



Update: Evaluation and Management of Concussion in Sports

Case Presentation: Part I

A 19-year-old female with no significant past medical history is referred to the neurology clinic by her athletic department for management of a recent concussion. The patient plays collegiate soccer. Three days previously, she had been playing in a highly contested match with her college's main rival. While going to "head the ball," she collided with another player and struck her head. She immediately fell to the ground. There was a brief loss of consciousness. Afterward, she was conversant but dazed. The team's athletic trainer promptly used the Standard Assessment of Concussion (SAC) to collect acute clinical data and removed her from play because of a suspected concussion. Due to concerns for an emergent injury, she was taken to the emergency room, where an appropriate trauma evaluation was performed, including a head CT, and was unremarkable. She was then diagnosed with a concussion and discharged home.

She arrives in the neurology clinic 3 days after this event, accompanied by her mother. Since the concussion, the patient has had a persistent headache and dizziness. Her mother describes her as being easily agitated, and both the mother and the patient state the patient complains of having difficulty concentrating on simple tasks such as reading the paper or watching television. The overall trajectory of her condition since the event has been toward improvement, but she is not back to "being herself" yet. There has been no double vision, swallowing problems, slurred speech, numbness, extremity weakness, seizure activity, or neck pain. She denies any history of concussion. She has been playing soccer competitively since the age of 10. She describes herself as an "aggressive" player who does not shy away from contact. She played lacrosse for two seasons in high school but has no other significant sports history.

Her past medical history demonstrated the absence of clinical concussion recovery modifiers such as migraine headache, epilepsy, learning disability, attention-deficit/hyperactivity disorder, anxiety, and depression.

She takes no prescription medications but has been taking ibuprofen every 6 hours for her concussion-related headache.

She has no known drug allergies.

She does not smoke, abuse alcohol, or use illicit substances. She is a sophomore in college and is doing well academically and socially. Although she is from another state, she has adjusted well to her collegiate life. She is a starter on the soccer team and does not have any concerns about her playing time. Her coaching staff has been very supportive during her recovery.

Her family history is significant for migraine headache in her mother and 16-year-old sister. Her maternal great-grandmother had an unclear dementing illness that began during her 70s.

In addition to what is noted above, a complete 14-topic review of systems is obtained and is unremarkable.

On physical examination, she is a well-developed and well-nourished female in mild distress. The light in the examination room bothers her. She is afebrile. Her blood pressure is 110/60, pulse is 75, and respiratory rate is 12.

She is alert and oriented to person, place, and date. Registration and 5-minute recall are normal. She can spell the word *world* backwards. She follows commands and names and repeats without difficulty. Her responses are slowed but are appropriate. The SAC had been repeated earlier and found to be similar to a preparticipation SAC performance documented by her athletic-training staff.

Cranial nerve testing reveals PERRLA; optic discs are sharp, visual fields are full to confrontation, and extraocular muscles are intact. Her smooth-pursuit eye movements show minimal saccadic intrusion. No nystagmus is noted. Facial sensation and strength are normal. Hearing is intact bilaterally to finger rub. Palate, tongue, and uvula are midline. Shoulder shrug strength is normal.

Motor strength is MRC grade 5/5 throughout. Tone is normal in the arms and legs.

Sensory examination shows normal pinprick, temperature, and vibratory and proprioceptive perception in her extremities.

Reflexes are 2/4 in the arms and legs. Plantar responses are flexor bilaterally.

Coordination is normal on finger–nose–finger and heel–knee–shin testing bilaterally.

Her gait is narrow-based and steady. She is able to perform complex balance testing without difficulty.

The patient has had a head CT on disc from her emergency room visit. You review the images of this unremarkable study with the patient.

You spend some time discussing the diagnosis of concussion with the patient and her mother. They understand that many of the symptoms she has are typical concussion impairments. You reassure her that the majority of people with her clinical presentation improve as time passes. You advise her that she should refrain from any contact-risk activity, to protect from repeat injury. Further, you state that she should monitor her symptoms and avoid activities that clearly exacerbate the symptoms, and the patient may require accommodations for academic work during the recovery period. She is advised to inform you if her symptoms worsen or if new symptoms occur. You review her current pro re nata use of analgesics and inform her of how to avoid medication-overuse headaches. She is encouraged to maintain regular sleeping and eating habits, particularly during her recovery.

