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Shoulder Fractures and Dislocations booklet

Introduction to Shoulder Fractures and Dislocations

Welcome to our guide on shoulder fractures and dislocations. If you're reading this, you or someone you care about may be dealing with a shoulder injury. Understanding your injury, treatment options, and the recovery process can help you feel more in control and aid your journey to recovery.

The shoulder is one of the body's most complex and mobile joints. It allows for a wide range of movements, making it essential for everyday activities. However, this complexity also makes it susceptible to injuries, particularly fractures (breaks in the bone) and dislocations (where the bone slips out of its normal position).

Common Shoulder Injuries

Shoulder Fractures: These occur when one of the bones in the shoulder breaks. The most commonly fractured bones in the shoulder include the clavicle (collarbone), scapula (shoulder blade), and humerus (upper arm bone).

Shoulder Dislocations: This happens when the head of the humerus (upper arm bone) is forced out of the shoulder socket. Dislocations can be partial (subluxation) or complete, and they require immediate attention.

Causes of Shoulder Injuries

- **Falls:** Landing on an outstretched arm or directly on the shoulder.
- **Sports Injuries:** High-impact sports like football, rugby, and basketball.
- **Accidents:** Car accidents or other high-energy trauma.
- **Repetitive Stress:** Overuse injuries from activities like throwing or lifting.

Symptoms to Watch For

- **Pain:** Severe pain in the shoulder area.
- **Swelling and Bruising:** Visible swelling and bruising around the shoulder.
- **Deformity:** The shoulder may look out of place or deformed.
- **Limited Movement:** Difficulty moving the shoulder or arm.

Diagnosing Shoulder Injuries

If you suspect a shoulder fracture or dislocation, it's important to seek medical attention promptly. A healthcare provider will conduct a physical examination and may use imaging tests like X-rays, CT scans, or MRI to diagnose the injury accurately.

Treatment Options

Treatment depends on the type and severity of the injury:

- **Non-Surgical Treatments:** These may include immobilization with a sling or brace, pain management, and physical therapy to restore movement and strength.
- **Surgical Treatments:** Some fractures and dislocations require surgery to properly align and stabilize the bones and soft tissues. Surgical options vary based on the injury's specifics.

Recovery and Rehabilitation

Recovery times can vary based on the injury's severity and the treatment method. Rehabilitation is a critical part of the recovery process. It involves exercises to improve range of motion, strengthen the shoulder muscles, and restore function. Following your healthcare provider's instructions and attending all physical therapy sessions can significantly impact your recovery success.

Support and Resources

Dealing with a shoulder injury can be challenging, but remember that you are not alone. Your healthcare team supports you through diagnosis, treatment, and recovery. Don't hesitate to ask questions and seek clarification on any aspects of your care.

We hope this guide provides a clear understanding of shoulder fractures and dislocations. By learning more about your condition and treatment options, you can take an active role in your recovery and work towards regaining full shoulder function.

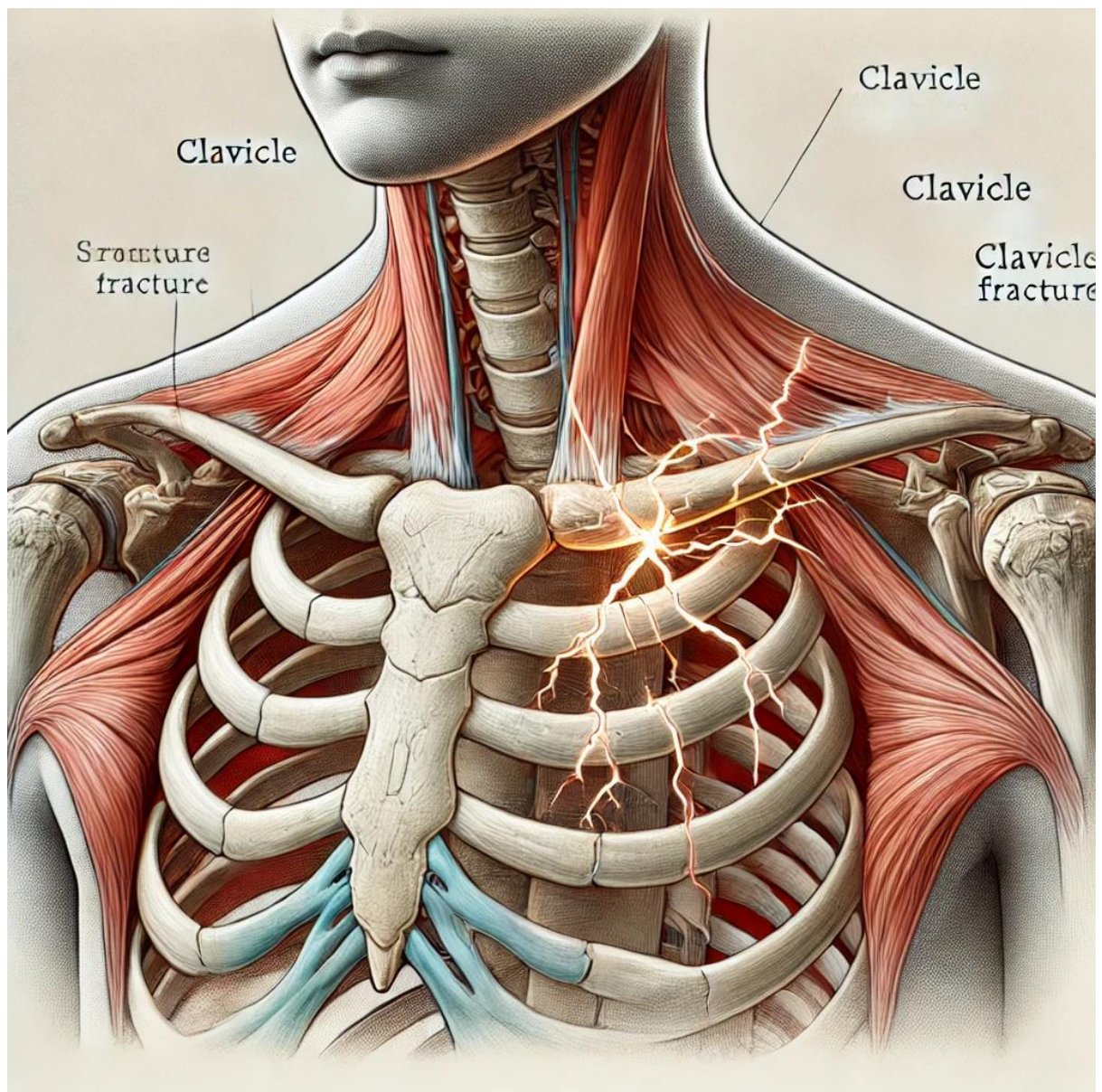
Clavicle Fractures

Overview:

Clavicular fractures, commonly known as collarbone fractures, are frequent injuries, making up 2.6-5% of all fractures and 35-44% of shoulder girdle injuries. These fractures often occur due to direct impacts, falls on the shoulder, or sports-related incidents.

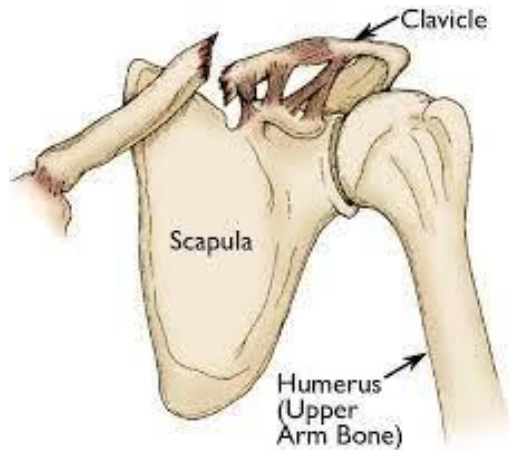
What is the Clavicle?

The clavicle, or collarbone, is a long bone that connects the shoulder blade to the breastbone (sternum). It plays a crucial role in shoulder movement and stability.



Causes of Clavicular Fractures:

- **Direct Blows:** A direct hit to the shoulder, often seen in contact sports like football or hockey.
- **Falls:** Falling onto the shoulder or an outstretched arm can result in a fracture.
- **Sports Injuries:** High-impact sports activities increase the risk of breaking the clavicle.



Symptoms of a Clavicular Fracture:

- **Pain:** Sharp pain at the site of the fracture.
- **Swelling and Bruising:** Visible swelling and bruising around the collarbone.
- **Deformity:** A noticeable bump or deformity over the break.
- **Limited Movement:** Difficulty or pain when moving the arm and shoulder.

