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While earlier gunshot wounds were common during war times, these days, gunshot injuries have become common even in a civilian’s life. Gunshot wounds to hand are also a common presentation at trauma centers and need appropriate treatment depending on the severity of the wound. While most of the high velocity gunshot wounds to the hand may be noticed in military wounds, civilians may be commonly encountered with low velocity weapons. Although gunshot hand injuries may not always be life-threatening, they are more challenging due to the functional importance of the hands. Earlier, infection due to gunshot wounds to the hand was more of a concern, but with advancement in medical sciences, infection can be well-controlled and the functional abilities of the hand need to be dealt with more carefully. The anatomy of the hand involves many structures; placed in such a manner that injury to an area can result in varying degrees of damage to the parts. Like in any gunshot wound, the bullet crushes the tissue it first penetrates into and further tissue damage occurs due to temporary cavitation. The impact of tissue damage can be more direct if there is deformation and fragmentation of the bullet. Injuries to the hand mostly occur when the hand structures are directly hit by an intact bullet, fragments of bullet or secondary missiles. In case of hands, tissues like skeletal muscles are more elastic in nature and hence may be less affected by the cavitation pressure as compared to the tissues of internal organs like liver, spleen or brain. Hand injuries caused by low-velocity weapons generally result in a wound of a localized nature. In most cases, there are injuries to the bone and soft tissues of the hand. The common hand injuries due to gunshot involve fracture of bones of the hand and small bones of the fingers, bone instability, bone loss, soft tissue injuries to the muscles and related structures, tendon and ligament injury and in some cases damage to the nerve or blood vessels may be noticed. The commonly involved bones of hand include phalanx, interphalangeal joint, carpal bones, metacarpal, metacarpophalangeal joint, radius and ulna. These injuries need to be identified correctly and appropriate wound management approach should be adopted to reduce the long lasting effects or comprise of functional outcomes. Gunshot wounds to the hands, often present with some history, which is noted and careful assessment of the patient is done. If the patient’s condition demands emergency care for resuscitation, appropriate measures are taken. Examination of the gunshot hand wound is performed to identify the possible injuries in order to plan immediate treatment. X-rays and other imaging studies may be considered to detect the presence of bone injuries and soft tissue injuries. Most low velocity weapons lead to localized injuries, which may be managed non-operatively. Most of the wounds require cleansing and are managed with irrigation, debridement and elevation of the injured part of the hand. In cases that require surgical management minimal debridement should be done. Antibiotic treatment may be given to prevent the risk of infections. Fractures of bones are managed with early fracture stabilization, internal or external fixation, reduction and splinting. The type of treatment and the requirement of surgical intervention, follow-up surgeries and complex treatment methods depend on the extent and severity of the injuries. The functional outcome of the injured part also needs to be considered. In some cases, bone grafting and amputation of digits or the damaged part may be required. Some patients may require treatment with soft tissue coverage and even revision of fracture fixation. In some cases, additional surgeries like bone grafting and arthrodesis may also be required after the initial treatment. Infections may result during or after the treatment, which may require appropriate treatment with antibiotics depending on the severity. Most cases may be a result of superficial soft tissue infection, which respond well to antibiotic therapy. The rate of complications can be reduced by timely treatment, with limited debridement and definitive fixation of fracture performed early during the treatment phase. In order to effectively deal with gunshot wounds to the hand, immediate treatment can help to reduce the rate of infection and other complications that can hinder the recovery process. In case of extensive injury to the hand, associated additional wounds or other complications, extensive surgical debridement and a staged approach of treatment for reconstruction is required. In these cases, wound management for contamination and soft tissue coverage is primarily focused on, after which definitive fixation and bone grafting is considered. Appropriate treatment and wound management is essential to regain the structure and function of the injured parts. The chances of recovery can be better with timely action, emergency care and treatment. The primary aim is to maximize functional ability and minimize the limitations or long-term disabilities related to hands, which can be achieved through thoughtful planning and appropriate reconstruction alternatives followed by rehabilitation methods. Progress also depends on patient’s compliance in case of gunshot wound to hands. Hand injuries to a specified area may not be life threatening, however, when they are coupled with additional injuries to other areas, it may be complicated by delayed recovery. References: Journal of Hand Surgery – Gunshot Wounds to the Hand: 13)60509-1/fulltext American Society for Surgery of the Hand – Treatment of Gunshot Wounds of the Hand: Hand Surgery & Rehabilitation – Low-Velocity Gunshot Wounds of the Hand: A Review: Journal of Wrist Surgery – Gunshot Wounds of the Hand and Wrist: American Academy of Orthopaedic Surgeons – Hand and Wrist Fractures: ––conditions/hand-and-wrist-fractures Recovering from shooting injuries can be a complex and challenging journey, both physically and emotionally. These traumatic experiences often require