

Civilian Penetrating Craniocerebral Gunshot Injuries: Post-Operative Management and Complications Alexander Tai MD; Daniel Felbaum MD; Ai-Hsi Liu; Robert Bryan Mason MD, FACS; Rocco Armonda MD; Jack Sava MD; Edward F. Aulisi MD, FAC

Introduction

Civillian cranial gunshot wounds (GSWs) remain a frequently lethal and highly morbid injury uncommon to many civilian trauma centers. The vast majority of these patients die prior to reaching medical care. Of those who do survive their initial injury, recent series have shown that over 50% will succumb to their injuries or in-thehospital complications. Furthermore, experience from wartime theaters has taught us that these patients are vulnerable to a multitude of complications (i.e. CSF leak, wound breakdown, hydrocephalus, vascular injury). Thus, the need and potential for improvement in care and understanding of these patients is large. Here, we present our institution's series of cranial GSWs with an emphasis on detailing our complications.

Methods

We retrospectively performed a chart review from 2015-2017.

Results

We identified 9 patients that underwent operative intervention in the form of decompressive craniectomy following a craniocerebral gunshot injury at a level 1 trauma center in Washington, D.C. The average age of patients was 31 years (3 females, 6 males) and time to operative intervention from initial presentation was less than 4 hours in 7 out of 9 patients and less than 12 hours in all patients. All patients underwent further operation for a multitude of reasons of which wound breakdown and CSF leak were the most common. These complications extended the hospital initial hospitalization for the majority of patients beyond 2 weeks and were invariably the cause of readmission of these patients.

Conclusions

Not only is aggressive and early intervention critical in caring for patients with cranial GSWs, but also it is important to be vigilant in looking for and preventing further secondary injury from subsequent complications such as wound infections/breakdown, CSF leaks, hydrocephalus and vasospasm. These almost inevitable complications must be anticipated in the treatment planning from the principal operation.

Learning Objectives

GSW post-operative management is complex and may require multiple repeat operations.

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