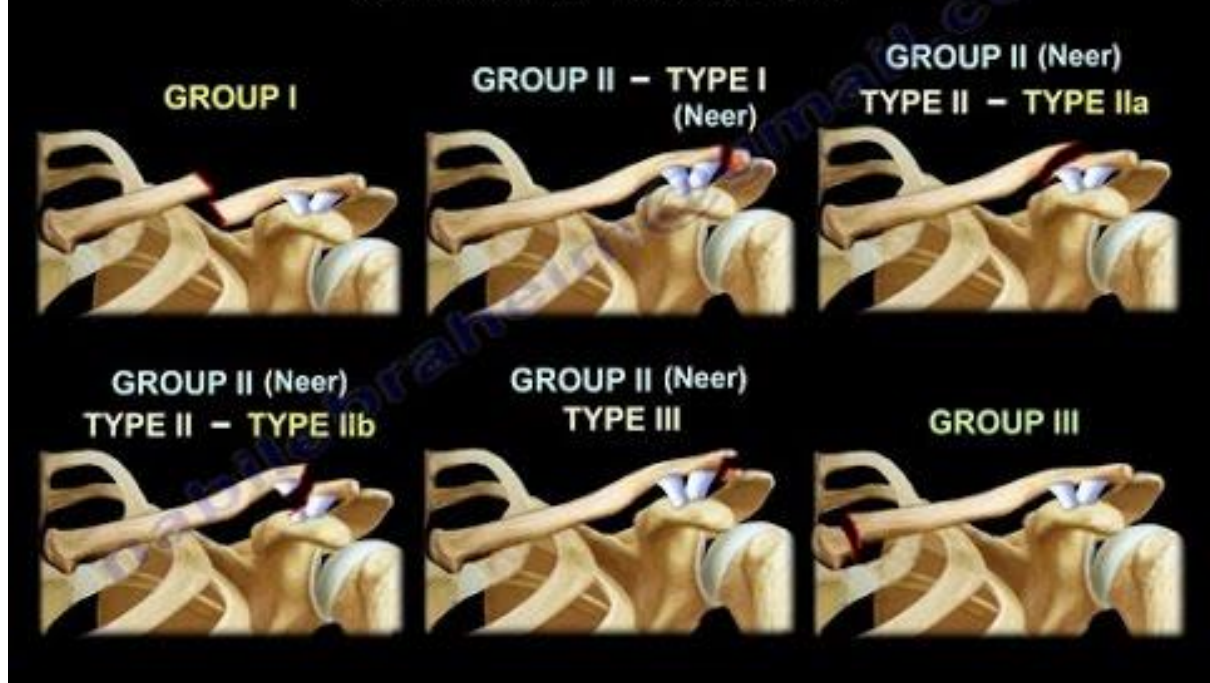
Diagnosing Clavicular Fractures:

- **Physical Examination:** The doctor will check for pain, swelling, and deformity.
- **Imaging:**
 - **X-rays:** The primary tool to see the fracture and determine its type.
 - **CT Scans:** Used for more detailed images, especially in complex cases.

Types of Clavicular Fractures:

- **Allman Classification:** Divides fractures into three groups based on their location along the clavicle.
- **Robinson Classification:** Further details the types of fractures based on their complexity and displacement.

Clavicle Fractures - Allman Classification SUMMARY OF FRACTURES



Treatment Options:

1. Conservative (Non-Surgical) Management:

- **For Minimally Displaced Fractures:** If the bones are still aligned well, treatment may include a sling to immobilize the arm, pain management, and rest.
- **Rehabilitation:** Gentle exercises to restore movement after initial healing.

2. Surgical Management:

- **For Significantly Displaced or Complex Fractures:** Surgery might be necessary to realign and stabilize the bones.
- **Plate Fixation:** Metal plates and screws are used to hold the bone fragments together.
- **Intramedullary Nailing:** A rod is inserted into the bone to keep it in place.

Post-Operative Rehabilitation:

- **Initial Phase:** Immobilization with a sling and limited movement to allow healing.
- **Gradual Exercises:** Gentle range-of-motion exercises to regain movement.
- **Strengthening Exercises:** Once healing progresses, exercises to strengthen the shoulder and restore full function.

Potential Complications:

- **Non-Union:** When the bone does not heal properly.
- **Malunion:** When the bone heals in an incorrect position.
- **Neurovascular Injury:** Rare cases where nearby nerves or blood vessels are damaged.

Key Points for Patients:

- **Follow Medical Advice:** Adhere to the treatment plan and follow-up appointments to ensure proper healing.
- **Rest and Immobilization:** Essential in the initial phase to promote bone healing.
- **Rehabilitation:** Vital for regaining shoulder function and strength.
- **Awareness of Complications:** Report any unusual symptoms like persistent pain, numbness, or swelling to your doctor immediately.

Understanding your injury and the treatment options can help you recover more effectively and return to normal activities. Always consult with your healthcare provider for personalised advice and treatment plans.

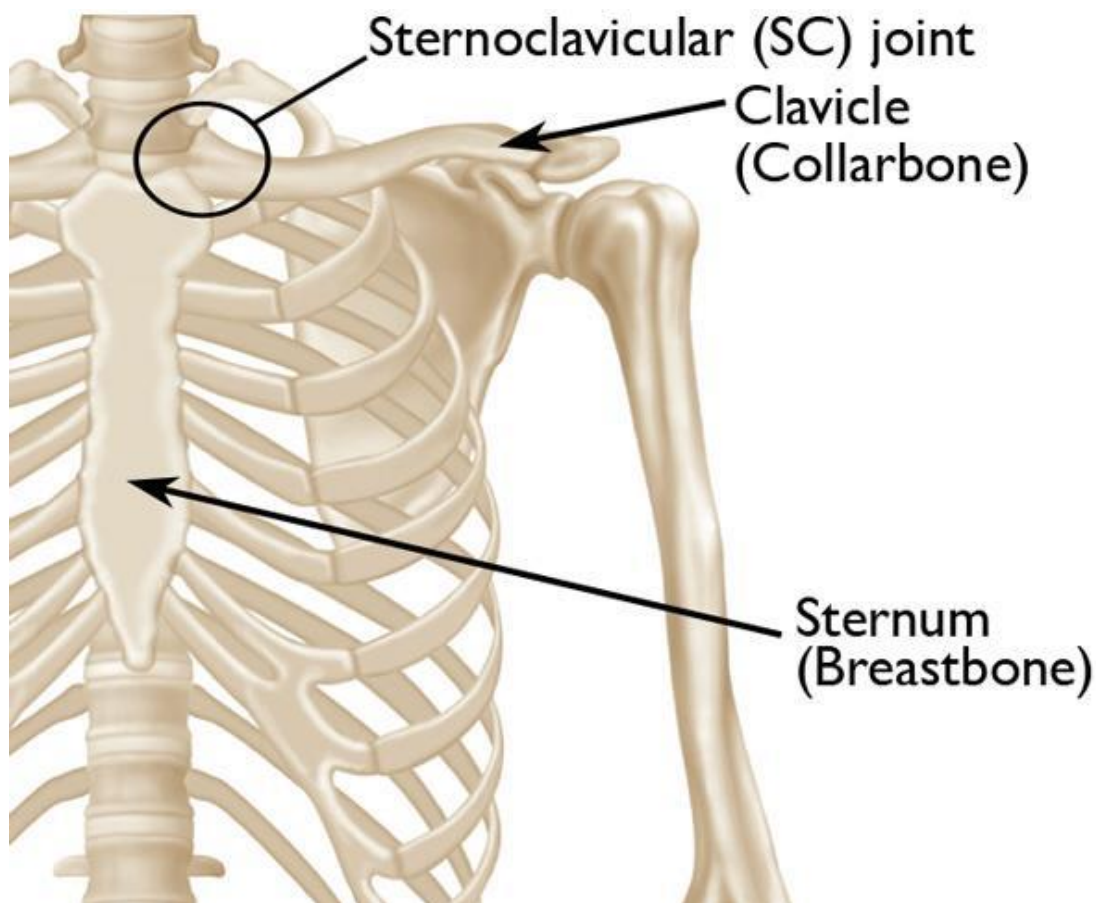
Sternoclavicular Joint Injuries

Overview:

Sternoclavicular joint (SCJ) dislocations are rare but serious injuries that can be categorised into two main types: anterior and posterior. Anterior dislocations are more common and less dangerous. In contrast, posterior dislocations are less common but can be life-threatening because of their proximity to important structures like blood vessels and the windpipe. Accurate diagnosis and timely treatment are crucial to avoid severe complications.

Understanding the Sternoclavicular Joint:

The SCJ is the joint where the collarbone (clavicle) meets the breastbone (sternum). It's held together by several strong ligaments rather than relying on the bone shape for stability. The joint allows for a range of shoulder movements and plays a key role in lifting the arm.



Symptoms of SCJ Injuries:

- **Anterior Dislocations:** These present as a painful, noticeable bump near the sternum.
- **Posterior Dislocations:** These may not have a visible lump but can cause serious issues like difficulty breathing or swallowing due to pressure on nearby structures.

Causes of SCJ Injuries:

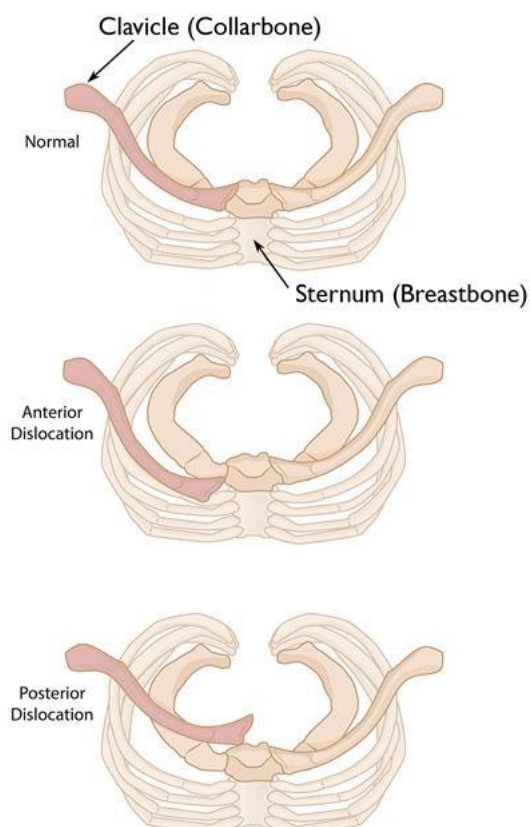
- High-energy trauma, such as car accidents or sports injuries.
- Direct impacts or falls onto the shoulder.