The patient asks when she can return to soccer participation. She is advised that according to the recently published AAN guideline “Update: Evaluation and Management of Concussion in Sports,”¹ she should not begin a graded RTP program until she is symptom free and off medication for this concussion. You explain that although no treatment has been shown to hasten recovery, a stepwise approach to return to play (RTP) may mitigate long-term sequelae. You answer any questions she and her mother have. You also schedule a follow-up to occur before she returns to contact-risk activity.

Evaluation and Management Coding

The patient underwent a comprehensive history and examination. Medical decision making would be moderate. The correct code for a new patient visit would be 99204 and for a consultation would be 99244. It is not clear from the case description whether a consultation was requested 3 days after the emergency department evaluation or whether the patient was a new patient.

Case Presentation: Part II

The patient returns to the neurology clinic in 1 week. She has steadily improved since she last time she saw you and is currently symptom free. She has no new complaints.

Her medical history is unchanged.

His physical examination is unchanged although her response times are improved. Her disposition also seems to be generally more upbeat.

The patient is advised that it would now be appropriate for her to begin a graded RTP protocol. For example, she can start by running and then slowly make the transition to normal soccer game activity if symptoms do not recur. This RTP protocol can be directed by her physician or a school-based licensed health care professional (or both) who is experienced in diagnosing and managing sports concussion. She is advised that this concussion may increase her risk for future concussions. She will have to use care to avoid further head injury. You describe typical postconcussive symptoms to her and emphasize that she should be aware of those symptoms and continue to be honest about reporting symptoms in the future.

Evaluation and Management Coding

Evaluation and management (E&M) coding would be 99212, as the improved concussion is problem focused and medical decision making is straightforward. However, if the patient or parent had questions that required time to answer, and those questions dominated the majority of the time of the visit, a time-based method of coding would be appropriate (99212 for a 10-minute, 99213 for a 15-minute, or 99214 for a 25-minute total duration of visit with > 50% of the time spent counseling). It is unlikely a 99215 (40-minute visit) would be required or justified under these circumstances.

Diagnosis Coding

ICD-9-CM

For this stated diagnosis of concussion, ICD-9-CM also asks for information regarding the length of loss of consciousness, if any. In this case the loss of consciousness was “brief.” Though “brief” in ICD-9-CM can be anything less than one hour, it is assumed for this discussion that “brief” is momentary. In that case, the ICD-9-CM code would be:

850.11 Concussion with loss of consciousness of 30 minutes or less.

This would be appropriate for both visits given each is dealing with the acute effects of the concussion and getting the patient back to her athletic activity. Any longer-term effects, such as later visits for deficits that might continue, would be coded as “late effects.” In that case the ICD-9-CM code would be:

907.0 Late effect of intracranial injury without mention of skull fracture.

Note that there is a different code for concussion without loss of consciousness and there are codes for longer durations of loss of consciousness.

ICD-10-CM

ICD-10-CM treats injuries differently than ICD-9-CM. In ICD-10-CM, not only is the injury site captured as well as the duration of loss of consciousness, but also the circumstance of the visit is captured.

For the first visit, the ICD-10-CM code is:

S06.0X1A Concussion with loss of consciousness of 30 minutes or less. Initial encounter

For the second visit, the ICD-10-CM code is:

S06.0X1D Concussion with loss of consciousness of 30 minutes or less. Subsequent encounter

For any later visits, if there were long-term effects, the ICD-10-CM code would be:

S06.0X1S Concussion with loss of consciousness of 30 minutes or less. Sequela

Also, for a visit for sequelae, the long-term manifestations must be coded first.

In summary, then, it is important to document the diagnosis of concussion, whether the symptoms are part of the acute episode or long-term residual, and the circumstance of the visit.

¹Giza CC, Kutcher JS, Ashwal S, et al. Evidence-based guideline update: Evaluation and management of concussion in sports. Report of the Guideline Development Subcommittee of the American Academy of Neurology. Neurology Epub 2013 March 18.

This AAN guideline is endorsed by the National Football League Players Association, the American Football Coaches Association, the Child Neurology Society, the National Academy of Neuropsychology, the National Association of Emergency Medical Service Physicians, the National Association of School Psychologists, the National Athletic Trainers Association, and the Neurocritical Care Society.

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