

A Patient Visits Her Doctor And Explains That Since Being Hit On The Cheek With A Hockey Puck She Has

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When someone sustains a facial injury, especially from a high-impact object like a hockey puck, it can lead to a variety of symptoms that require prompt medical attention. In this article, we explore the common concerns and potential diagnoses when a patient reports facial trauma, specifically from being hit in the cheek with a hockey puck. We will discuss the anatomy of the cheek, typical injury mechanisms, signs and symptoms to watch for, diagnostic approaches, treatment options, and preventive measures.

Understanding Facial Anatomy and the Impact of Trauma

The Anatomy of the Cheek

The cheek is a complex region comprising multiple layers, including skin, subcutaneous tissue, muscles, bones, nerves, and blood vessels. The key structures involved include:

- Zygomatic Bone: Also known as the cheekbone, provides facial contour and protection for the eye.
- Muscles: Such as the masseter (used for chewing) and buccinator (facilitates blowing and chewing).
- Facial Nerves: Cranial nerves that control expression, sensation, and other functions.
- Blood Vessels: Including the facial artery and vein, which supply the face.
- Skin and Subcutaneous Tissue: The outermost layers affected by blunt trauma.

Understanding this anatomy helps in recognizing the potential injuries from a puck impact and guides diagnosis and treatment.

Mechanism of Injury from a Hockey Puck

A hockey puck is typically made of vulcanized rubber and can reach speeds exceeding 100 miles per hour during gameplay. When it strikes the face, especially the cheek, it imparts a significant amount of force,

which can cause:

- Contusions (bruises)
- Lacerations
- Fractures of facial bones
- Soft tissue swelling
- Nerve injuries

The severity depends on factors such as the puck's speed, point of impact, and whether protective equipment was used.

Common Symptoms Reported After Being Hit in the Cheek With a Hockey Puck

Patients often present with a constellation of symptoms, which may include:

- Pain and Tenderness: Usually localized at the impact site.
- Swelling and Bruising: Resulting from soft tissue injury and bleeding beneath the skin.
- Deformity or Asymmetry: If a fracture or dislocation occurs.
- Difficulty Moving the Facial Muscles: Suggesting nerve involvement.
- Numbness or Tingling: Indicative of nerve compression or injury.
- Bleeding: From lacerations or internal bleeding.
- Visual Changes: Such as double vision if the orbit or eye is affected.
- Difficulty Speaking or Chewing: Due to muscle or nerve injury.

Recognizing these symptoms assists clinicians in determining the severity of the injury and whether urgent intervention is needed.

Potential Diagnoses and Complications

Based on the patient's history and physical examination, several diagnoses may be considered:

1. Soft Tissue Contusion (Bruise)

- Common after blunt trauma.
- Presents with swelling, discoloration, and tenderness.

2. Facial Fractures

- Zygomatic Fracture: Fracture of the cheekbone.
- Orbital Fracture: If the impact extends to the eye socket.
- Maxillary Fracture: Involving the upper jaw.
- Symptoms include facial swelling, deformity, and possible malocclusion.

3. Nerve Injury

- Injury to the facial nerve branches can cause paralysis or weakness.
- May present as drooping, loss of sensation, or altered facial expressions.

4. Hematoma Formation

- Accumulation of blood within tissues.
- Can cause significant swelling and discomfort.

5. Dental Injuries

- If the impact involves the mouth or teeth.

6. Orbital Injuries

- Hematomas or fractures can threaten vision if not addressed promptly.

Diagnostic Approaches for Facial Trauma

Prompt and accurate diagnosis is essential for optimal outcomes. The following steps are typically involved:

Physical Examination

- Inspection for swelling, bruising, deformity, and lacerations.
- Palpation to identify tenderness, crepitus (crackling sounds indicating fracture), and step-offs.

- Assessment of facial nerve function.
- Evaluation of eye movements and vision.

Imaging Studies

- X-ray: Useful for initial assessment of facial bones.
- Computed Tomography (CT) Scan: Gold standard for detailed evaluation of facial fractures and orbital injuries.
- MRI: May be used if nerve injury or soft tissue damage is suspected.

Additional Tests

- Dental examination if teeth are involved.
- Ophthalmologic assessment if eye involvement is suspected.

Management and Treatment Strategies

Treatment depends on the severity and specific injuries identified.

Conservative Management

- Rest and Observation: For minor contusions.
- Ice Application: To reduce swelling.
- Pain Relief: NSAIDs or acetaminophen.
- Elevation: To minimize swelling.
- Antibiotics: If there are lacerations or open wounds.
- Follow-up: To monitor healing and detect any complications.

Interventional Procedures

- Laceration Repair: Suturing for deep cuts.
- Reduction of Fractures: Manual or surgical realignment.
- Surgical Fixation: Using plates and screws for unstable fractures.
- Nerve Repair: Microsurgical procedures if necessary.

Urgent Interventions

- Addressing airway compromise, significant bleeding, or vision-threatening injuries.
- Managing orbital fractures to prevent enophthalmos or diplopia.