Diagnosing SCJ Injuries:

- **Initial Imaging:** Standard X-rays to get a basic view of the injury.
- **Specialised Views:** Specific X-ray techniques like the Serendipity view for better visualisation.
- **CT Scans:** Preferred for detailed images and to check for associated injuries.
- **MRI and CT Angiography:** Useful for assessing soft tissue and blood vessel involvement.

Types of SCJ Injuries:

- **Direction of Displacement:** Anterior, posterior, superior (upward), or inferior (downward).
- **Ligament Damage:** Classified by the extent of ligament injuries around the joint.
- **Physeal Injuries:** In younger patients (under 25), these injuries often mimic SCJ dislocations and need CT scans for accurate diagnosis.



- (Top) Normal shoulder anatomy. (Center) In an anterior dislocation, the end of the clavicle is pushed forward, in front of the sternum. (Bottom) In a posterior

dislocation, the end of the clavicle is pushed behind the sternum, toward several of the body's vital structures.

Treatment Options:

1. Non-Operative Management:

- For less severe injuries without dislocation (Grade I and II).
- Includes ice, immobilization with a sling, and anti-inflammatory medications.
- Anterior dislocations often managed without surgery, possibly using a closed reduction technique within the first week post-injury.

2. Operative Management:

- Required for posterior dislocations due to the risk of severe complications.
- Also needed for persistent instability in anterior dislocations.
- Surgical techniques include:
 - **Open Reduction:** Realigning the joint through surgery.
 - **Ligament Reconstruction:** Using tendon grafts to repair the ligaments.
 - **Medial Clavicle Resection:** Removing part of the collarbone if necessary.
 - **Figure-of-8 Reconstruction:** Using either autografts (patient's own tissue) or synthetic ligaments for the most reliable stability.

Key Takeaways:

- **Early and Accurate Diagnosis:** It is crucial to prevent complications, especially in posterior dislocations.
- **Conservative Management:** Effective for most anterior dislocations and non-displaced physal injuries.
- **Surgical Intervention:** Necessary for unstable injuries, posterior dislocations, and cases with persistent instability.
- **Team Approach:** Collaboration with cardiothoracic surgeons during surgery can help manage potential complications.

Conclusion:

Sternoclavicular joint injuries, though rare, require careful management due to the potential for serious complications. Anterior dislocations are more common and typically managed without surgery, while posterior dislocations need prompt surgical intervention. Advances in imaging and surgical techniques have improved outcomes, highlighting the importance of personalised treatment strategies based on the specific type and severity of the dislocation.

Acromioclavicular Joint Injuries

Overview:

Acromioclavicular (AC) joint injuries are common among young men aged 20 to 30, particularly those involved in sports. These injuries range from simple ligament sprains to more severe displacements of the collarbone. Treatment options vary, and the best method depends on the specific injury and its severity.

What is the AC Joint?

The AC joint is where the collarbone (clavicle) meets the highest point of the shoulder blade (acromion). It is essential for shoulder movement and stability.

Causes of AC Joint Injuries:

- **Direct Impact:** A direct hit to the shoulder, often seen in contact sports like football or rugby.
- **Falls:** Falling onto an outstretched hand or directly onto the shoulder can cause an AC joint injury.

Symptoms of AC Joint Injuries:

- **Pain:** Sharp pain at the top of the shoulder.
- **Swelling and Bruising:** Visible swelling and bruising around the joint.
- **Deformity:** A noticeable bump or displacement at the AC joint.
- **Limited Movement:** Difficulty or pain when moving the arm and shoulder.

Diagnosing AC Joint Injuries:

- **Physical Examination:** The doctor will check for pain, swelling, and deformity.
- **Imaging:**
 - **X-rays:** Special views like the Zanca view are used to see the AC joint clearly.
 - **CT and MRI:** These can provide additional details, especially for assessing soft tissue injuries.

Types of AC Joint Injuries:

- **Rockwood Classification:** A commonly used system that categorizes injuries based on the extent of ligament damage and displacement.
- **ISAKOS Classification:** A more refined approach that helps in making better treatment decisions.

Treatment Options:

1. **Non-Surgical Management:**
 - Suitable for mild injuries (Grade I and II) and some moderate injuries (Grade III).
 - **Pain Relief:** Medications to manage pain.
 - **Sling Immobilization:** To support the shoulder and allow healing.

- **Physiotherapy:** Exercises to restore shoulder movement and strength.
- 2. **Surgical Management:**
 - Needed for more severe injuries (Grade IV-VI) or unstable moderate injuries (Grade IIIB).
 - **LARS Ligament Reconstruction:** A technique to stabilize the joint using synthetic ligaments.
 - **Biological Graft Reconstruction:** Using tendons from the patient or a donor.
 - **Hook Plate Fixation:** A metal plate to hold the bones in place, later removed in a second surgery.

Post-Operative Rehabilitation:

- **Early Exercises:** Gentle movements to prevent stiffness.
- **Gradual Progression:** Moving to more active exercises and strengthening routines as healing progresses.

Possible Complications:

- **Infection:** Risk of infection after surgery.
- **Implant Failure:** Issues with the surgical hardware.
- **Stiffness and Arthritis:** Long-term joint issues.

Lessons Learned:

- Accurate diagnosis and imaging are crucial for effective treatment.
- Conservative management works well for less severe injuries.
- Surgical options are available for more severe or unstable injuries.
- Early rehabilitation and physiotherapy are vital for recovery.
- Understanding different surgical techniques and potential complications helps tailor treatment to individual needs.

Acromial and Scapular Spine Stress Fractures

Overview:

Stress fractures of the acromion and scapular spine are common complications after reverse total shoulder arthroplasty (RTSA), a type of shoulder replacement surgery. These fractures occur due to the increased stress on the shoulder bones after surgery.

What are Acromion and Scapular Spine Stress Fractures?

- **Acromion:** The highest point of the shoulder blade.
- **Scapular Spine:** A ridge on the back of the shoulder blade.

Causes of Stress Fractures:

- **Falls:** Direct impacts can cause fractures.
- **Surgery-Related Stress:** Changes in shoulder mechanics after RTSA increase stress on these bones.

Symptoms:

- **Pain:** Sudden increase in pain over the acromion or scapular spine.
- **Loss of Function:** Difficulty moving the shoulder.
- **Slow Recovery:** Delayed progress during rehabilitation may indicate a fracture.

Diagnosing Stress Fractures:

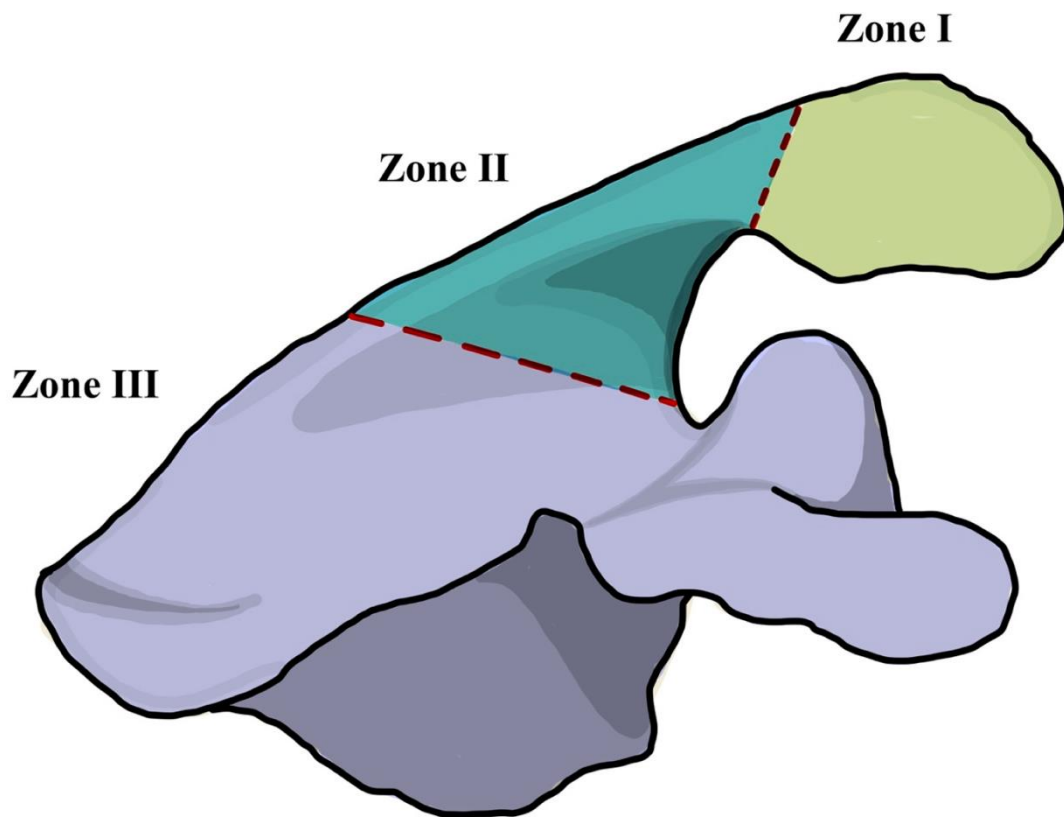
- **Initial Imaging:** X-rays to identify fractures.
- **CT Scans:** For detailed images, especially if X-rays are inconclusive.