comprehensive medical attention, specialized rehabilitation, and ample emotional support to navigate the recovery process effectively. This article delves into the crucial aspects of recovery from gunshot wounds, including immediate care, long-term rehabilitation strategies, and psychological support. We aim to provide valuable insights and practical advice to help survivors of shooting injuries regain their strength and functionality, ultimately leading to a better quality of life.Physical Therapy: Engaging in physical therapy can significantly aid in the recovery from shooting injuries by improving mobility and strength.Pain Management: Effective pain management strategies, including medications and alternative therapies, are crucial for recovery from shooting injuries.Surgical Intervention: In some cases, surgical procedures may be necessary to repair damage caused by shooting injuries.Rehabilitation Exercises: Specific rehabilitation exercises tailored to the injury can help restore function and expedite recovery.Psychological Support: Mental health support is essential for coping with the trauma and stress associated with shooting injuries.SymptomsPain and Discomfort: Persistent or intermittent pain at the site of the injury, which may increase with movement.Limited Mobility: Difficulty in moving the affected area normally, which can affect daily activities.Swelling and Bruising: Visible swelling, bruising, or discoloration around the injury site, indicating trauma.Numbness or Tingling: Loss of sensation or a tingling feeling around the wound, possibly due to nerve damage.Infection Signs: Symptoms such as increased warmth, redness, fever, or pus, indicating a possible infection.When to see a doctorWhen to see a doctor for shooting injuries recovery: Immediate Medical Attention: Any gunshot wound, regardless of the perceived severity, requires urgent medical evaluation. Worsening Symptoms: Increase in pain, swelling, or bleeding despite initial treatment. Signs of Infection: Redness, warmth, pus, or fever that develops at the site of the injury. Reduced Mobility: Difficulty in moving the affected limb or worsening functional limitations.Treatment Options Immediate Medical Care: Immediate assessment and treatment by healthcare professionals to address critical injuries. Proper Wound Management: Cleaning, disinfecting, and dressing the wounds to prevent infection and promote healing. Pain Relief Options: Use of medications such as analgesics and anti-inflammatory drugs to manage pain and discomfort. Surgical Treatment: Necessary surgeries to repair damaged tissues, bones, or organs. Rehabilitation Therapy: Physical therapy to restore movement, strength, and functionality. Mental Health Care: Counseling and therapy to help cope with the trauma and emotional aftermath of the shooting incident. Ongoing Care and Monitoring: Regular check-ups and monitoring to ensure proper recovery and manage any long-term complications. RecoveryRecovery from shooting injuries depends on the severity of the injury and the treatment approach. With appropriate medical care, many individuals can experience significant improvement within a few weeks to months. Adhering to a comprehensive rehabilitation plan, including physical therapy and lifestyle modifications, is crucial for a successful recovery.Physical therapy plays a vital role in the recovery from shooting injuries. It helps restore mobility, strength, and function to the affected area. A tailored exercise program designed by a physical therapist can accelerate healing and prevent complications.Pain management is another critical aspect of recovery from shooting injuries. Depending on the injury's severity, pain relief may involve medications, nerve blocks, or other interventions. Consulting with a pain management specialist can help develop an effective pain control plan.Psychological support is also essential during the recovery process. Experiencing a shooting injury can be traumatic, and mental health professionals can provide counseling and support to help individuals cope with the emotional aftermath.Nutrition and hydration are often overlooked but are crucial for recovery from shooting injuries. A balanced diet rich in vitamins and minerals supports the body's healing processes. Staying hydrated helps maintain overall health and aids in recovery.Regular follow-up appointments with healthcare providers ensure that recovery from shooting injuries is on track. These visits allow for monitoring progress, adjusting treatment plans, and addressing any complications that may arise.In summary, recovery from shooting injuries involves a multifaceted approach, including physical therapy, pain management, psychological support, proper nutrition, and regular medical follow-ups. By adhering to a comprehensive rehabilitation plan, individuals can achieve significant improvement and regain their quality of life.ConclusionShooting injuries recovery can be a challenging journey, but with the right approach, it is possible to regain strength and mobility. Understanding the stages of recovery, adhering to a personalized rehabilitation plan, and seeking professional medical advice are crucial steps in ensuring a successful recovery. If you experience persistent pain or complications, it is essential to consult with a healthcare provider to receive a comprehensive evaluation and tailored treatment plan.Sources Joseph Jackmovich was shot in the leg twice in 2020. Joesph Jackmovich This story is available exclusively to Business Insider subscribers. Become an Insider and start reading now. Rising gun violence in the US increases the risk you or someone you know may receive a gunshot wound. After being shot twice, Joseph Jackmovich used his medical knowledge to perform basic first aid. He considers himself lucky, as recovery took many painful weeks but didn't involve long-term complications. Dr. Joseph Jackmovich — a psychiatry resident at Indiana University School of Medicine — was working on his Honda Civic with a few friends one day in 2020 when they heard four loud bangs from a passing car. Jackmovich remembers feeling