Recovery and Follow-Up Care

Post-treatment care involves:

- Pain management.
- Swelling reduction measures.
- Physical therapy if nerve function is impaired.
- Regular imaging to monitor healing.
- Dental or ophthalmologic consultations as needed.

Preventive Measures and Safety Tips

To minimize the risk of facial injuries from hockey pucks:

- Always wear appropriate protective gear, including face shields or cages.
- Ensure equipment fits correctly and is in good condition.
- Follow safety rules during gameplay.
- Be aware of surroundings to avoid unintended impacts.

When to Seek Medical Attention

Immediate medical evaluation is necessary if:

- There is persistent or severe pain.
- Visible deformity or asymmetry.
- Loss of sensation or muscle movement.
- Bleeding that does not stop.
- Changes in vision or double vision.
- Signs of infection or worsening swelling.

Early diagnosis and treatment can prevent long-term complications and ensure proper healing.

Conclusion

Experiencing trauma to the cheek from a hockey puck can lead to a range of injuries, from minor bruises to complex fractures and nerve damage. Recognizing the symptoms and seeking prompt medical evaluation are crucial steps in managing facial injuries effectively. Advances in diagnostic imaging and surgical techniques have significantly improved outcomes for patients with facial trauma. Prevention through proper protective equipment and adherence to safety guidelines remains the best strategy to avoid such injuries altogether. If you or someone you know sustains a facial injury from a hockey puck or similar impact, consult a healthcare professional promptly to ensure appropriate care and recovery.

Frequently Asked Questions

What are the common symptoms a patient might experience after being hit on the cheek with a hockey puck?

Symptoms can include swelling, bruising, pain, tenderness, numbness, vision changes, or difficulty moving the facial muscles.

When should a patient seek immediate medical attention after a facial injury from a hockey puck?

Seek urgent care if there is severe pain, vision loss, blood in the eye, difficulty moving the face, numbness, or signs of a fracture or significant swelling.

What are the potential injuries to look for in a patient hit on the cheek with a hockey puck?

Possible injuries include facial fractures, orbital fractures, eye injuries, dental injuries, soft tissue lacerations, or nerve damage.

What diagnostic tests are typically performed to evaluate facial trauma

from a hockey puck?

Imaging such as X-rays, CT scans, or MRI may be ordered to assess fractures, internal injuries, or eye damage.

What treatment options are available for someone with facial injuries caused by a hockey puck?

Treatment may include pain management, suturing lacerations, fracture stabilization, eye protection, or referral to specialists like maxillofacial or ophthalmic surgeons.

How can facial injuries from hockey pucks be prevented?

Using proper protective gear such as helmets and face shields, ensuring adherence to safety rules, and maintaining a safe playing environment can reduce injury risk.

What are the possible long-term complications of a facial injury caused by a hockey puck?

Potential complications include persistent facial numbness, scarring, vision problems, facial nerve damage, or chronic pain if injuries are severe or improperly treated.

Can a facial injury from a hockey puck affect vision or eye health?

Yes, injuries to the orbit or eye can cause vision disturbances, bleeding, or damage to ocular structures, necessitating prompt ophthalmologic evaluation.

Additional Resources

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Introduction

In the realm of medical diagnostics, trauma-related injuries often present a complex interplay of physical and neurological symptoms. When a patient reports a recent injury—particularly one involving blunt force trauma—clinicians must navigate a diverse spectrum of potential complications. This case study examines a patient's journey from initial presentation to diagnosis, with a focus on the aftermath of being struck on the cheek with a hockey puck. This incident offers insight into facial trauma management, potential

neurological sequelae, and the importance of comprehensive clinical evaluation.

Case Presentation

A 34-year-old woman, Ms. Jane Doe, presented to the outpatient clinic reporting persistent facial discomfort and neurological symptoms following an incident during an amateur hockey game. She described being struck directly on her right cheek with a hockey puck during a match. The impact was sudden, and she immediately experienced pain, swelling, and a sensation of numbness in the affected area.

Chief Complaints:

- Persistent swelling and tenderness over the right cheek
- Decreased sensation in the right facial region
- Mild dizziness and headache
- Occasional blurred vision
- No loss of consciousness reported

History of Present Illness:

Ms. Doe reported that the injury occurred approximately 48 hours prior to presentation. She initially experienced intense pain and swelling, which subsided somewhat over the following hours but was replaced by ongoing numbness and a tingling sensation. She denied any bleeding from the nose or mouth, vision loss, or difficulty speaking.

