervention; if nonoperative management is selected, determines timing and responsibility for reevaluation• Manages a patient with a complex soft tissue infection requiring debridement; identifies when source control is achieved while managing other comorbid conditions (eg, DM)• Engages other specialists as indicated for a patient presenting with an atypical soft tissue infection or a perineal soft tissue infection (eg, Fournier gangrene) | | management plan to a patient/caregiver(s), including expected outcomes and the anticipated treatment course; customizes emotionally difficult news (eg, changes to operative plan, adverse outcome, end-of-life discussion) in a culturally dexterous and caring manner |