the sensation of long, hot bee stings, one in each leg. But it wasn't until he placed his hand over the wound on his left leg, pulled it away, and saw blood, that he realized he'd been shot — twice. Two bullets had passed through his upper legs, just narrowly missing his arteries. One of the bullets that struck Joseph Jackmovich also put a whole in his car. Joseph Jackmovich At the time of the shooting, Jackmovich was a family medicine resident, and he used his knowledge and training to deal with his wounds before paramedics arrived. With gun violence on the rise in America, it's more important than ever to prepare yourself with basic first aid knowledge. There are now 120 firearms for every 100 people in the US, and over the past decade, more than 1 million Americans have been shot. This doesn't necessarily mean you or someone you love will ever get shot, but gun violence has become more common: In fact, between 2019 and 2020, 70% of police agencies reported an increase in nonfatal shootings. Below, Jackmovich offers three first-aid tips and shares what you can expect from treatment and recovery for a gunshot wound. First aid tips: How to treat a bullet wound Before and after image of the gunshot wound right after Joseph Jackmovich was shot and what the wound looks like two years later. Joseph Jackmovich After experiencing a gunshot wound, follow these key steps. 1. Make sure you're safe Jackmovich's first instinct was to call 911, but he didn't know if the drive-by shooters would come back. So, he focused on getting himself and his friends off the street and into the house as quickly as possible. If you could still be in danger, you may want to wait to call 911 until you know you can safely make the call. After an intentional shooting: You may need to evacuate the scene before calling 911. During an active shooting: You may need to hide somewhere out of the shooter's view before making a call. After an accidental shooting: You'll want to secure the gun and turn the safety on, after you call 911 or while on the line with the dispatcher. Important: In some areas, you can also now text 911 — so you can still contact emergency services even while hiding or if you need to stay quiet for any other reason. 2. Call 911 Regardless of where the bullet hit you or how much you're bleeding, all gunshot wounds require medical attention — and the sooner you receive treatment, the lower your risk of deadly complications. Always call 911, or have someone else call, as soon as it's safe to do so. In cases of medical emergencies — like Jackmovich's — the dispatcher will send an ambulance with paramedics and emergency medical technicians (EMTs) to provide care. 3. Manage the bleeding Uncontrolled bleeding is the leading preventable cause of death in people with gunshot wounds. First, you may need to remove some clothing to identify the location of the bullet wound. Next, you want to try to control the bleeding and get the blood to clot. Note: If you'd like to learn more about how to stop bleeding for severe injuries, check out Stop the Bleed, a course from the American College of Surgeons. In the case of arm and leg injuries, it also helps to tightly wrap a medical-grade tourniquet 2-3 inches above the wound. One of Jackmovich's friends, a former infantry sergeant in the Indiana National Guard, happened to have a tourniquet in his trunk. That friend applied the tourniquet to Jackmovich's left leg to limit blood loss. If you don't have access to a tourniquet, you can use a belt or tie an article of clothing around your limb. If the wound is elsewhere on your body, you can apply a clean cloth to the wound — a T-shirt, gauze, or towel will work — and use both hands to apply direct pressure. While waiting for the paramedics to arrive, Jackmovich tried wiggling his toes and lifting each foot off the ground to check if he'd lost any feeling in his limbs. "I was trying to assess what physical things I could still do. I knew I could still move but the growing numbness in my right leg was making me pretty nervous," Jackmovich says. What to expect from medical treatment Medical treatment for a gunshot wound is based on the level of damage — which usually depends on the type and speed of the bullet, as well as the location of the wound. Bullet wounds that hit major organs, blood vessels, or bones tend to cause more immediate damage. In these cases, you may need to stay in the hospital for around several days while your care team performs any necessary surgeries and monitors your recovery. Since the bullets that hit Jackmovich didn't damage any of his major organs or bones, he spent less than an hour in the ER before being discharged. "I was incredibly lucky, to say the least," he says. Jackmovich received an abdominal and pelvic CT scan to assess for bleeding and other damage and fentanyl for pain. Following discharge, he took a course of prophylactic antibiotics to prevent infection. He also had two follow-up appointments with his primary care doctor in the weeks following the injury. The FMJ 9mm bullets that hit Jackmovich were small and fast-traveling, which made his injuries less complex — and fortunately, neither of them got stuck. However, if a bullet doesn't exit your body, you may need surgery to remove any remaining pieces. If removing bullet pieces could cause additional damage to your organs, medical staff may opt to leave them — eventually, scar tissue will form around them. For severe wounds, you may also have surgery to: Find and remove pieces of broken or shattered bone Clean the wound Insert drains or tubes for body fluids Remove portions of damaged organs If you lose a lot of blood, you may also need a blood transfusion. What's the cost: The average out-of-pocket cost to treat a gunshot wound is about $5,254 if you're discharged from the ER the same day, and $95,887 if you're admitted to the hospital. Keep in mind, though, that health insurance companies usually help cover these costs. Potential complications The potential complications for a gunshot wound depend largely on the location of the injury. When a bullet hits your spinal cord, it may lead