

# Literary Representations of Trauma and Healing in the Mahabharata: Perspectives from Modern Medicine

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## ABSTRACT

The Mahabharata, an ancient epic, contains numerous accounts of battlefield injuries, medical treatment, and healing. This makes it a useful literary representation of injury, healing, and therapeutic intervention.

To examine literary representations of traumatic injuries, therapeutic interventions, and recovery in the Mahabharata and compare them cautiously with contemporary surgical concerns.

The study conducted a thematic narrative analysis of the text. It grouped relevant instances, including battlefield trauma, penetrating injuries, bleeding, musculoskeletal injuries, therapeutic expertise, and recovery, into broader thematic categories. It also reviewed PubMed-indexed sources to compare these findings with contemporary surgical practice and trauma management.

The analysis identified six major themes, including battlefield trauma, penetrating injuries, bleeding, musculoskeletal injuries, therapeutic expertise, and recovery. These themes formed the basis for further interpretation.

The epic contains literary depictions that can be compared cautiously with enduring clinical problems. However, these depictions do not establish historical equivalence in medical knowledge, surgical techniques, and therapeutic practices.

## KEY WORDS

*Battlefield trauma, Mahabharata, Medical humanities, Penetrating injury, Sanskrit literature, Surgery*

## INTRODUCTION

Surgery has changed considerably with advances in anatomy, anesthetics, antisepsis, diagnostic radiology, hemodynamics, resuscitation, and evidence-based procedures. Nevertheless, the basic clinical challenges of trauma surgery remain largely the same. Surgery and trauma care focus on penetrating wounds, bleeding, fractures, tissue damage, foreign objects, and recovery. The Mahabharata offers a literary context for investigating ancient ideas regarding these medical concerns. It richly portrays descriptions of physical injuries, missile penetration and other weaponry, incapacitated warriors, therapeutic interventions, and healers. This does not suggest that modern surgical practices were in use during the epic's time. Rather, these descriptions allow comparison between ancient and modern approaches to similar injuries and therapeutic objectives while recognizing major differences in scientific knowledge and technique. Such

comparisons must distinguish literary representations of injury and healing from historically documented medical practices. This research examines literary descriptions of injury, therapeutic intervention, and recovery in the epic from a modern medical perspective.

The epic has drawn scholarly interest of scholars related to literature, history, philosophy, and medicine. This research uses Bibek Debroy's translation as its primary source and focuses on battlefield injuries, penetrating wounds, wounded soldiers, healing, and medical treatment.<sup>1</sup> Nevertheless, the text is not a book on surgery, but an epic; therefore, any information on medicine contained in it will be analyzed in its historical and cultural context. Mitra examines medical issues in Ayurveda, bodily functions, poisons, and healing to show that medical information constitutes a distinctive element of the epic.<sup>2</sup> He focuses

on the depiction of medical concepts in the Mahabharata; however, he does not analyze battlefield injuries from a contemporary trauma management point of view. Natarajan presents one of the rare analyses of the epic in relation to modern surgery. He links Arjuna's agility and ability to hit a target without considering it directly to the visual skills required for laparoscopic surgery.<sup>3</sup> He shows connections in visual coordination and technical skills rather than the clinical management of traumatic injuries. In addition, Saini assesses the history of physicians in ancient India, revealing their professional training, ethical responsibilities, and social roles.<sup>26</sup> Yamashita studies ancient Sanskrit medical texts, including the Charaka Samhita and Sushruta Samhita. He offers ideas on the evolution of Ayurvedic medicine. His work provides a broader spectrum of the history of ancient Indian medicine.<sup>27</sup> These studies highlight the need for the analysis of medical knowledge from historical and literary aspects, rather than establishing direct connections with contemporary medicine. The present study differs from earlier work by assessing six themes related to injury, therapeutic intervention, and recovery, and cautiously showing connections between their literary representations and contemporary surgical practices.