Past Medical History:

- No significant antecedent medical conditions
- No prior facial trauma
- No allergies
- No current medications

Social History:

- Non-smoker
- Occasional alcohol use
- Active in recreational hockey

Physical Examination:

- Vital signs within normal limits
- Facial inspection revealed swelling over the right zygomatic region
- Palpation elicited tenderness; no open wounds
- Skin intact with no signs of laceration or bleeding
- Nasal breathing unobstructed

- Cranial nerve assessment:
- CN V (Trigeminal): decreased sensation over the right cheek
- CN VII (Facial): symmetrical movement
- CN II (Optic): normal visual acuity
- Other cranial nerves: intact
- No evident ocular injuries; pupils equal and reactive
- No apparent deformity or crepitus
- Neurological examination: no deficits in motor strength or coordination

Initial Diagnostic Approach

Given the history of facial trauma and neurological symptoms, the initial focus was on ruling out fractures, nerve injury, and intracranial injury. The following steps were undertaken:

Imaging Studies:

- Computed Tomography (CT) scan of facial bones: Revealed a nondisplaced fracture of the right zygomatic arch
- MRI of the brain and facial region: Showed no intracranial hemorrhage or brain injury; mild edema in the soft tissues of the cheek

Laboratory Tests:

- Basic metabolic panel and complete blood count were within normal ranges

Additional Assessments:

- Ophthalmologic evaluation: no evidence of ocular trauma or globe injury
- Sensory testing: confirmed decreased sensation over the right cheek, consistent with infraorbital nerve involvement

Understanding the Injury: Anatomical and Pathophysiological Considerations

Facial Anatomy and Common Injury Patterns

The face comprises a complex structure of bones, muscles, nerves, and blood vessels. The zygomatic bone, also known as the cheekbone, is a prominent structure that articulates with the maxilla, temporal, sphenoid, and frontal bones. It forms the lateral wall and rim of the orbit and contributes significantly to facial contour.

Key components relevant to this case include:

- Infraorbital nerve: a branch of the maxillary nerve (CN V2), providing sensation to the cheek, upper lip, and lateral nose
- Zygomatic arch: a thin bone susceptible to fracture from blunt trauma
- Facial soft tissues: susceptible to edema, hematoma, and contusions

Injury mechanisms typically involve direct impact leading to fractures and soft tissue injuries. The severity depends on the force and point of contact.

Mechanism of Nerve Injury

The patient's decreased sensation in the right cheek indicates infraorbital nerve involvement. The nerve courses through the infraorbital canal in the maxilla, exiting via the infraorbital foramen. Fractures of the zygomatic arch or orbital rim can impinge or damage this nerve.

Possible injury mechanisms include:

- Direct compression from bony fragments
- Neuropraxia due to stretching or contusion
- Laceration or transection in severe cases

In this case, imaging confirmed a nondisplaced fracture, suggesting that nerve compression might be due to surrounding edema or minor displacement not evident on initial scans.

Potential Complications and Differential Diagnosis

The presentation raises concerns about multiple possible complications:

Facial Fractures:

- Zygomaticomaxillary complex fracture
- Orbital floor fracture
- Maxillary fracture

Nerve Injury:

- Infraorbital nerve neuropathy

- Possible transient or permanent sensory deficits

Soft Tissue Injury:

- Hematoma formation
- Soft tissue swelling and edema

Intracranial Injury (less likely):

- Concussion
- Skull fracture
- Brain contusion (less probable given MRI findings)

Other considerations:

- Ocular injuries (e.g., hyphema, retinal detachment)
- Dental trauma (not reported)

Differential diagnosis includes:

- Isolated nerve contusion
- Fracture-associated nerve entrapment
- Soft tissue hematoma causing compression

Management Strategies

Acute Management:

- Pain control with NSAIDs
- Cold compresses to reduce swelling
- Observation for airway patency and neurological status

Specific Interventions:

- Surgical repair considered if displaced fracture or nerve compression persists
- Nerve injury management:
 - Observation in minor cases
 - Surgical decompression if nerve function does not recover over time

Follow-up and Rehabilitation:

- Regular neurological assessments
- Possible physical therapy for soft tissue recovery
- Patient education regarding signs of infection or worsening symptoms

Prognosis and Outcomes

Most infraorbital nerve injuries associated with nondisplaced fractures tend to recover spontaneously over weeks to months, especially when managed conservatively. The prognosis depends on:

- Degree of nerve injury
- Fracture displacement
- Timeliness of intervention

In Ms. Doe's case, with proper management, the expected outcome is gradual restoration of sensation. However, some patients may experience persistent numbness or paresthesia.

Broader Implications and Lessons Learned

This case underscores the importance of a thorough clinical approach to facial trauma. Key takeaways include:

- Early and comprehensive assessment: including detailed history, physical examination, and appropriate imaging
- Understanding facial anatomy: crucial for diagnosing injury patterns and planning management
- Monitoring nerve function: vital for assessing prognosis and determining need for surgical intervention
- Patient education: informing patients about the expected course and warning signs of complications

Furthermore, this scenario highlights the significance of injury prevention in sports. Protective gear, such as face shields and helmets, can mitigate the risk of facial trauma during hockey and other contact sports.

Conclusion

The presentation of a patient who has been hit on the cheek with a hockey puck exemplifies the complexities of facial trauma management. Recognizing the nuances of injury mechanisms, anatomical considerations, and potential complications is essential for effective treatment. While many facial injuries resolve favorably, vigilant assessment and follow-up are key to ensuring optimal recovery and addressing any long-term sequelae.

This case also serves as a reminder of the importance of safety measures in sports, emphasizing the need for

protective equipment and awareness to prevent such injuries. As our understanding of facial trauma deepens, ongoing research and clinical vigilance remain paramount in improving patient outcomes in similar scenarios.

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