to partial or full paralysis or death. People with gunshot injuries to the chest or abdomen are most likely to return to the hospital due to complications. Complications from abdominal gunshot wounds may include: Peritonitis: Without treatment, this inflammation of the membrane lining your inner abdominal wall and covering your abdominal organs can lead to sepsis, a life-threatening whole-body infection. Hematoma: This pool of clotted blood within your tissues usually goes away on its own, but it can cause sharp abdominal pain. If the hematoma becomes too large, it may also cause further damage by compressing your organs. Collapsed lung: This happens when a bullet wound in your chest causes a tear in your lung, allowing air into the space between your lungs and chest wall. Trapped air prevents your lung from filling and causes it to collapse. A collapsed lung can cause shortness of breath and can be fatal without prompt treatment. Head wounds that aren't fatal may cause complications like: Post-traumatic epilepsy: You may experience recurring seizures that happen as a result of a traumatic brain injury (TBI). Cerebral edema: This buildup of fluid increases pressure around the brain. Cerebrospinal fluid (CSF) leak: The fluid surrounding your brain and spinal cord may leak out. Without treatment, this leak can cause headaches and potentially lead to meningitis. Note: Gunshot injuries to the head and torso are most fatal. But limb injuries can also cause serious damage to bones, tendons, ligaments, muscles, nerves, and major blood vessels. Long-term side effects may include fractures, nerve pain or numbness, loss of function, or in some cases, loss of the limb. In general, Jackmovich says infections remain one of the most common complications of gunshot wounds, since the bullet can pull material and debris into the wound. This is why it's crucial to take the full course of antibiotics prescribed by your doctor, and follow all aftercare instructions. Pay attention to any signs of infection and call your doctor immediately if you notice the following symptoms: A fever above 100.4°F for more than four hours Tan, green, or yellow, or thick, foul-smelling pus from the wound Increased drainage from the wound Red streaks around the wound What to expect from recovery Jackmovich used a cane for several weeks before he could walk again with no support and return to work. "The pain from the wounds felt like I was hit with a large blunt instrument on each leg, so walking or sitting was pretty excruciating for a while. I tried to walk around the home to keep myself moving, but kept it minimal enough to not cause any additional injury," he says. Like treatment, recovery time can range vastly depending on the location and severity of the injury. A minor gunshot wound may heal within weeks, but a more severe injury could cause lasting complications, such as long-term mental health symptoms or chronic pain. With that in mind, recovery may include: Taking antibiotics, pain relievers, or other medications to deal with complications Participating in physical therapy Changing your dressing and caring for your wound Using ice packs to relieve swelling, if your provider approves A gunshot injury can be traumatizing, so it can help to prioritize your mental health along with your physical health. In addition to post-traumatic stress disorder, you could experience the following symptoms: Anxiety Panic attacks Depression Nightmares or trouble sleeping Following the incident, Jackmovich says he felt especially wary in open spaces when cars drove by. He advises reaching out to a therapist, who can help you process what happened and manage any mental or emotional symptoms. "Keep your support network close," he says. "It's not a flaw or weakness to seek therapy, and the coping skills you learn can be invaluable for moving past the experience and ultimately healing," Jackmovich says Insider's takeaway No matter how much you're bleeding or where you've been shot, a gunshot wound always requires immediate medical attention. Always call 911 once you can safely do so, and then make an effort to control the bleeding by applying as much pressure to the wound as possible. Treatment and recovery for gunshot wounds can vary widely. When no major organs, bones, or blood vessels have been damaged, you may leave the hospital the same day. In other cases, though, you may need extensive surgery, physical therapy, and medication. "It's a scary process but nowadays these injuries can very often be successfully treated — even in severe cases. If you go to the ER for treatment, you are going to receive excellent care," Jackmovich says. Rebecca Strong Freelance Writer Rebecca Strong is a Boston-based freelance writer and podcast host covering health and wellness, lifestyle, beauty, and travel. In addition to writing for Business Insider Reviews, she has also contributed to Health.com, Healthline, Men's Health, Bustle, Well+Good, StyleCaster, PopSugar, Eat This Not That, and AskMen. In April 2024, she appeared on The Drew Barrymore Show to discuss one of her Business Insider articles for Drew's "It's Trending!" segment. You can tune into her podcast Well-Bent on Apple Podcasts and Spotify, or follow along on Twitter and Instagram. Read more Read less Gunshot wounds causing trauma to the head are considered as one of the most potentially fatal firearm injuries. In the past few years, the incidence has increased noticeably and gunshot wounds to the head are one of the leading causes of head injury in many urban cities1 as there is a direct wound into the head causing brain injury, there are higher chances of mortality or severe disability in survivors. Most of the cases are related to intentional violence, while others arise out of suicidal intention and inadvertent accidents. In the U.S. around 35% of all deaths related to traumatic brain injury are gunshot wounds to the head. The mortality rate of head trauma due to gunshot wound is around 90%, and in many cases, death occurs before reaching the hospital. Gunshot wound to the head when caused by a bullet that is traveling at high velocity