Nevertheless, battlefield injuries provide a strong basis for comparison. Butler and Blackburn state that identifying and treating life-threatening injuries are central to modern combat casualty care.<sup>4</sup> Dawes and Thomas emphasize hemostatic resuscitation and the treatment of shock.<sup>5</sup> Cai et al. describe penetrating injuries, soft-tissue injuries, and orthopedic injuries commonly managed by modern surgical teams in battlefield settings.<sup>6</sup> Similar problems are described among injured warriors in the Mahabharata. However, modern trauma care is based on organized trauma systems, physiological assessment, and evidence-based treatment. These comparisons focus on issues related to battlefield injuries. They do not show direct connections between the medical practices exemplified in the epic and modern trauma care. Hemorrhage is particularly important in modern trauma management. Gruen et al. identify rapid control of bleeding and correction of injury-related physiological disturbances as key factors for survival.<sup>7</sup> Lamb et al. describe damage-control surgery and resuscitation aimed at achieving physiological stabilization before reconstruction procedures.<sup>8</sup> Pohlman et al. also emphasize the early recognition and treatment of hemorrhagic shock.<sup>9</sup> Thus, although blood loss remains a major problem in trauma, modern medicine manages it through transfusions, coagulation monitoring, and operative hemostasis.

Fractures are another significant concern in orthopedic trauma. However, literary descriptions of physical injuries in the epic should not be taken as evidence of fractures unless the text clearly describes the affected bones. Pape et al. discuss current principles for fractures in polytrauma cases, while Pfeifer et al. stress early definitive fracture treatment when the patient's physiological status allows.<sup>10,11</sup> Thus,

contemporary fracture treatment consists of mechanical stabilization along with assessment of the patient's overall condition. Moreover, Beckett and Tien present an understanding of how trauma surgery involves imaging, debridement, vascular techniques, fracture fixation, and the management of penetrating injuries.<sup>12</sup> Finally, Al Hanna et al. describe the significance of rehabilitation in helping patients recover physically after their treatment.<sup>13</sup> Although the epic describes injured individuals bearing physical constraints and later returning to limited activities, these descriptions do not substantiate that they received medical rehabilitation. In comparison, modern trauma surgery is extensively studied, whereas trauma-related aspects of the Mahabharata have received limited attention. It is clear that the existing scholarly studies have not addressed the link between specific literary narratives of battlefield injuries, treatment, and recovery in the epic and similar concerns of contemporary trauma medicine. This gap offers ground for probing penetrating wounds, bleeding, battlefield treatment, musculoskeletal trauma, specialized surgical care, and recovery. The central research question asks how the Mahabharata represents battlefield injuries, therapeutic intervention, and recovery, and how these depictions relate to clinical concerns in modern trauma surgery.

## METHODS

This study employed a qualitative thematic approach to analyze literary representations of injury, therapy, and recovery in the epic, cautiously comparing them with contemporary medicine. The study is based on Bibek Debroy's English translation of the Mahabharata.<sup>1</sup> It analyzed selected portions from three different volumes of the Mahabharata: Volume 4 (Udyoga Parva), Volume 5 (Bhishma Parva) and Volume 7 (Karna Parva). Udyoga Parva (Chapter 812 [149]) describes how the army is organized. Bhishma Parva (Chapter 974 [114]) explains the injuries Bhishma sustained on the battlefield. The next chapter (975 [115]) focuses on the expert physicians who have the ability to extract embedded weapons. Karna Parva (Chapter 1219 [69]) provides information on Yudhishtira's physical activity post-injury. The study analyzed selected passages on physical injuries, therapeutic interventions, physical restrictions, and recovery in detail. It grouped the selected descriptions of injuries, their physical consequences, therapeutic interventions, and recovery based on modern medical issues. Six themes emerged from the study, namely: battlefield trauma, penetrating injuries, bleeding, musculoskeletal injuries, therapeutic expertise, and recovery. The research examined relevant sources from modern medicine, the history of medicine, Sanskrit texts, and the medical humanities to better understand the chosen excerpts and compare them with modern medicine. It also used modern medical terms for comparison purposes, not

to conduct any form of retrospective diagnosis or historical surgery. The study acknowledged its limitations given the epic's literary nature and other factors.