Types of Fractures:

- **Levy Classification:** Based on the location of the fracture relative to the deltoid muscle.
- **Crosby Classification:** Based on the relation to the AC joint.

	LEVY CLASSIFICATION	CROSBY CLASSIFICATION
TYPE I	Fracture involving portion of anterior and middle deltoid origin	Small avulsion of anterior acromion
TYPE II	Fracture involving entire middle and portion of posterior deltoid origin	Fracture just posterior to AC-joint
TYPE III	Fracture involving entire middle and posterior deltoid origin	Dislocated fractures of posterior acromion or scapular spine

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Treatment Options:

1. Non-Surgical Management:

- Suitable for less severe fractures (Type I and some Type II).
- **Rest and Immobilization:** Stopping physiotherapy and using a sling to support the shoulder.
- **Follow-Up:** Regular X-rays to monitor healing.

2. Surgical Management:

- Required for more severe fractures (Type III and some Type II).
- **Open Reduction and Internal Fixation (ORIF):** Surgical techniques to realign and stabilise the bones using plates and screws.

Post-Operative Rehabilitation:

- **Immobilisation:** Using a sling or brace for 6 to 8 weeks.
- **Gradual Exercises:** Starting with gentle movements after immobilisation.

Possible Complications:

- **Implant Failure:** Need for revision surgery if the hardware fails.
- **Non-Union:** Fractures are not healing properly and require additional surgery.
- **Malunion:** Bones healing in an incorrect position.

Lessons Learned:

- Accurate diagnosis and imaging are essential for effective management.

- Non-surgical treatment can work for some fractures, but surgery is often needed for more severe cases.
- Understanding shoulder mechanics helps guide treatment decisions.
- Post-operative rehabilitation and careful monitoring are crucial for successful outcomes.
- Further research is needed to establish the best treatment protocols.

Fractures of the Greater Tuberosity

Overview:

Greater tuberosity fractures are breaks in the upper part of the humerus (arm bone) and often occur due to trauma or repetitive stress, especially in active individuals or athletes.

What is the Greater Tuberosity?

The greater tuberosity is a bony prominence on the humerus where important shoulder muscles attach.

Causes of Greater Tuberosity Fractures:

- **Trauma:** Falls onto the shoulder, direct impacts, or shoulder dislocations.
- **Repetitive Stress:** Overuse injuries from activities like throwing or lifting.

Symptoms:

- **Pain:** Localized pain at the shoulder.
- **Limited Movement:** Difficulty raising the arm.
- **Weakness:** Reduced shoulder strength.

Diagnosing Greater Tuberosity Fractures:

- **Physical Examination:** Checking for tenderness and range of motion.
- **Imaging:**
 - **X-rays:** Initial imaging to see the fracture.
 - **CT Scans:** Detailed images to assess the fracture.
 - **MRI:** Useful for detecting associated soft tissue injuries.

Types of Fractures:

- **Neer Classification:** Based on the number and displacement of fracture parts.
- **AO Classification:** Provides detailed assessment of fracture patterns.

Treatment Options:

1. **Non-Surgical Management:**
 - Suitable for minimally displaced fractures (85-95% of cases).
 - **Sling Immobilization:** To support the arm and allow healing.
 - **Rehabilitation:** Structured exercises to restore movement and strength.
2. **Surgical Management:**
 - Needed for fractures with significant displacement (more than 5mm).
 - **ORIF (Open Reduction and Internal Fixation):** Surgical technique to align and fix the bones with plates and screws.
 - **Arthroscopic Techniques:** Less invasive methods using small incisions and a camera.

Post-Operative Rehabilitation:

- **Initial Immobilization:** Using a sling to support the shoulder.
- **Gradual Exercises:** Starting with passive movements, then progressing to active and strengthening exercises.
- **Return to Activities:** Typically achieved within 4 to 6 months.

Possible Complications:

- **Shoulder Stiffness:** Often resolves with continued therapy.
- **Malunion:** Incorrect healing of bones, sometimes requiring corrective surgery.
- **Non-Union:** Failure of the bone to heal, managed with further surgery.

Lessons Learned:

- Accurate diagnosis and imaging are crucial for effective management.
- Conservative treatment works well for minimally displaced fractures.
- Surgical intervention is needed for more complex fractures.
- Understanding the injury helps in choosing the right treatment.
- Post-operative rehabilitation and follow-up are vital for recovery and preventing complications.

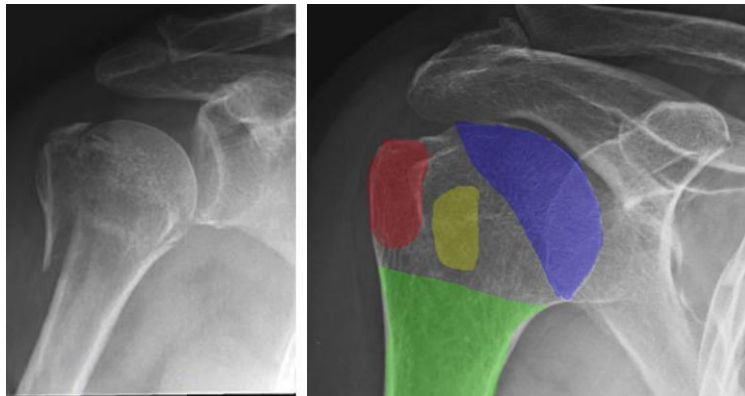
Proximal Humerus Fractures

Overview:

Proximal humerus fractures are breaks in the upper part of the arm bone near the shoulder. They are common in young people with high-energy injuries and older adults with low-energy falls.

What is the Proximal Humerus?

The proximal humerus is the upper section of the arm bone that connects to the shoulder joint.



Causes of Proximal Humerus Fractures:

- **High-Energy Trauma:** Car accidents, sports injuries, or falls from height (more common in young people).
- **Low-Energy Falls:** Simple falls, often due to osteoporosis (more common in older adults).

Symptoms:

- **Pain:** Severe pain at the shoulder.
- **Swelling and Bruising:** Visible swelling and discoloration around the shoulder.
- **Limited Movement:** Difficulty moving the arm.

Diagnosing Proximal Humerus Fractures:

- **Physical Examination:** Checking for pain, swelling, and deformity.
- **Imaging:**
 - **X-rays:** Standard views to assess the fracture.
 - **CT Scans:** Detailed images for complex fractures.

Types of Fractures:

- **Neer Classification:** Based on the number of fracture parts and their displacement.
- **AO Classification:** Detailed classification considering the fracture pattern.

Treatment Options:

1. **Non-Surgical Management:**

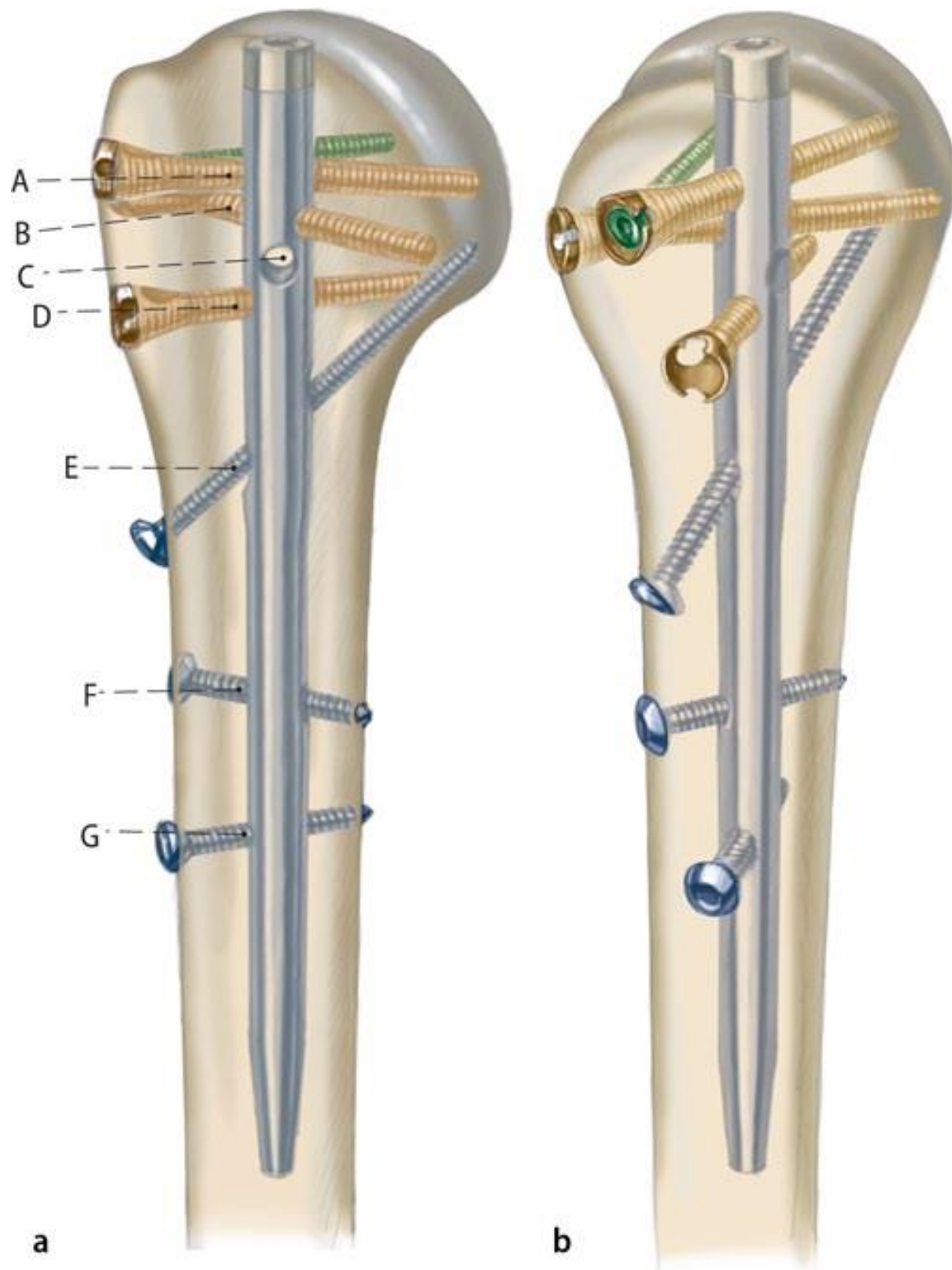
- Suitable for minimally displaced and stable fractures.
- **Pain Management:** Medications to control pain.
- **Immobilisation:** Using a sling to support the arm.
- **Rehabilitation:** Gradual exercises to restore movement and strength.

