

INTRODUCTION

We herein report a case of a 16-year-old male baseball player with an epidural hematoma and subsequent craniotomy and his successful return to play (RTP). Concussion knowledge and return-to-play progression has evolved over the last decade, but guidelines fail to comment on other traumatic brain injuries such as subdural or epidural hematomas. There for, our approach greatly mimicked the concussion guidelines with a few other considerations due to a fragile vessel with risk of rebleed as well as a compromised skull in terms of protection.

CASE

The patient was a 16-year-old high school baseball player, with no significant past medical history, who was 182 cm tall and weighed 102.5 kg. He was at practice when he bent down to search in his bag and was struck on the right side of his head by a stray ball that was thrown by a teammate, estimated at 75-85mph. He did not remember the event but did not lose consciousness and returned to practice. After practice, while in the weight room, he became highly symptomatic noting headache, lightheadedness, and photo/phonophobia. His parents were called, and he was brought to the emergency department.

On arrival, GCS was 15, he was alert and oriented to person, place, time, and situation, pupils were equal, round, and reactive to light, cranial nerves II-XII were intact, 5/5 strength and 2/4 reflexes in all extremities, no ataxia, nausea, or vomiting, and normal mood/affect. He did have an approximately 2-3 cm round contusion to the right frontotemporal region of his head. Head CT was obtained and revealed an acute right frontal epidural hematoma measuring 2.8 cm in its maximum axial dimension with mild effacement of the right frontal lobe and slight leftward midline shift

CASE CONTINUED

with no evidence of fracture. Neurosurgery was consulted and epidural was emergently evacuated via cranial bone flap. Patient remained stable and was discharged home two days later, under the care of his parents. He was counseled on returning to daily activities as tolerated, and not to engage in physical activity at that time.

He was seen 6 weeks later at a routine follow up appointment and had missed 2 weeks of school to recover from surgery but reports his symptoms including headaches, lightheadedness, and photo/phonophobia had resolved over the course of 2-3 weeks after the injury. He expressed his aspiration to play at the collegiate level and was eager to return to some aspect of baseball at this point. It was decided that the patient would be cleared to initiate light cardiovascular exercise and hitting off a T and soft pitching but avoiding high impact activities. He would also avoid activities which increase intrathoracic pressure such as weightlifting.

At a follow up appointment 9 weeks post incident, he reported he was doing well with increased activities without symptom provocation and is attending full school days without accommodation. Plan to progress to more explosive exercises such as sprints and hitting from low velocity pitching with hopes of full clearance at 3 months post injury.

At 3 months post injury, he remained symptom free with increased activity level and was cleared to fully participate in non-contact sports. It was agreed that continued use of head protection while on the field would be advised.

DISCUSSION

Brain injuries are a leading cause of death from a sports-related injury, and moderate to severe injuries are more likely to occur in amateur players compared to professional³. The majority of sports-related head injuries occur in contact sports; A 3-year study of mild traumatic brain injuries found that football accounted for the majority at 63.5% and that boy's baseball only 1.2%⁴. Though considered unlikely in non-contact sports, We must not let this provide false confidence in the matter of a second injury.

Considerations involving every aspect of the sport must be taken into account when giving return-to-play guidance and providing the likely time course. In the case of a patient with history of a brain bleed, we should be weary of any activity that may increase intravascular pressure, thus putting the patient at risk of a re-bleed. Even unassuming activities such as jogging and batting, as it involves tensing many muscle groups at once and often rapidly. Though, most spontaneous re-bleeding occurs within the first 24 hours of injury, it is difficult to define a "safe" time from injury, especially in the face of another trauma.

The risk of rebleeding due to non-traumatic causes was deemed to be low at 6 weeks post injury so he was cleared for cardiovascular exercise at that time, having been symptom free for several weeks. Weightlifting and other exercises that significantly increase intrathoracic pressure, and in turn ICP and arterial pressure, remained prohibited until his three-month follow-up^{1,2}.

Additionally, presence of weaknesses in the skull such that occur after fracture or surgical incision could place a patient at risk for more catastrophic injury if that area were to be struck again.

DISCUSSION CONTINUED

For many, this would mean a recommendation of very lengthy cease in participation in contact sports, if not a hard secession. But what about traditionally non-contact sports? A second impact could be fatal under these circumstances. Our patient was cleared for limited practice at 6 weeks with the understanding that this is the minimum time for bone to regain normal organization⁵. Though, complete healing involving bone remodeling can takes several months to a year. Thus, we suggested the use of hard protective head gear whenever he is on the field until at minimum 6 months post injury.

The structure of our return-to-play guidance closely followed the guidelines for concussions. A stepwise increase in activity level was taken over the course of three months with continued assessment for return of symptoms. The exception being, a prolonged recommendation against weightlifting and the addition of protective head gear while on the field for at least 6 months.

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CONTACT

Lindsey Baer
 Lbaer@augusta.edu