and force results in two types of injuries of the skull bone. The strike of smaller bullet over the skull causes penetrating cone shape aperture of the bone and larger bullet causes bullet entry surrounded by fracture of skull bone. The bullet always causes entry wound. Bullet may or may not exit the skull. The bullet wound is identified as penetrating wound when the bullet enters the skull but does not exit and shows only entry wound. Similarly the bullet injury is diagnosed as perforating wound when the bullet enters the skull and exits from another end showing both entry and exit wounds. In either case, the bullet can cause significant injury to skull bone and brain tissue. The brain damage depends on following factors- The distance bullet travels through brain tissue The direction of passage of bullet The distance of the shooting range Projectile path prior to bullet strike to skull bone and Type of bullet fired. The injuries caused by the gunshot wound to head include following injuries- Skull fracture like bullet aperture or shattered bone Injury of brain tissue Injury of blood vessel resulting in internal bleeding Tears brain sinuses and brain tissue surrounding sinuses2 Injuries of cranial nerves resulting in facial palsy and hearing loss3 Injury of vital centers like breathing center, blood pressure center, heart monitoring center and various brain coordinating centers. When cases of gunshot wound to the head arrive at the hospital, aggressive treatment for resuscitation is required. The victim may present with following abnormalities- Brain Swelling Brain Hemorrhage- Bleeding within brain or between skull and brain Cerebral Ischemia- lack of blood supply to brain and Increased Intracranial Pressure- Increased pressure within skull resulting in displacement or compression of brain inside the skull. X-ray of Skull- To rule out fracture CT Scan and MRI- Diagnose fracture, bleeding, shifting of brain tissue and brain tissue injury Ultrasound Study- Ultrasound study of brain and skull is performed to evaluate brain hemorrhage and shifting of brain tissue. Electrocardiogram (EKG)- EKG abnormalities are observed when brain tissue is shifted following internal bleeding. Heart function is controlled by the cardiac center in brain. Function of Cardiac center is compromised when blood supply is obstructed or squeezed by shifting of the brain. Blood Examination- Loss of blood often causes low hemoglobin and anemia. Blood oxygen level is low when respiratory center function is compromised by lack of blood supply. Most patients may have altered consciousness and assessing the level of consciousness using Glasgow Coma Scale (GCS) is essential.1 GCS helps to determine the patient’s neurological condition and level of alertness to assess the severity of head injury. GCS parameters include eye opening, verbal response and motor response to various stimuli and the quality of the responses is noted according to the given scale. GCS score guides the severity of the head injury. Severity is classified as mild, moderate and severe. Severe brain injury is suspected when MRI or CT scan does not show significant hematoma, and following symptoms are observed- Patient is in coma. Abnormal breathing or being unable to breath- Patient needs endotracheal tube as well as external breathing machine to support breathing. Cardiac Arrhythmia- Heart rate slow or extremely fast resulting in ventricular tachycardia. Life saving initial treatment by EMT technician or ER nurses- Establish Normal Breathing Positioning the head so that patient can breathe through nose or mouth without obstruction Clear oral cavity by removing denture, blood or vomitus. Nasal oxygen if patient is breathing but looks bluish or cyanotic. Oral airway or insert endotracheal tube in trachea to support breathing using Ambu Bag. Cardiovascular Stability- Check EKG Heart rate Blood pressure Treat with appropriate medications Intravenous fluid. GCS Score- The patient’s level of consciousness as per the GCS score Stabilize patient then get brain CT scan or MRI. Head trauma from gunshot is considered as serious situation and life saving procedures may be necessary. Treatment includes- Intensive care admission Intermittent positive pressure ventilation Cardiac support by using intravenous medications Emergency surgery is performed to remove bullets, remove blood clots and repair brain tissue. Surgery during early stages often is life saving.4 In order to reduce the intracranial pressure, a procedure called craniectomy, in which a part of skull is temporarily removed, may also be performed if found appropriate. For patients having a better motor response on GCS, immediate and intensive neurological management is warranted. The overall effect of the gunshot wound to the head depends on the type of injury, the amount of brain damage and the response of the patient. Hemorrhage is an important outcome of tissue damage. It can result into immediate death if major blood vessels are damaged and bleeding cannot be stopped in time. In cases where the patient survives the initial stage of blood loss, the pressure inside the skull keeps increasing, causing brain swelling which can create significant damage and even death before medical care is obtained. The outcome and recovery from brain injury due to gunshot wound is variable and some indicators of neurological function help in determining the outcome of gunshot wound to the head. Some indicators influencing the neurological outcome include initial score on Glasgow Coma Scale, age and health status of the patient, insufficient oxygen supply during initial phase, low blood pressure, brainstem reflexes and reaction of pupils on examination. Other factors that determine the severity of brain injury and the resultant outcome include the type of wound (penetrating or perforating), the injured areas in the brain and the amount of tissue destruction, features of the bullet and type of gun, the distance from which the bullet was shot and the timely provision of medical care. As gunshot wounds to the head can affect the brain in varying degrees, the outcome too varies. In cases, where only some part of the brain is damaged; there may be impairment of the particular functions that the part is responsible for. Immediate medical care and intensive rehabilitation can help in limiting the damage in such patients. References: 1. Predictors of outcome in civilian gunshot wounds to the head. Aarabi B1, Tofighi B, Kufera JA, Hadley J, Ahn ES, Cooper C, Malik JM, Naff NJ, Chang L, Radley M, Kheder A, Uscinski RH. J Neurosurg. 