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Review Article

The Role of Bates-Jensen Wound Assessment Tool (BJWAT) in Managing an Above-Knee Amputation Raw Area: A Case Report

Shanmuga Priya R [1*], Ravi Kumar Chittoria [2], Kadimisetti V N V S NeasthamReddy[3]

[1]Department of Plastic Surgery & Telemedicine JIPMER Pondicherry.

[2]Department of Plastic Surgery Jawaharlal Institute of Post graduate Medical Education and Research (JIPMER) Pondicherry.

[3]Department of Orthopaedics Jawaharlal Institute of postgraduate medical education and research (JIPMER) Pondicherry.

***Corresponding Author:** Shanmuga Priya R, Department of Plastic Surgery & Telemedicine JIPMER Pondicherry.

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Abstract

Wound care plays a crucial role in surgical disciplines. Extensive research has been conducted on the wound healing process, and advancements in science have continuously improved wound management and its various treatment approaches. Accurate wound evaluation is a fundamental aspect of effective wound care. This article highlights our experience using the Bates-Jensen Wound Assessment Tool (BJWAT) for wound evaluation.

Key words: bates-jensen wound assessment Tool (BJWAT); wound assessment; wound management

Introduction

Post-traumatic gas gangrene is a rare but life-threatening condition caused by rapid bacterial infection, often necessitating aggressive surgical intervention, including amputations. Effective wound management following an above-knee amputation is critical to prevent complications, promote healing, and improve patient outcomes. The Bates-Jensen Wound Assessment Tool (BJWAT) provides a structured framework to monitor wound healing by evaluating size, tissue type, exudate levels, and other parameters. This report discusses the application of BJWAT in a 17-year-old female who underwent an above-knee amputation due to post-traumatic gas gangrene, highlighting its utility in managing the raw area post-surgery.

Materials and Methods

A 17-year-old female presented with post-traumatic gas gangrene following an injury to her left lower limb. Despite initial debridement and antibiotic therapy, the infection rapidly progressed, necessitating an above-knee amputation to save her life.

Following the surgery, the patient developed a raw area at the amputation site. Wound management included standard protocols such as surgical debridement, application of moist wound dressings, and strict infection control. The Bates-Jensen Wound Assessment Tool was used weekly to objectively evaluate the wound's progression. Parameters such as wound size, exudate type and amount, tissue composition, and peripheral skin condition were recorded. intial score was 38(fig 1) Treatment adjustments were made based on BJWAT findings.

Figure 1: AKA stump raw area

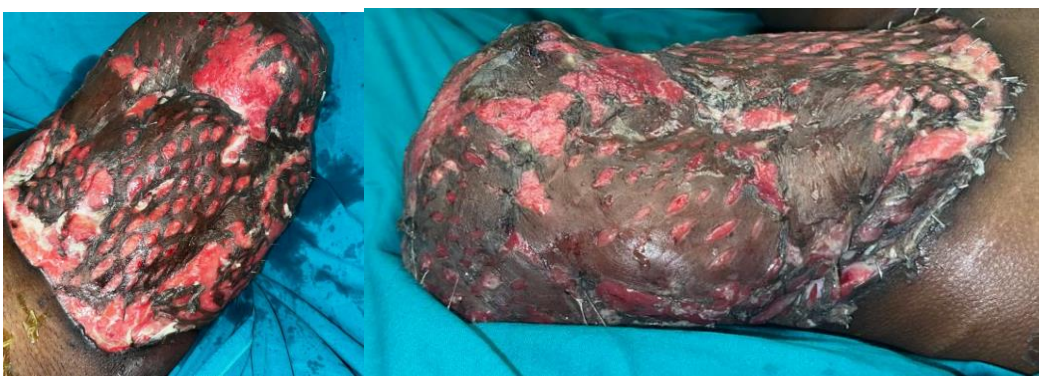
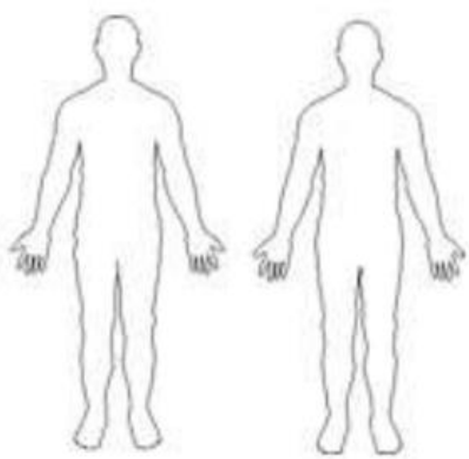