## RESULTS

The qualitative analysis revealed six major themes: battlefield trauma, penetrating injuries, bleeding, musculoskeletal injuries, therapeutic expertise, and recovery. The researcher explored these themes from selected passages of the Udyoga Parva, Bhishma Parva, and Karna Parva of the epic. The epic describes battlefield trauma through severe injuries caused by arrows and other weapons, often leaving warriors incapacitated. In the Bhishma Parva, Chapter 974 (114), Bhishma is pierced by arrows, spears, club, and more. His armor is broken, and he gets wounded in many parts of his body. Finally, he tumbles out of his chariot.<sup>1</sup> Arrow wounds and descriptions of individuals skilled at removing embedded arrows illustrate penetrating injuries and foreign-body removal. In Chapter 975 (115), physicians who specialize in removing objects from the body enter with the proper tools. However, Bhishma declines their help, and nothing gets extracted.<sup>1</sup> Bleeding, weakness, and collapse following severe injury exemplify literary descriptions of bleeding and physical deterioration rather than definitive physiological diagnoses. In the Bhishma Parva chapter 936 (76), wounded warriors are said to be bleeding all over their bodies, whereas Duryodhana appears to be bleeding from his limbs.<sup>1</sup> Restricted movement and an inability to continue fighting illuminate musculoskeletal injury and functional impairment. Bhishma's fall from his chariot in Chapter 974 (114) illustrates physical incapacitation following injury. However, the narrative provides insufficient anatomical details to confirm specific fractures or other musculoskeletal injuries. Treatment of wounded warriors by physicians demonstrates specialized therapeutic expertise in trauma care. Udyoga Parva, Chapter 812 (149), describes physicians who are part of the Pandava forces. Similarly, Chapter 975 (115) of the Bhishma Parva describes trained physicians using surgical equipment.<sup>1</sup> These passages illustrate the presence of medical expertise in the epic poem. They do not prove, though, that a surgery was performed. Lastly, this story explains the resumption of physical activities after an injury. It provides no clinical evidence. In the Karna Parva, Chapter 1219 (69), Yudhishtira gets up from his bed after finding out that Karna is dead. He then proceeds to the battlefield.<sup>1</sup> However, it should be noted that this episode does not imply full recovery, healing, or even rehabilitation. These examples show how the epic depicts bodily injury, blood flow, physical disability, healing skills, and recovery after an injury. Nevertheless, these episodes do not imply any clinical diagnosis or surgical operations.

## DISCUSSION

This qualitative review compares six trauma-related themes in the Mahabharata with contemporary surgical practice. This comparison focuses on the clinical and therapeutic similarities rather than scientific and technological equivalence. The Debroy translation, based on the Critical Edition of the Mahabharata, provides the primary textual basis for this analysis.<sup>1</sup> The analysis focuses on commonalities in the issues depicted and not on the historical continuity between the medical techniques in the epic poem and those of modern surgery.

Battlefield trauma is another medical theme in the Mahabharata. In Bhishma Parva chapter 974 (114), warriors strike Bhishma with bows, javelins, swords, clubs, maces, and spears. His armor breaks, and multiple piercing weapons penetrate his body.<sup>1</sup> Later, Arjuna attacks Bhishma again, using arrows that enter his internal organs.<sup>1</sup> Finally, because of these multiple injuries, he eventually falls from his chariot. The arrows embedded in his body prevent him from touching the ground<sup>1</sup>. This episode provides a literary illustration of severe battlefield trauma with functional impairment. The injury scale currently used cannot evaluate the injuries highlighted in this episode. Nonetheless, through the story, the reader learns how various injuries impair the fighting ability of a warrior who is injured.

These issues continue to form part of modern military trauma medicine even though they are dealt with scientifically and in systematic ways. Modern military medicine uses systematic approaches to assessment, resuscitation, evacuation, and definitive treatment. Butler and Blackburne highlight the evolution of Tactical Combat Casualty Care, which focuses on reducing preventable battlefield deaths through prioritized battlefield interventions.<sup>4</sup> Dawes and Thomas also emphasize battlefield resuscitation, particularly hemorrhage control, hemostatic resuscitation, and physiological stabilization.<sup>5</sup> Similarly, Cai et al. discuss the contribution of forward surgical teams in managing combat injuries, particularly orthopedic trauma and soft-tissue injuries in conflict zones.<sup>6</sup> These new methods have nothing in common with the literary accounts present in the Mahabharata and do not serve as proof of the existence of a similar system in ancient times.

The epic also portrays medical practitioners as part of the military organization. As Yudhishtira's armies advance to Kurukshetra, healers and medical practitioners accompany the troops.<sup>1</sup> This description appears in the Udyoga Parva, Chapter 812 (149). The Pandavas' encampment at Kurukshetra also includes highly skilled healers equipped with materials required for treatment.<sup>1</sup> It does not prove the existence of a trauma system similar to those of

contemporary medicine. Nevertheless, these excerpts indicate that the epic describes medical staff and medical equipment as parts of the military structure. Modern trauma care systems address comparable needs through more extensively developed organizational and clinical structures. Celso et al. show better results following organized trauma systems, while Moran et al. have found improved survival following reorganization of major trauma services in England.<sup>14,15</sup> Therefore, the comparison is confined to the common issue of helping wounded soldiers, even though there exist significant disparities between them in science, technology, and health care organization.