2014 May;120(5):1138-46. 2. Penetrating intracranial gunshot wound transecting the right transverse sinus. Beaty NB1, Diaz C, Crandall K, Sansur C. BMJ Case Rep. 2012 Sep 17;2012. pii: bcr2012006679. 3. Gunshot injuries to the temporal bone. Moore PL1, Selby G, Irving RM. J Laryngol Otol. 2003 Jan;117(1):71-4. 4. Craniocerebral gunshot injuries in preschoolers. Irfan FB1, Hassan RU, Kumar R, Bhutta ZA, Bari E. Childs Nerv Syst. 2010 Jan;26(1):61-6. Gunshot wounds have become increasing common in urban cities and many such cases can lead to undesirable outcomes. While gunshot wounds to the head are considered most lethal, gunshot wounds to the chest too may be dangerous. Gunshot wound to the chest is challenging owing to the presence of vital organs like lungs, heart and their surrounding structures including major blood vessels. Gunshot wound is caused by penetration of the bullet, which travels through a projectile path after being shot from a firearm. The bullet, on hitting the chest, punctures the tissue it first encounters with, the bones or the muscular chest wall. The extent and severity of the injury depends on the characteristics of the bullet and the firearm, the position and the distance of the victim, the projectile path and the nature of the tissue penetrated. In a gunshot injury, a bullet can cause entry and exit wound, and the possibility of injuries varies. Bullet injuries are usually considered to cause medium to high velocity injuries depending on the weapon. If there is an entry wound and a corresponding exit wound is not detected, it is considered that the bullet is within the body, which can cause more damage and even enter into circulation; hence demands timely identification and management. The thoracic cavity is covered by ribcage in the front and spine at the back. It comprises, heart, lungs and major vascular structures. Additionally, in the middle there is trachea, bronchi and esophagus, while the lower ends cover the upper parts of the abdominal structures like stomach, liver, spleen, and kidneys. The exact nature of injury varies with the area affected. Common injuries like open chest wounds (sucking chest wounds) can result due to large wound in the chest wall. These wounds are open and suck in more air, increasing the chances of lung collapse on the side injured. A bullet can hit the rib and can cause cracking or fracture of the ribs; multiple rib fractures can occur. The bullet can hit the vital organs like lungs or pleura. This is a common injury in gunshot wound to the chest, when a bullet gets lodged into the pleural cavity or even the lung tissue. In such cases, the chances of hemorrhage as well as infection are high. Complications due to retention of the bullet in the lung can cause severe damage. The location of injury is critical and may help in guiding emergency medical care. Organs located in the thoracic cavity, neck and peritoneal viscera are at risk if injured. Some of the common injuries noticed in gunshot wounds to the chest include hemothrorax, pneumothorax or both, rupture of diaphragm, bruising of lungs, subcutaneous emphysema, tearing of thoracic wall and fracture of breastbone. The consequences and the severity of these injuries depend on the nature and location of injuries, other related injuries and condition of the patient. Gunshot wound to the chest can cause the patient’s condition to deteriorate rapidly, hence emergency care and assessment done immediately can help. It is important to look for airways, breathing and circulation (ABCs). The patient may present with rapid breathing, use of accessory breathing muscles, stridor and anxiety in case of airway obstruction. Other important signs to be noted are breath sounds, location and intensity of pain, patient’s alertness, mental status, confusion, pulse and respiratory rate, blood pressure and bluish discoloration or cyanosis. Sucking chest wounds can cause dyspnea, chest pain and reduced breathing. This requires immediate treatment to prevent hypoxia. The open wounds need to be covered with appropriate sterile dressing to prevent air entry through the opening. A procedure called chest tube insertion is required and may be followed by chest wall surgery. In chest wounds, the airways should be established for normal ventilation; any blood or mucus is aspirated. If additional injuries are present, tracheostomy may be performed. Needle aspiration of the pleura or pericardial space may be performed as appropriate. Chest x-rays, generally performed after the patient is stabilized, may reveal additional injuries. Focused abdominal sonography for trauma (FAST) may help in identifying intraabdominal injuries. Other investigations like arterial blood gas analysis, pulse oximetry, CT scan may be performed. If wounds to trachea or bronchi are suspected, esophagoscopy and bronchoscopy may be performed. Large amounts of air and blood loss could indicate injury to trachea, bronchi or major blood vessel and may require thoracotomy. Thoracoscopy, which is a video-assisted surgery, may be performed for the management of chest gunshot wounds. Underlying medical conditions and associated injuries are appropriately treated. When gunshot wound to the chest cause intrathoracic injuries and if there are additional intraabdominal injuries, it may lead to excess hemorrhage and peritonitis. In such cases, treatment becomes more challenging and the chances of death are high. Complications like cardiac temponade, where blood fills into the pericardium can be fatal if not identified and treated appropriately at right time. References: Journal of Emergencies, Trauma, and Shock – Management of Chest Gunshot Wounds: Medscape – Gunshot Wound Care: Trauma.org – Gunshot Wound to the Chest: American College of Surgeons – Gunshot Wound to the Chest: /media/files/education/patient%20ed/gswchest.ashx StatPearls – Ballistics and Gunshot Wounds: Treating civilian gunshot wounds to the extremities in a level 1 trauma center: our experience and recommendations. Burg A, Nachum G, Salai M, Haviv B, Heller S, Velkes S, Dudkiewicz I. Burg A, et al. Isr Med Assoc J. 2009 Sep;11(9):546-51. Isr Med Assoc J. 2009. PMID: 19960849 First aidHospital treatmentComplicationsRecoveryFatality ratesOutlookIf a person is shot, they need prompt emergency medical attention. After getting to safety and contacting emergency services, you can slow the bleeding by applying pressure until help arrives.Gunshot wounds are always a medical emergency. The extent of injuries depends on many factors, such as where somebody is shot, the size of the bullets, and the type of gun.If someone’s been shot, it’s critical to call 911 or your local emergency services as soon as it’s safe to do so. Administering first aid can save a person’s life while you wait for an ambulance to arrive. Acting quickly can help slow bleeding and prevent life threatening complications. Keep reading to learn essential information about first aid, medical treatment, and recovery from gunshot wounds.More people experience nonfatal gunshot wounds than fatal ones, according to the CDC. It’s crucial to identify where someone’s been shot and begin first aid while waiting on emergency services.The first 10 minutes after the injury are often referred to as the platinum 10 minutes. During this time, the person who was shot is at risk of life threatening complications, such as:airway obstructiontension pneumothorax (collapsed lung)bleedingThe leading cause of death in gunshot wounds is bleeding, per 2017 research. According to the American Red Cross, a person can die from severe bleeding in fewer than 5 minutes if untreated.Here’s what you can do if you’re with somebody who is shot. If you’re with somebody who has been shot, it’s crucial that you and the person get to a safe place away from the threat. In the case of an accidental shooting, this might mean making sure the gun’s safety is on and that the gun is secured. In the case of an intentional shooting, this might mean evacuating the scene.If you are with an injured person during an active shooter situation, evacuation may not be an option. In this case, the Department of Homeland Security recommends that you attempt to:hide in a place that’s out of the shooter’s viewsilence your phone to avoid detection and remain as quiet as possibleseek an area with a barrier for protection (such as behind a locked office door or a large object)block a shooter’s potential entry with a barricade, such as stacking furnitureavoid restricting your ability to move in case you need to run or confrontGunshot wounds always need medical attention to assess their severity and begin treatment. It’s critical that you call 911 or local emergency services as soon as is safe and possible.The quicker a person who has been shot gets to the hospital, the better their chances of surviving. Ideally, they should receive medical attention within the platinum 10 minutes. Check if the person you’re with is awake and responsive. This involves the tap-shout-tap method. Verbally address the person (“Are you okay?” or “Can you hear me?”), followed by a firm tap to their body, and another verbal cue. The Red Cross recommends trying this approach for 10 seconds or fewer.Bleeding is the leading cause of death in people with gunshot wounds. It’s important to apply firm pressure to the wound if the person is bleeding profusely. If they have a large wound, cover the area with any clean cloth available, such as a piece of clothing. Press down as hard as you can until EMTs arrive to relieve you. It may also be necessary to use a tourniquet to limit blood loss while waiting to get someone to a hospital. While research is still preliminary, a 2021 study suggests commercially made tourniquets may be able to better control hemorrhage from appendages (arms or legs), reduce the chance of the person needing a blood transfusion, and increase overall likelihood of survival. These types of tourniquets are pre-made, widely available to order (especially online), and can be added to emergency preparedness kits.If you are with someone who has been shot and do not have access to a ready-made tourniquet, you can still improvise one. Tourniquets should be used as a first resort when an arm or leg wound is bleeding so much that direct pressure does not stop blood flow. Wrap and tie a long piece of fabric (such as a shirt or necktie) several inches above the wound as tightly as possible. This is intended to limit arterial blood flow and reduce blood loss.A homemade tourniquet will never be as effective as a commercially made one, but it can still be a significant first aid tool.If a person who has been shot is responsive and fully awake and doesn’t seem to have life threatening injuries, try to collect as much information from them as you can while waiting for an ambulance. This applies to situations in which you are able to safely make noise, not around an active shooter.Ask the person who has been shot about any symptoms they are feeling and what allergies, medications, and preexisting medical conditions they may have. Ask about or identify any medical tags they may be wearing. Some people have their medical ID on their phone. Just because someone is alert and awake after being shot isn’t a guarantee they will remain this way. It’s important you collect identifying information promptly, including contact information for their family or loved ones.Once you or the injured person you’re with reaches the hospital, nurses and doctors will evaluate the injuries and determine what type of medical care is necessary. Treatment depends on the severity and location of the wound and other individual health factors.Treatment for a gunshot wound might include:surgery to remove the bullet and fix damaged internal structuresan IV to administer antibiotics, fluids, and