2. **Surgical Management:**

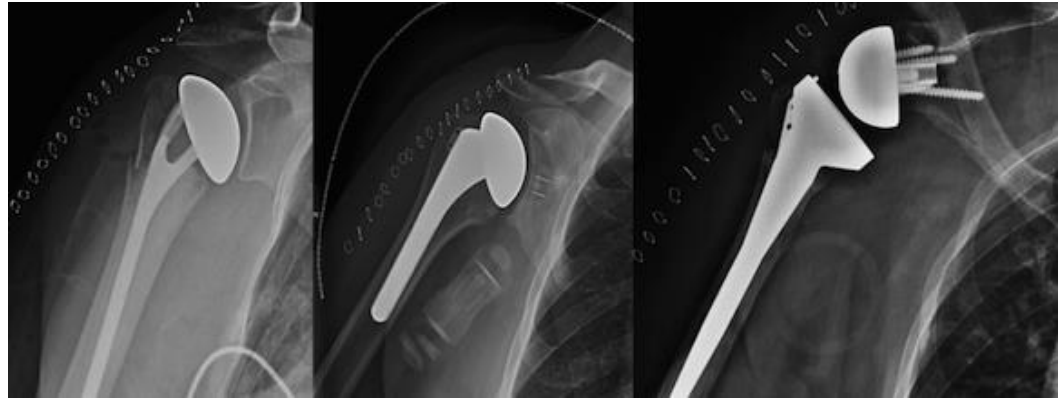
- Needed for displaced or unstable fractures.
- **ORIF (Open Reduction and Internal Fixation):** Aligning and fixing the bones with plates and screws.



- **Intramedullary Nailing (IM):** Inserting a rod into the bone to stabilize the fracture.



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- **Arthroplasty:** Joint replacement surgery for severe fractures.



Post-Operative Rehabilitation:

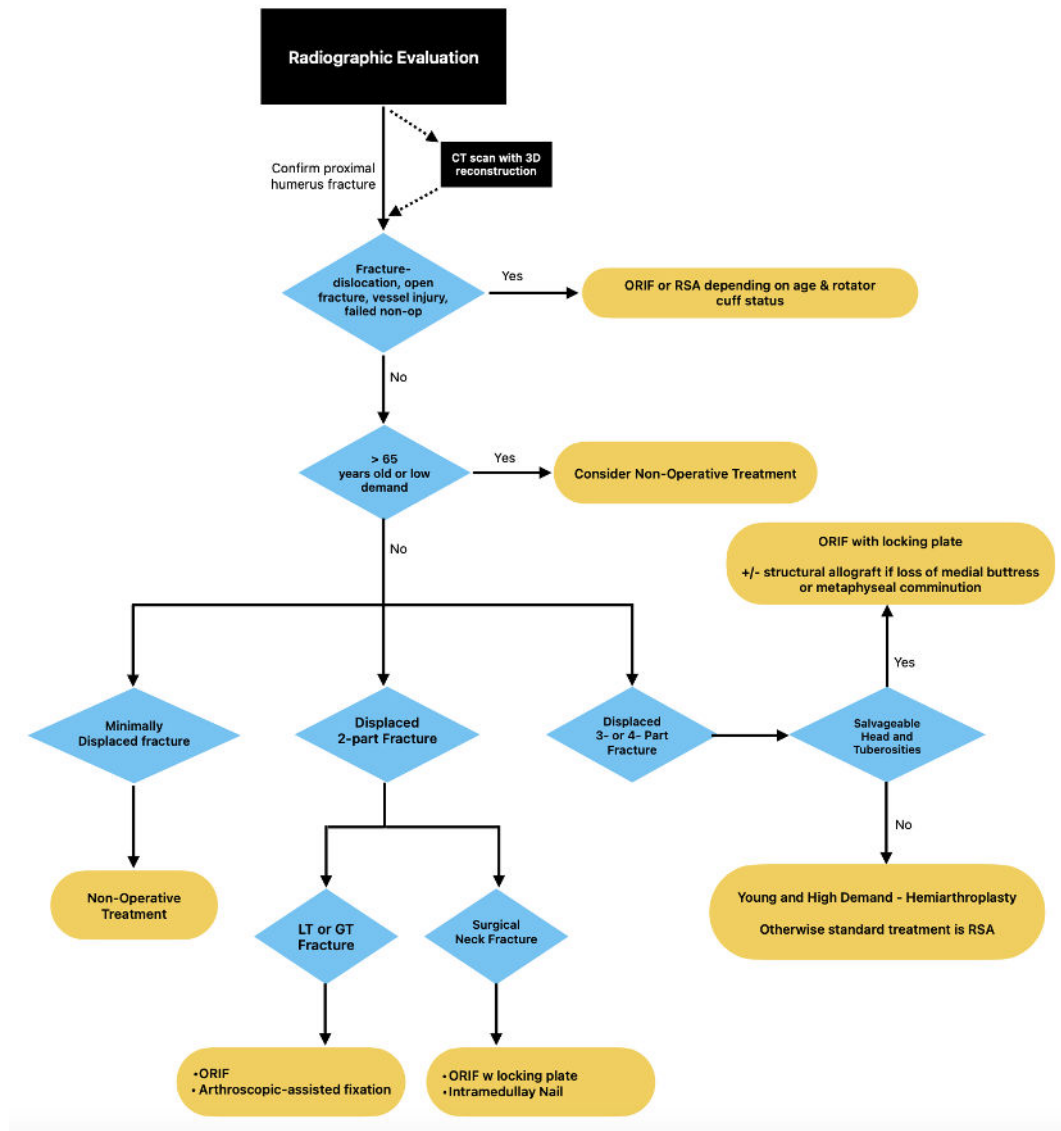
- **Initial Immobilization:** Using a sling.
- **Gradual Exercises:** Starting with gentle movements and progressing to strengthening exercises.
- **Full Recovery:** Typically within 12 weeks.

Possible Complications:

- **Non-Union:** Bone fails to heal.
- **Malunion:** Bone heals incorrectly.
- **Infection:** Risk after surgery.
- **Hardware Issues:** Problems with surgical implants.

Lessons Learned:

- Accurate diagnosis and imaging are essential.
- Non-surgical treatment works for less severe fractures.
- Surgery is necessary for more complex fractures.
- Understanding the injury helps in choosing the right treatment.
- Post-operative rehabilitation and follow-up are vital for recovery and preventing complications.



Proposed treatment algorithm for management of proximal humerus fracture. GT = greater tuberosity, LT = lesser tuberosity, ORIF = open reduction and internal fixation, CT: computed tomography; RSA = reverse shoulder arthroplasty.

Humeral Shaft Fractures

Overview:

Diaphyseal humeral fractures are breaks in the middle section of the arm bone. These fractures occur from both high-energy trauma in younger people and low-energy falls in older adults.

What is the Diaphyseal Humerus?

The diaphyseal humerus is the long, middle part of the arm bone.



Causes of Diaphyseal Humeral Fractures:

- **Direct Trauma:** Such as a direct blow to the arm.
- **Indirect Mechanisms:** Falls onto an outstretched arm or twisting injuries.

Symptoms:

- **Pain:** Severe pain at the site of the fracture.
- **Swelling and Deformity:** Visible swelling and possible deformity.
- **Limited Movement:** Difficulty moving the arm.