Descriptions of penetrating injuries can be cautiously compared with similar clinical concerns addressed in modern surgery. In the epic, arrows repeatedly penetrate armor and pass into the body. In the final battle, Arjuna's arrows pierce Bhishma's armor and damage his inner organs.<sup>1</sup> Even after Bhishma falls, he says that many arrows have penetrated his body. In the Bhishma Parva, Chapter 975 (115), the surgeons with surgical instruments approach Bhishma to extract foreign objects, but he rejects their assistance.<sup>1</sup> This excerpt links penetrating injuries to a specialized medical procedure but provides no details about the operation itself. Moreover, it makes no distinction between normal and specialized injuries.

The modern management of retained foreign body cases is much more complicated than it used to be. Polat et al. emphasize precisely localizing the retained foreign body and assessing for complications such as infection, abscess formation, and injury to surrounding tissue.<sup>16</sup> Modern technology such as ultrasonography and CT helps determine the location of a foreign body within the tissue. Foreign bodies near large blood vessels pose another risk. Feliciano et al. note the need for a systematic assessment of vascular injury and appropriate patient selection for operative repair.<sup>17</sup> In modern trauma care, improper handling in trying to remove the embedded object can lead to excessive bleeding, especially when the object prevents the bleeding blood vessel from releasing blood.

In the epic, weaponry is linked to specific medical skills, but in contemporary medicine, techniques of diagnosis and surgery are followed.<sup>1</sup> In this particular episode, there is no removal of weaponry, hence surgical procedures cannot be drawn from this one. The epic contains explicit references to bleeding associated with battlefield injuries. In the battle scene, warriors are depicted with arrows inside their bodies and blood oozing from their wounds.<sup>1</sup> Bhishma Parva 936 (76) also mentions warriors returning from the war stained with blood and Duryodhana bleeding from his limbs due to injury.<sup>1</sup> These descriptions establish bleeding as a distinct textual theme rather than an inferred consequence of weapon injuries.

Nevertheless, the epic does not provide a physiological explanation similar to the modern notion of hemorrhagic shock. Therefore, it is more accurate to state that the epic describes bleeding and deterioration following severe injury rather than to retrospectively diagnose shock. Post-injury weakness or unconsciousness may result from hemorrhage, nerve damage, or other causes that the text cannot distinguish. However, the story lacks enough information about the amount of blood, injury to blood vessels, and blood flow in order to make clinical diagnosis.

Contemporary trauma care science interprets the impact of blood loss due to injury in the context of circulatory physiology. Excessive blood loss can lower the amount of blood, resulting in poor organ perfusion, shock, coagulation disorder, hypothermia, and metabolic disorders. Rossaint et al. stress the need for early diagnosis of hemorrhage, stopping the hemorrhage, correction of trauma-induced coagulopathy, and proper resuscitation.<sup>18</sup> According to CRASH-2, the early administration of tranexamic acid decreased the mortality rate in trauma patients with significant blood loss.<sup>19</sup> PROPPR found no significant difference in mortality rates when comparing 1:1:1 and 1:1:2 strategies of blood transfusion. Nevertheless, the first strategy showed more successful bleeding management and lower blood loss-related mortality.<sup>20</sup> This difference underscores the general link between the ancient story and modern surgery. While the epic describes observable phenomena of trauma and hemorrhage, modern medicine reveals the physiology behind those phenomena and implements specific procedures.<sup>1</sup> Thus, the strongest link lies in recognizing the problem rather than explaining or treating it.

Physical incapacity is one impact of battle wounds. The wounded fighters are not able to fight anymore.<sup>1</sup> This is evident in Bhishma's last battle when he keeps fighting even after being wounded several times. Finally, his wounds result in his falling off his chariot from the battlefield. This theme addresses physical disability after injury because the epic offers insufficient anatomical information to prove any particular fracture or musculoskeletal injury. Unlike this, contemporary orthopedic trauma treatment is based on anatomical diagnosis and physiological management. Stinner and Edwards define the modern approach to the treatment of severe musculoskeletal trauma through the use of definitive or damage control fixation based on the injury and the physiological state of the patient.<sup>21</sup> Treatment may include fracture fixation, debridement, soft-tissue care, and management of associated vascular or neurological injuries. Miclau et al. further emphasize that successful musculoskeletal trauma care depends not only on surgical expertise but also on trained staff, appropriate implants, imaging, trauma facilities, and rehabilitation services.<sup>22</sup> The similarity, therefore, is the functional

impact of the trauma. The text shows that a serious injury may incapacitate a person from further physical activity, while modern orthopedic surgery diagnoses and treats anatomically through mechanical and biological means.<sup>1</sup> This comparison therefore addresses physical disability after an injury, not the identification or treatment of specific orthopedic problems in the poem.