other medicationsblood transfusion to replace lost bloodsedation or painkillersPeople arriving at emergency rooms with gunshot wounds in the United States most often have injuries to their foot or leg, according to 2015 research. Here’s a breakdown of types and location of firearm injuries in the United States from 2010 to 2012:Per 2022 research, the most common organs involved in shootings affecting the abdomen are:small intestines (50%)large intestines (40%)liver (40%)intrabdominal blood vessels (30%)Many different types of surgical interventions are used to treat specific injuries caused by gunshots or explosive blasts. Here’s an overview of which procedures are used in response to certain injuries, per a 2017 research article from Germany:Survivors of firearm-related injury can experience long-term physical and mental complications such as:Specific complications depend on where the wound is and how extensive the injury is. For example, a head wound could cause cognitive and physical symptoms such as:Infection is a potentially serious complication that can result from the gunshot wound itself or from surgery. It’s important you always take medications as directed by your doctor and follow aftercare instructions precisely to reduce risk of infection.In rare cases, amputation may be required if a limb is badly damaged. If a bullet has hit your spinal cord, it can result in partial or full paralysis. Organ damage caused by gunshot wounds can also create serious long-term health complications, even if the organ is saved.Recovery from a gunshot wound looks different for every individual case. Some people may have minor wounds that heal in weeks, while others may experience permanent disabilities.Physical recovery following acute treatment might include:physical therapypain medicationsmedication to treat other complications resulting from the injurytaking time off work or schoolSurviving or witnessing a shooting is traumatizing for most people. Healing requires a mental and emotional component in addition to medical care for the injury itself. People who survive shootings may experience anxiety, panic attacks, and depression among other symptoms.Talk therapy can help survivors process their thoughts and emotions and develop coping skills. Support groups can provide a safe space to connect with others who have also survived gun violence and work toward personal and collective healing.Learn more about processing grief after a mass shooting.If gunshot wounds are extensive or severe, a survivor will likely have to work with a team of healthcare professionals. This may include nurses, doctors, surgeons, and physical therapists, among others.More people survive being shot than die from it. The survival rate for a gunshot wound depends on factors such as:how many times a person is shotwhether they are shot at close-rangehow quickly they receive treatmentwhat type of bullets and gun are involvedthe location of the injury or injuriesA 2017 study using data from the National Electronic Injury Surveillance System found that survival rates from firearm-related injuries in the United States have remained stable or improved in recent years. From 2003 to 2012 the fatality rate remained constant, at around 22%.In a 2016 study, researchers examined the survival rate of 413 people with penetrating traumatic brain injury at 2 U.S. trauma centers. The researchers found that the survival rates at hospital discharge and at 6 months were 42.4%.However, the fatality rate increases when two or more wounds occur or when there are multiple organ injuries. For this reason, assault rifles like the semiautomatic AR-15 and it’s automatic military counterpart the M16 usually have higher fatality rates than handguns or other firearms. They can hold up to 30 rounds and inflict multiple wounds in rapid succession.The caliber of a gun (how large a bullet is in diameter) also has a major impact on survivability. A 2021 study of shooting data from the Boston Police Department found that medium- and large-caliber firearms were more deadly than smaller-caliber guns when used in criminal assaults. The study authors estimated using an equation that if smaller firearms replaced larger ones, this could reduce death rates due to gun violence by nearly 40%.While survival rates have remained somewhat stable, deaths due to gun violence have risen in recent years. The number of gun-related deaths increased by 13.9% from 2020 to 2019. Gunshot wounds were among the top 5 causes of death for people ages 1 to 44 in the United States in 2020.Gunshot wounds always require immediate medical attention. First aid for gunshot wounds starts with getting the injured person and yourself to safety and calling 911 or local emergency services. Check to see if the person is awake and responsive, and collect identifying information from them. Use a clean cloth and apply as much pressure as possible to stop bleeding until relieved by emergency personnel. If the person is bleeding a lot from an arm or leg, try to apply a commercial or homemade tourniquet. CPR or the use of an automated external defibrillator may also be necessary.Many types of surgeries and other medical treatments are used to treat gunshot wounds. Recovering from being shot may require a hospital stay of days, weeks, or longer. After discharge, a person who is healing a gunshot wound may need medication, physical therapy, and in some cases, further surgery. Emotional and psychological trauma is common in both shooting witnesses and survivors. It’s important both physical and mental needs are addressed during recovery.Overall, recovery from a gunshot wound varies substantially depending on the extent and location of injuries. A doctor or care team will work to create a fuller picture of a recovery plan and what to expect at each stage.Healthline has strict sourcing guidelines and relies on peer-reviewed studies, academic research institutions, and medical journals and associations. We only use quality, credible sources to ensure content accuracy and integrity. You can learn more about how we ensure our content is accurate and current by