Diagnosing Diaphyseal Humeral Fractures:

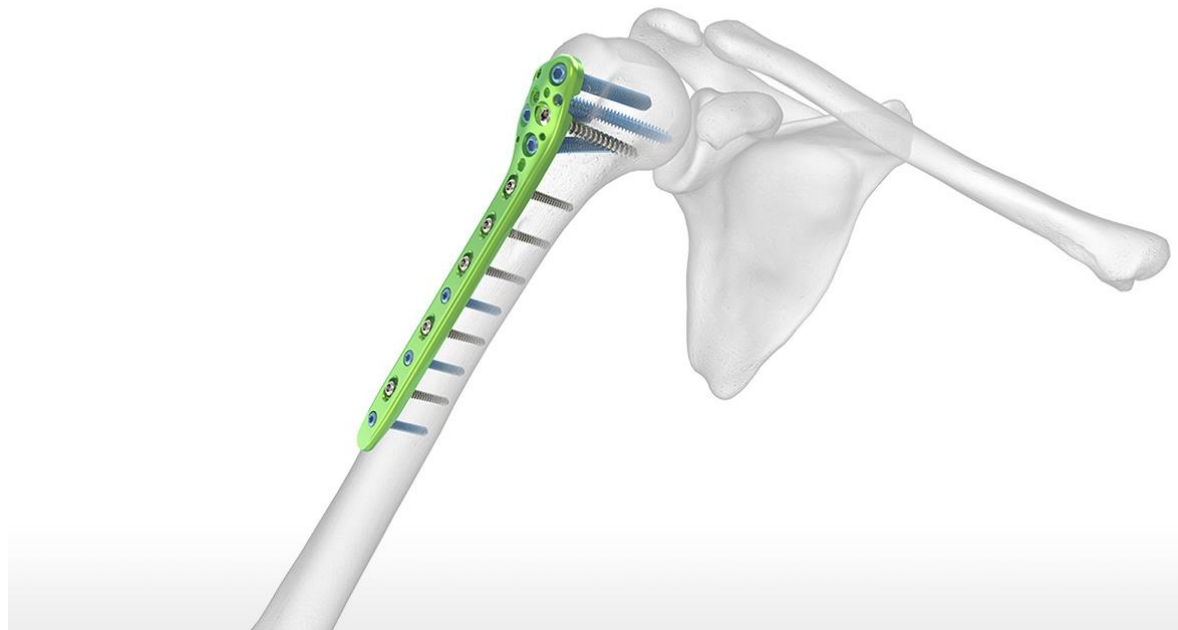
- **Physical Examination:** Checking for pain, swelling, and deformity.
- **Imaging:**
 - **X-rays:** Standard views to see the fracture.
 - **CT Scans:** For detailed images if needed.

Types of Fractures:

- **AO-OTA Classification:** Divides fractures into simple (A), wedge (B), and complex (C) types.

Treatment Options:

1. **Non-Surgical Management:**
 - Suitable for many diaphyseal humeral fractures.
 - **Functional Bracing:** A special brace to support the arm and allow healing.
 - **Early Mobilization:** Gradual movement exercises to prevent stiffness.
2. **Surgical Management:**
 - Needed for fractures with significant displacement or complications.
 - **ORIF (Open Reduction and Internal Fixation):** Aligning and fixing the bones with plates and screws.



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- **Intramedullary Nailing (IMN):** Inserting a rod into the bone to stabilize the fracture.



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Possible Complications:

- **Radial Nerve Palsy:** Injury to the nerve, affecting arm movement.
- **Infection:** Risk after surgery.
- **Non-Union:** Bone fails to heal.
- **Malunion:** Bone heals incorrectly.

Lessons Learned:

- Accurate diagnosis and imaging are essential.
- Non-surgical treatment with functional bracing works for many fractures.
- Surgery is necessary for more complex fractures.
- Early mobilization and follow-up are crucial for healing.
- Individualized treatment plans based on the fracture and patient factors lead to the best outcomes.

Periprosthetic Humeral Fractures

Overview:

Periprosthetic humeral fractures occur around implanted hardware, such as after total shoulder arthroplasty (TSA) or reverse shoulder arthroplasty (RSA). Proper assessment and treatment depend on the stability of the implant and the fracture pattern.

What are Periprosthetic Humeral Fractures?

These fractures happen around the shoulder implants, either during surgery (intraoperative) or after surgery (postoperative).

Causes of Periprosthetic Humeral Fractures:

- **Intraoperative Factors:** Issues during surgery, such as excessive force or improper implant placement.
- **Postoperative Factors:** Falls or other trauma after surgery, combined with patient factors like age and bone quality.

Symptoms:

- **Pain:** Severe pain around the shoulder.
- **Swelling and Deformity:** Visible swelling and possible deformity.
- **Limited Movement:** Difficulty moving the arm.

Diagnosing Periprosthetic Humeral Fractures:

- **Physical Examination:** Checking for pain, swelling, and deformity.
- **Imaging:**
 - **X-rays:** Standard views to assess the fracture and implant.
 - **CT Scans:** For detailed assessment.

Types of Fractures:

- **Campbell and Wright Classification:** Considers fracture displacement and implant stability.
- **Cofield Classification:** Focuses on the implant and surrounding bone stock.

Treatment Options:

1. **Non-Surgical Management:**
 - Suitable for stable implants with minimal fracture displacement.
 - **Immobilisation:** Using a sling or brace to support the arm.
 - **Healing Time:** Typically takes 3.5 to 6 months.
2. **Surgical Management:**
 - Needed for unstable or displaced fractures.
 - **ORIF (Open Reduction and Internal Fixation):** Aligning and fixing the bones with plates and screws.



- **Revision Shoulder Arthroplasty:** Replacing or adjusting the implant for better stability.



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Possible Complications:

- **Infection:** Risk after surgery.
- **Implant Failure:** Problems with the shoulder implant.
- **Non-Union:** Bone fails to heal.

Lessons Learned:

- Accurate assessment of risk factors and fracture mechanisms is crucial.
- Non-surgical treatment works for stable fractures.

- Surgery is necessary for unstable or displaced fractures.
- Regular follow-up and imaging are essential for monitoring healing and detecting complications.

Scapula Body and Glenoid Fossa Fractures

Overview:

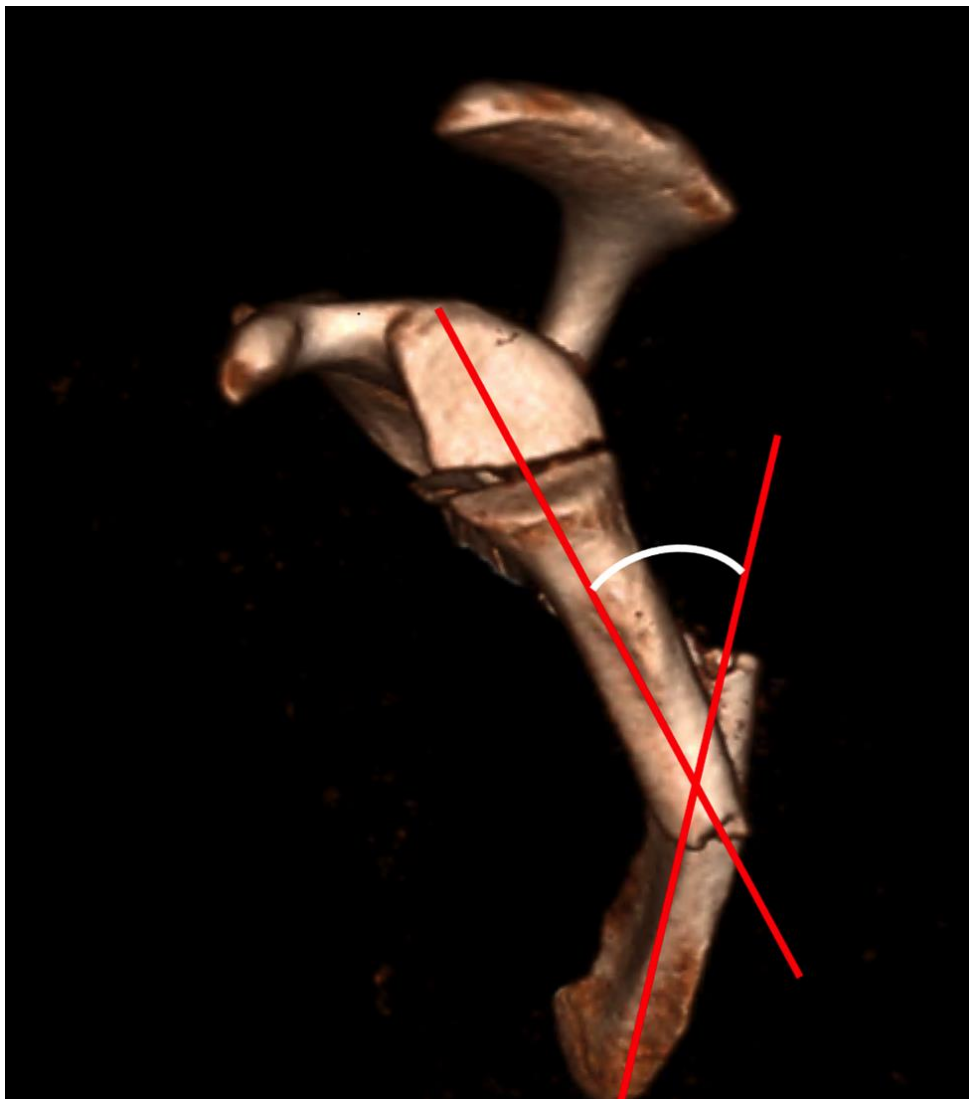
Scapular fractures are rare and usually result from high-energy trauma. While most can be managed without surgery, certain fractures require surgical fixation to ensure proper healing and function.

What are Scapula and Glenoid Fossa Fractures?

- **Scapula:** The shoulder blade, a flat bone connecting the upper arm to the collarbone.
- **Glenoid Fossa:** The part of the scapula that forms the socket for the shoulder joint.

Causes of Scapula and Glenoid Fossa Fractures:

- **High-Energy Trauma:** Car accidents, motorcycle crashes, or falls from height.
- **Direct Impact:** A heavy blow to the shoulder.



