

Penetrating and blunt abdominal trauma



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Introduction ‘ Penetrating and blunt abdominal trauma’ is an article published in Critical Care Nursing Quarterly in the January to March, 2005 issue, written by Kristine L. Eckert. In this article, Kristine Eckert provides an overview of abdominal trauma related to penetrating and blunt mechanisms of injury. There are different case studies provided to illustrate interventions and treatments of different types of trauma. This article also provides an overview of the anatomy and physiology of the different organ systems, with complications being briefly discussed.

Summary of Article The abdomen is divided anatomically into the peritoneal space, the retroperitoneal space, and the pelvis. There are both solid and hollow organs in these areas. Trauma to any of these areas in the abdomen can lead to complications including hemorrhage, shock, peritonitis, and sepsis. ” Before considering a bowel injury, the patient’s respiratory, hemodynamic, and neurologic status should be evaluated because of a much greater immediate threat to life from these systems rather than a delay in bowel injury” (Eckert, 2005, p. 0). The differences between penetrating and blunt abdominal trauma and their threat to life are further illustrated in the four case studies discussed in this article. The first two case studies considered penetrating abdominal traumas. In the first case study, a male patient sustains gunshot wounds to his chest, back, and leg. With the gunshot wound, he suffers hemothorax, injuries to his lungs, bilateral kidney, diaphragm, liver and small bowel, laceration of spleen, and tear to the distal end of his esophagus.

The second case involves a male victim of a drive-by shooting with two gunshots wound to the right buttock and left lateral thigh. This type of

gunshot wound is considered of the transabdominal nature, and the patient is a candidate for immediate surgery; computed tomography (CT) scanning was not completed prior to entry to the Operating Room (OR). With these gunshot wounds, he suffers bladder lacerations, perforation, retroperitoneal hematoma in the right pelvic area, and a gunshot wound to his thigh, which left him with a femur fracture.

It is important to keep in mind that the external appearance of the wound does not determine the extent of internal injury. By just looking at the external location of a gunshot wound, certain organs or cavities may appear not to be involved. However, the trajectory of the bullet plays an important role in the extent of internal injury. The trajectory of the bullet depends on the caliber of the bullet, along with the angle and distance from which the gun was fired. The bullet can change its path and refract off of bony surfaces.

Therefore, the assessment should include distinguishing the entrance and exit wounds and their locations, to assist in determining the trajectory of the bullet and what organs may be involved. It is necessary to have an exploratory laparotomy surgery for most gunshot wounds to the abdomen for damage control, even though the wound may appear to be superficial. The principles of damage control surgery are to: control hemorrhage, prevent contamination from the bowel, and to avoid further injury.

In conjunction with clinical findings and patient symptoms, CT scan of the chest, abdomen, and pelvis with contrast, most commonly diagnose spleen and liver injuries. CT scan is the most sensitive diagnostic tool for most

abdominal trauma injuries. A FAST scan is an inexpensive and rapid, noninvasive ultrasound that can be performed at the bedside to quickly evaluate intra- abdominal hemorrhage (Eckert, 2005). Examples of blunt abdominal traumas are presented in the last two case studies.

In the third case study, a restrained elderly female driver was involved in a motor vehicle crash without airbag deployment. The female patient presents with unilateral weakness and complaints of chest pain. She has no visible trauma but her CT scan revealed liver laceration, multiple right rib fractures, and a grade I pancreatic contusion. Later, diagnosis includes right calcaneus fracture and a right proximal ulnar process fracture. The last case study is of a young female teenage passenger involved in a motor vehicle collision.

Her main complaint is primarily abdominal pain. Assessment reveals an abrasion across the lower abdomen from iliac crest to iliac crest with mild tenderness to palpation. Initial complete blood count is normal. However, within three hours, her white count doubled, showing signs and symptoms of peritonitis. During surgery, a small bowel and a large bowel laceration, and a minor spleen laceration were noted. Undetected abdominal trauma can rapidly lead to death due to hemorrhage, shock, and sepsis.

Common injuries due to blunt abdominal trauma can include: tears to the liver, rupture spleen, pancreatic tear, duodenum rupture, and kidney injuries.

Evaluation of Article This is an interesting article, presenting an overview of both penetrating and blunt abdominal trauma. After reading this article, a deeper insight into understanding of both penetrating and blunt abdominal trauma is developed. The case studies are written in such a way to provide a

step-by-step occurrence to the scenarios, making one feel part of the experience.

The case studies help by providing a clearer picture and understanding of how each different injury led to a different outcome. This writer especially likes the breakdown of different organs and systems, and the significance they presented to each injury. The journal author provides a review of the systems, which was refreshing to one's memory while reading about each organ and system, thus lending to the article being easily read. The injury grading scales of organs, such as the: liver, spleen, kidney, and pancreas, were clearly graded.

This breakdown helps one develop a better understanding of the different injury levels. The abdominal assessment signs are an interesting tool to have, although they are not conclusive in diagnosis. This writer does not personally work with trauma patients. However, this valuable knowledge can come in handy when exposed to the chance to work with trauma patients. It helps by looking at gunshot injuries and motor vehicle accident injuries from a different perspective. One must look at a bigger picture and use critical thinking skills, as with all other injuries.

However, it is interesting to know that in both penetrating and blunt abdominal trauma that the genitourinary system has the most common injuries. This article also includes an assessment of trauma patients with: observation, auscultation, perineum, rectal, and vaginal examinations. This assessment is clearly outlined, and easily followed. The knowledge from this article can be relevant to both nurses and practitioners because it provides a

clear outline of the assessment process. The only section found to be slightly irrelevant is the detail about the surgical procedure in the first case study.

However, it is not redundant. Actually, the information regarding the surgical procedure is found to be interesting, as it allows one to know the detail of the procedure so that the whole process can be understood. Conclusion This article provides a practical overview of abdominal trauma, with incidence of abdominal injuries being discussed and illustrated through case studies. Significant complications of intestinal injury include wound dehiscence, wound infection, intra-abdominal abscess, short bowel syndrome, and intestinal obstruction.

The treatments and interventions discussed are applicable to nursing assessment, clinical practice, and prevent of complications. In addition to the anatomy and physiology of the different organ systems overviewed, the complications are discussed, and the differences between solid and hollow organs are reviewed, all valuable knowledge to develop. Reference Eckert, K. L. (2005). Penetrating and blunt abdominal trauma. *Critical Care Nursing Quarterly*, 28(1), 41-59.