Figure 2: after split skin grafting

Bates-Jensen Wound Assessment Tool Name Complete the rating sheet to assess wound status. Evaluate each item by picking the response that best describes the wound and entering the score in the item score column for the appropriate date.

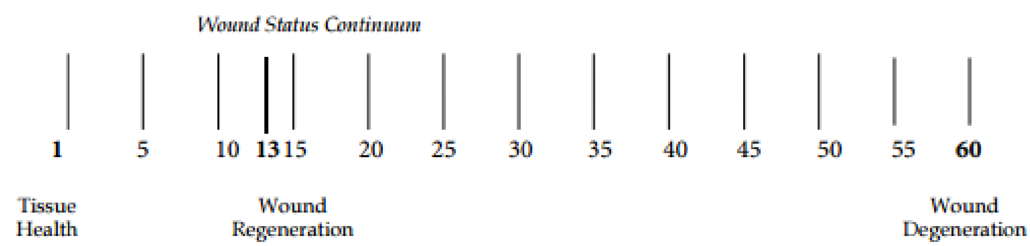


Parameter	Details
Location	**Anatomic site**
Mark Site	Use "X" to mark the site on body diagrams
Options for Location	- Sacrum & Coccyx - Trochanter - Ischial Tuberosity - Lateral Ankle (R/L) - Medial Ankle (R/L) - Heel (R/L) - Other Site

Parameter	Description
Shape	Overall wound pattern; assess by observing perimeter and depth.
Options	Circle and date the appropriate description:
	- Irregular
	- Linear or elongated
	- Round/oval
	- Bowl/boat
	- Square/rectangle
	- Butterfly
	- Other Shape

Item	Details of Assessment	Score (1-5)
1. Size	Measure the greatest length and width of the wound.	1 = Closed 2 = <4 cm² 3 = 4–12 cm² 4 = 13–24 cm² 5 = >25 cm²
2. Depth	Assess the depth of the wound from the surface.	1 = None 2 = Superficial 3 = <0.2 cm 4 = >0.2 cm 5 = Full thickness with structures exposed
3. Edges	Observe the wound edges for attachment and alignment with surrounding tissue.	1 = Attached 2 = Minimally not attached 3 = Moderately not attached 4 = Slightly rolled 5 = Completely rolled
4. Undermining	Check for undermining by probing around the wound edges.	1 = None 2 = <0.5 cm 3 = 0.5–1 cm 4 = 1–2 cm 5 = >2 cm
5. Necrotic Tissue Type	Identify the type of necrotic tissue present in the wound.	1 = None 2 = White/gray non-viable 3 = Non-adherent slough 4 = Adherent slough 5 = Thick, black eschar
6. Necrotic Tissue Amount	Estimate the percentage of necrotic tissue in the wound bed.	1 = None 2 = <25%