Symptoms:

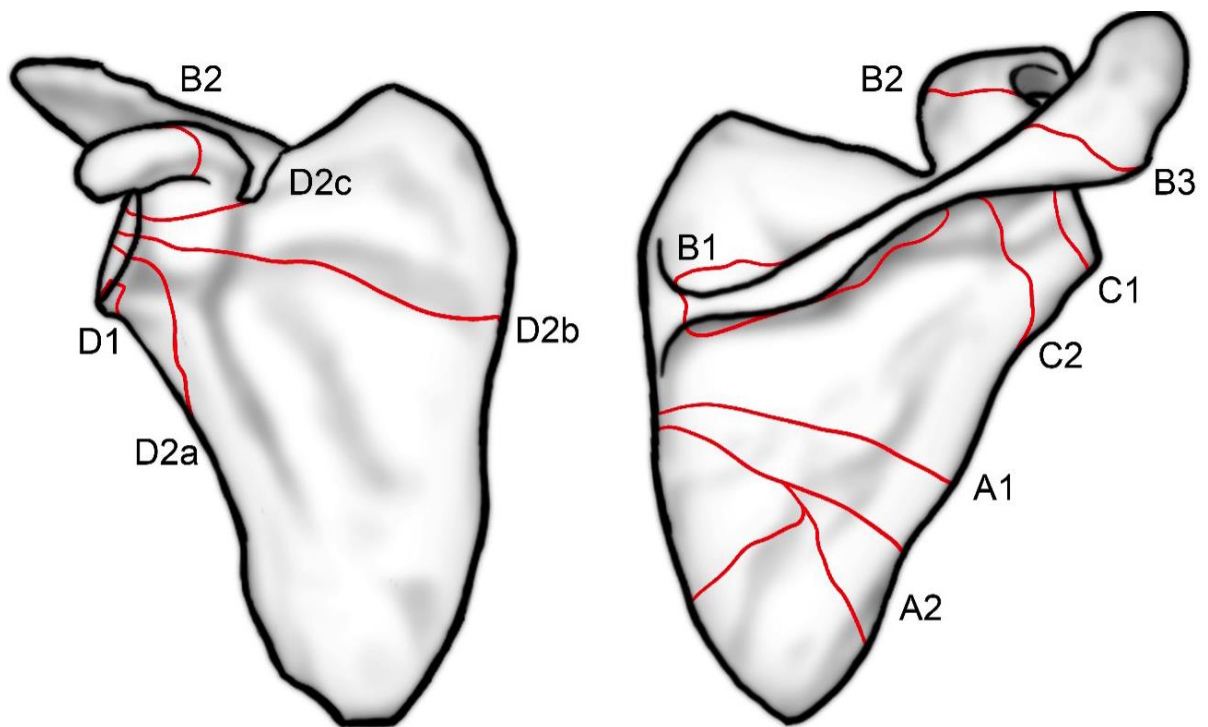
- **Pain:** Severe pain in the shoulder.
- **Swelling and Bruising:** Visible swelling and bruising around the shoulder.
- **Limited Movement:** Difficulty moving the arm.

Diagnosing Scapula and Glenoid Fossa Fractures:

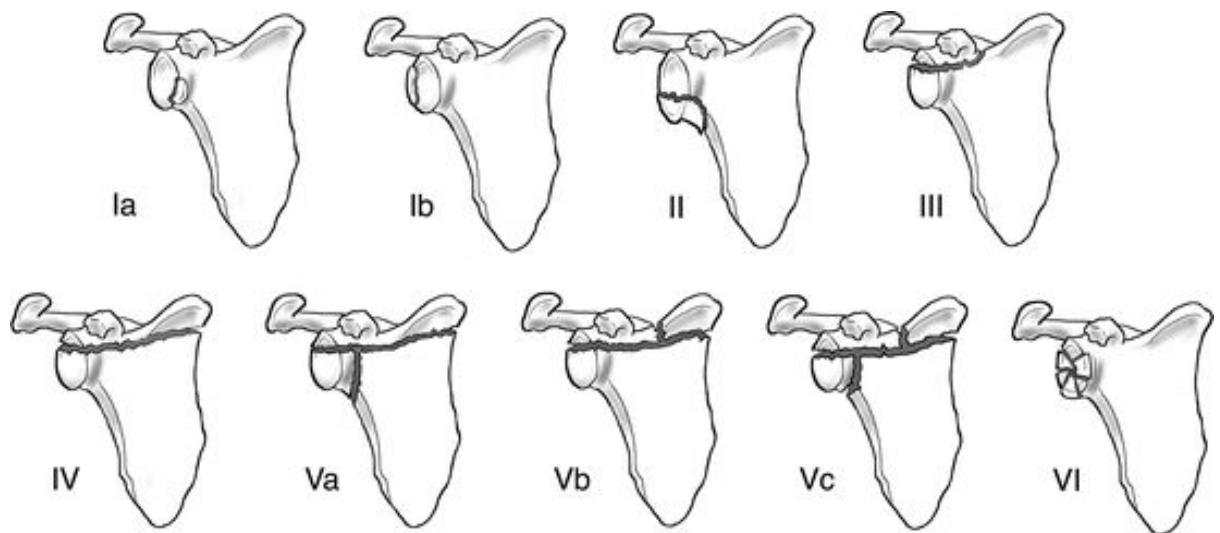
- **Physical Examination:** Checking for pain, swelling, and deformity.
- **Imaging:**
 - **X-rays:** Standard views to see the fracture.
 - **CT Scans:** For detailed images, especially for surgical planning.

Types of Fractures:

- **Euler and Habermeyer Classification:** Categorizes fractures based on their location and severity.



- **Ideberg Classification:** Focuses on glenoid fractures with various extensions.



Treatment Options:

1. **Non-Surgical Management:**
 - Suitable for most minimally displaced fractures.
 - **Supportive Sling:** To immobilize the arm.
 - **Gradual Exercises:** To restore movement and strength over 4-6 weeks.
2. **Surgical Management:**
 - Needed for significantly displaced or unstable fractures.
 - **Surgical Techniques:** Various approaches to realign and fix the bones using plates and screws.

Possible Complications:

- **Infection:** Risk after surgery.
- **Implant Issues:** Problems with surgical hardware.
- **Non-Union:** Bone fails to heal.
- **Malunion:** Bone heals incorrectly.

Lessons Learned:

- Thorough assessment and imaging are crucial.
- Non-surgical treatment works for most minimally displaced fractures.
- Surgery is necessary for significantly displaced or unstable fractures.
- Post-operative rehabilitation and regular follow-up are essential for optimal outcomes.

Glenoid Fossa Fractures

Overview:

Glenoid fossa fractures are rare injuries usually resulting from high-energy trauma. Treatment depends on the fracture's displacement and stability.

What is the Glenoid Fossa?

The glenoid fossa is the part of the scapula that forms the socket of the shoulder joint.

Causes of Glenoid Fossa Fractures:

- **High-Energy Trauma:** Car accidents or falls from height.
- **Direct Impact:** A heavy blow to the shoulder.



Symptoms:

- **Pain:** Severe pain in the shoulder.
- **Swelling and Bruising:** Visible swelling and bruising around the shoulder.
- **Limited Movement:** Difficulty moving the arm.

Diagnosing Glenoid Fossa Fractures:

- **Physical Examination:** Checking for pain, swelling, and deformity.
- **Imaging:**
 - **X-rays:** Standard views to assess the fracture.
 - **CT Scans:** For detailed images, especially for surgical planning.

Types of Fractures:

- **Idberg Classification:** Categorizes fractures based on their location and extent.
- **AO/OTA Classification:** Offers a comprehensive system for categorizing scapular fractures.

Treatment Options:

1. **Non-Surgical Management:**
 - Suitable for most minimally displaced fractures.
 - **Supportive Sling:** To immobilize the arm.
 - **Gradual Exercises:** To restore movement and strength.
2. **Surgical Management:**
 - Needed for significantly displaced or unstable fractures.
 - **Surgical Techniques:** Various approaches to realign and fix the bones using plates and screws.

Possible Complications:

- **Infection:** Risk after surgery.
- **Implant Issues:** Problems with surgical hardware.
- **Non-Union:** Bone fails to heal.
- **Malunion:** Bone heals incorrectly.

Lessons Learned:

- Accurate diagnosis and imaging are essential.
- Non-surgical treatment works for most minimally displaced fractures.
- Surgery is necessary for significantly displaced or unstable fractures.
- Post-operative rehabilitation and regular follow-up are crucial for optimal outcomes.

Periprosthetic Glenoid Fractures

Overview:

Periprosthetic glenoid fractures are rare but significant complications during shoulder arthroplasty (joint replacement surgery).

What are Periprosthetic Glenoid Fractures?

These fractures occur around the shoulder implants, either during or after shoulder arthroplasty.

Causes of Periprosthetic Glenoid Fractures:

- **Patient Factors:** Osteoporotic bone, delayed procedures, and bone sclerosis.
- **Technical Factors:** Malpositioning of implants, improper reaming techniques, and excessive force during surgery.

Symptoms:

- **Pain:** Severe pain around the shoulder.
- **Swelling and Deformity:** Visible swelling and possible deformity.
- **Limited Movement:** Difficulty moving the arm.

Diagnosing Periprosthetic Glenoid Fractures:

- **Physical Examination:** Checking for pain, swelling, and deformity.
- **Imaging:**
 - **X-rays:** Standard views to assess the fracture and implant.
 - **CT Scans:** For detailed assessment.