Specialized medical knowledge is one of the clearest findings supported by the primary source. After Bhishma's defeat, the text describes healers as skilled, well-trained, and equipped with instruments for extracting embedded foreign bodies.<sup>1</sup> This passage matters not merely because physicians are present, but because it links specific medical skills and instruments to trained practitioners. The epic describes doctors in Pandava camps and medical experts in the Kurukshetra camps.<sup>1</sup> This shows that healers were separate from warriors but does not prove the historical presence of medical specializations. On the other hand, current trauma treatment involves the coordination of many different professionals such as surgeons and physiotherapists.

Noonan et al. examine evidence concerning the effects of trauma team training on clinical performance and patient outcomes and Mackenzie et al. highlight the need for formal training in trauma surgery techniques.<sup>23,24</sup> The analogy does not depict the physicians of the Mahabharata as modern-day surgeons. Instead, the primary source supports the observation that the literary depiction of specialized knowledge in therapy is supported, not a historically validated system of surgical practice. The juxtaposition with modern medicine highlights the importance of therapeutic expertise, which, beyond surgery, involves professional education and teamwork.

The last theme involves recovery from injury. The narrative describes specific activities performed by wounded individuals without offering any quantitative metrics of their functional recovery. Yudhishtira is seen sleeping on a golden bed when Krishna and Arjuna come to him in chapter 1219 (69). At the sight of their joy, he thinks Karna must have been killed. He then climbs onto his chariot and returns to battle.<sup>1</sup> This scene shows the resumption of activity after an injury but does not demonstrate any healing, medical care, or rehabilitation. In modern surgery, recovery extends beyond survival to restoring physical, neurological, psychological, and functional independence after trauma. You et al. emphasize that rehabilitation after musculoskeletal injury aims to maximize functional recovery.<sup>25</sup> Modern rehabilitation uses objective functional measures, whereas the Mahabharata provides examples of

activities that can occur after an injury without presenting any indication of rehabilitation.<sup>1</sup> This comparison is thus confined to the general issue of functional capability after injuries rather than to rehabilitation techniques.

The Mahabharata depicts several injury-related concerns that are addressed in contemporary trauma care.<sup>2</sup> These similarities arise from the commonality of injuries in the universal human experience, not from similar scientific knowledge. It is about common medical ailments, not physiology.

Some limitations have to be considered. First, the study is qualitative and consists of a narrative review. This type of research involves interpreting selected fragments and secondary sources. Translating medical terms into English can affect their meaning. Furthermore, the narrative provides insufficient anatomical or physiological information to establish definitive retrospective diagnoses or evaluate the effectiveness of therapeutic interventions. In addition, the dating of each case described in this work and the clinical interpretation are not fully reliable. Given the paucity of PubMed-indexed studies on surgery in the Mahabharata, comparisons become difficult. Moreover, the selection of specific passages and the use of an English translation could affect interpretations. Accordingly, the results presented here describe literary accounts of injuries and cures rather than historical facts about surgery.

## CONCLUSION

This qualitative review demonstrates the existence of literary descriptions of battle injuries, penetrating injuries, blood loss, disability, professional medical skill, and post-recovery activities in the Mahabharata. Such literary descriptions enable the cautious comparison of clinical issues today but do not offer evidence for surgical procedures performed in ancient times. It is necessary to be cautious in the comparison due to the fact that the Mahabharata is a literary text, while modern surgery represents totally different knowledge, diagnostic approaches, surgical techniques, trauma management, and rehabilitation programs. Therefore, the similarities reveal common experiences of people with regard to injuries and the need to treat them rather than the same knowledge and approaches to the problem. Future research in this field must involve the analysis of several Sanskrit versions of the text with the cooperation of surgeons, medical historians, Sanskritists, and medical humanities experts. Comparative analyses might shed more light on how ancient civilizations described injuries and healing processes.

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