		3 = 25–50% 4 = >50% 5 = >75%
7. Exudate Type	Assess the type of wound drainage (e.g., clear, purulent).	1 = None 2 = Serous 3 = Serosanguineous 4 = Sanguineous 5 = Purulent
8. Exudate Amount	Measure the amount of drainage present in the wound.	1 = None 2 = Scant 3 = Moderate 4 = Large 5 = Heavy
9. Skin Color Surrounding Wound	Observe the color of the skin around the wound.	1 = Normal 2 = Pink 3 = Red 4 = Bright red 5 = Black
10. Peripheral Tissue Swelling	Check for swelling (edema) around the wound.	1 = None 2 = Minimal 3 = Moderate 4 = Marked 5 = Severe
11. Peripheral Tissue Induration	Assess the hardness (induration) around the wound.	1 = None 2 = <2 cm 3 = 2–4 cm 4 = 4–6 cm 5 = >6 cm
12. Granulation Tissue	Evaluate the amount of healthy granulation tissue in the wound bed.	1 = >75% covered 2 = 50–75% 3 = 25–50% 4 = <25% 5 = None
13. Epithelialization	Observe the new tissue forming over the wound surface.	1 = >75% covered 2 = 50–75% 3 = 25–50% 4 = <25% 5 = None



Plot the total score on the Wound Status Continuum by putting an "X" on the line and the date beneath the line. Plot multiple scores with their dates to see-at-a-glance regeneration or degeneration of the wound.

Results

Over four weeks, the wound demonstrated significant improvement. Initial assessments revealed extensive necrotic tissue and moderate exudate. By the second week, the wound showed healthy granulation tissue formation, and good SSG uptake, (figure 2) reduced exudate levels, and improved peripheral skin condition. By the end of the fourth week, epithelialization was evident, and the raw area had substantially reduced in size. BJWAT scores reflected this progress, confirming the effectiveness of the wound care strategy.

Discussion

Burn wounds require systematic evaluation to determine severity, monitor healing progress, and guide treatment decisions. The Bates-Jensen Wound Assessment Tool (BJWAT) has emerged as a valuable scoring system for objective wound assessment. It provides a structured framework to evaluate burn depth, exudate levels, wound appearance, and other critical parameters, ensuring consistency in clinical decision-making [1]. Unlike subjective visual inspection, the BJWAT score enables standardized assessment, minimizing interobserver variability and improving the accuracy of wound evaluation [2].

One of the primary advantages of BJWAT is its ability to track wound progression over time. Regular scoring allows clinicians to detect subtle changes in wound status, such as increased inflammation, necrosis, or early signs of infection, facilitating timely intervention [3]. Additionally, the score helps predict healing outcomes, aiding in the identification of wounds that may require surgical debridement, skin grafting, or advanced therapies [4]. By quantifying wound severity, the BJWAT score supports personalized treatment approaches, ensuring optimal resource allocation in burn care units [5].

BJWAT also enhances research and clinical trials focused on burn wound management. Its standardized criteria make it an effective tool for comparing different treatment modalities, evaluating new therapeutic interventions, and measuring wound healing rates in a reproducible manner [6]. Furthermore, the use of BJWAT in multicenter studies promotes data consistency, leading to more reliable conclusions regarding burn wound healing [7].

In addition to guiding clinical management, BJWAT plays a significant role in patient prognosis. Studies have shown that higher BJWAT scores correlate with prolonged healing times, increased risk of hypertrophic scarring, and greater likelihood of complications such as infection or contracture formation [8]. This predictive capability enables early risk stratification, allowing clinicians to implement preventive measures, such as pressure garment therapy or laser treatments, to improve long-term outcomes [9].

Despite its advantages, the BJWAT score should be used alongside other clinical assessments, as no single tool can fully capture the complexity of wound healing. Combining BJWAT with imaging techniques, biomarkers, and clinician expertise provides a comprehensive approach to burn wound evaluation [10].

Conclusion

This case illustrates the successful use of the Bates-Jensen Wound Assessment Tool in managing a challenging raw area following an above-knee amputation for post-traumatic gas gangrene in a young patient. BJWAT provided a standardized approach to monitor wound healing, facilitating timely interventions and treatment modifications. Incorporating structured tools like BJWAT into routine wound care can enhance outcomes, particularly in complex cases. Further studies involving larger patient populations are warranted to establish its broader applicability in post-amputation care.

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