Types of Fractures:

- **Type 1:** Glenoid lip fractures.
 - **1A:** Small fractures not affecting implant stability.
 - **1B:** Large fractures compromising stability.
- **Type 2:** Scapular neck fractures affecting the glenoid and scapular body connection.

Treatment Options:

1. **Non-Surgical Management:**
 - Suitable for small, stable fractures.
 - **Immobilization:** Using a sling or brace to support the arm.
2. **Surgical Management:**

- Needed for larger, unstable fractures.
- **Surgical Techniques:** Fixation with screws, using revision components with longer pegs, and bone grafting.

Possible Complications:

- **Infection:** Risk after surgery.
- **Implant Failure:** Problems with the shoulder implant.
- **Non-Union:** Bone fails to heal.

Lessons Learned:

- Accurate assessment and pre-operative planning are crucial.
- Non-surgical treatment works for small, stable fractures.
- Surgery is necessary for larger, unstable fractures.
- Regular follow-up and imaging are essential for monitoring healing and detecting complications.

Coracoid Fractures

Overview:

Coracoid fractures are rare injuries often associated with other shoulder injuries like AC joint dislocations or fractures of the scapula, clavicle, and humerus.

What is the Coracoid Process?

The coracoid process is a small bony projection on the scapula (shoulder blade).

Causes of Coracoid Fractures:

- **Direct Trauma:** Such as a direct blow to the shoulder.
- **Repetitive Stress:** Overuse injuries from activities like throwing or lifting.



Symptoms:

- **Pain:** Severe pain around the coracoid process.
- **Tenderness:** Pain when touching the area.
- **Limited Movement:** Difficulty moving the arm.

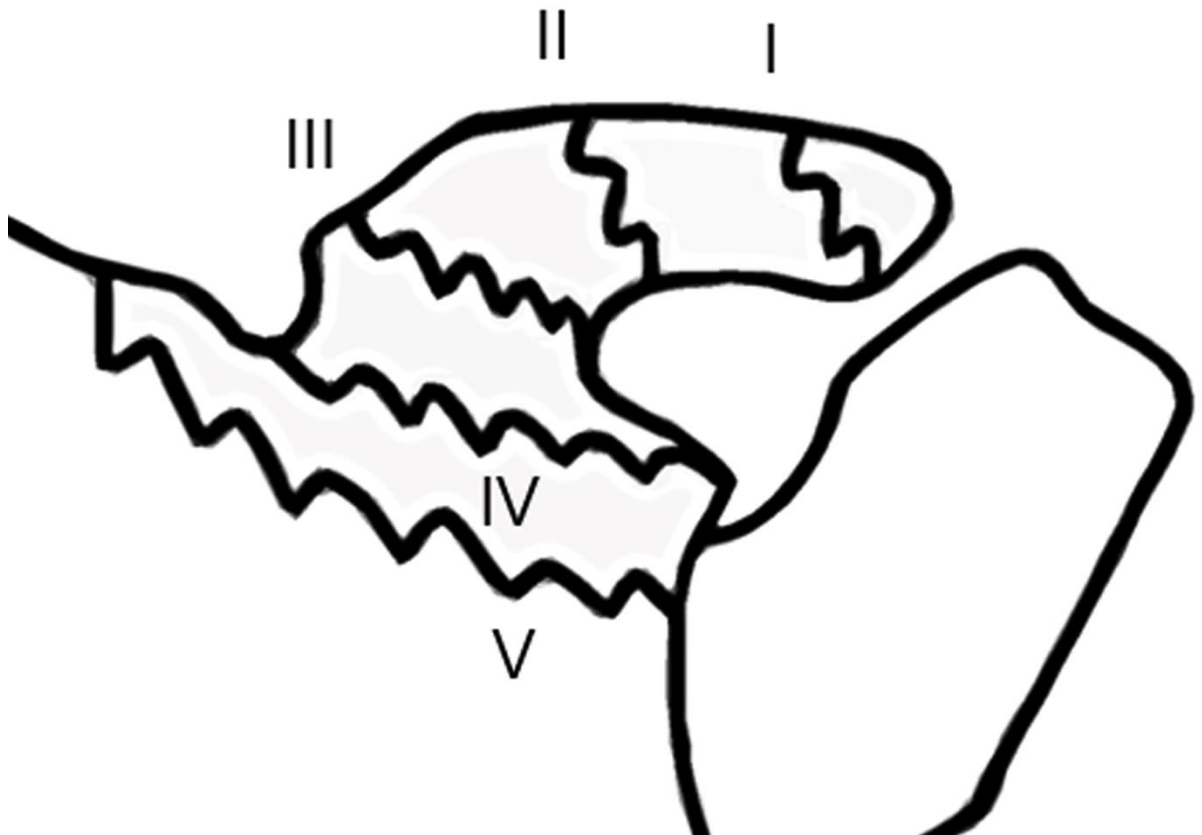
Diagnosing Coracoid Fractures:

- **Physical Examination:** Checking for pain, tenderness, and limited movement.
- **Imaging:**
 - **X-rays:** Standard views to see the fracture.

- **CT Scans:** For detailed images.
- **MRI:** Useful for assessing ligament injuries around the coracoid.

Types of Fractures:

- **Ogawa Classification:** Divides fractures based on their location relative to the coracoclavicular ligament.
 - **Type I:** Fracture behind the ligament, often needing surgery.
 - **Type II:** Fracture in front of the ligament, usually managed without surgery.
- **Eyres Classification:** Categorizes fractures into five types based on their location and extent.



Treatment Options:

1. **Non-Surgical Management:**
 - Suitable for isolated and minimally displaced fractures.
 - **Immobilization:** Using a sling for four weeks.
 - **Rehabilitation:** Gradual exercises to restore movement and strength.
2. **Surgical Management:**
 - Needed for significantly displaced fractures or those associated with other shoulder injuries.
 - **Surgical Techniques:** Various approaches to fix the fracture using screws or plates.



Post-Operative Rehabilitation:

- **Initial Immobilization:** Using a sling.
- **Gradual Exercises:** Starting with passive movements and progressing to active and strengthening exercises.
- **Full Recovery:** Typically within 2-3 months.

Possible Complications:

- **Non-Union:** Bone fails to heal.
- **Persistent Pain:** May require hardware removal.
- **Limited Movement:** Ensuring full range of motion through rehabilitation.

Lessons Learned:

- Accurate diagnosis and imaging are essential.
- Non-surgical treatment works for most isolated, minimally displaced fractures.
- Surgery is necessary for significantly displaced fractures or those associated with other shoulder injuries.
- Detailed pre-operative planning and proper surgical techniques are crucial for optimal outcomes.
- Individualized treatment plans based on the fracture and patient factors lead to the best outcomes.

Fracture-Dislocations of the Shoulder

Overview:

Fracture-dislocations of the shoulder are rare but serious injuries that can lead to long-term disability if not treated promptly and correctly. These injuries require immediate intervention, especially in cases involving displaced or complex fractures.

What are Fracture-Dislocations of the Shoulder?

These injuries involve both a fracture of the shoulder bones and a dislocation of the shoulder joint.

Causes of Fracture-Dislocations:

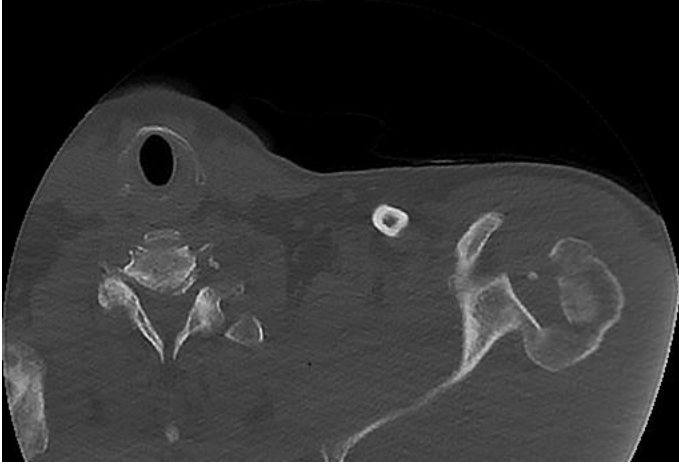
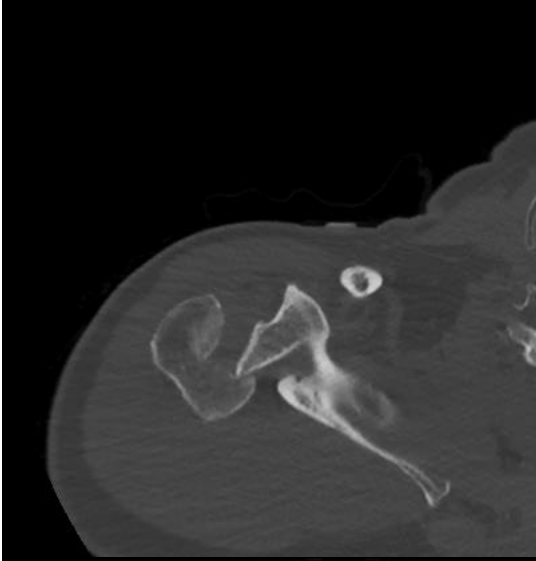
- **High-Energy Trauma:** Car accidents, falls, or sports injuries.
- **Direct Blows:** Heavy impact to the shoulder.

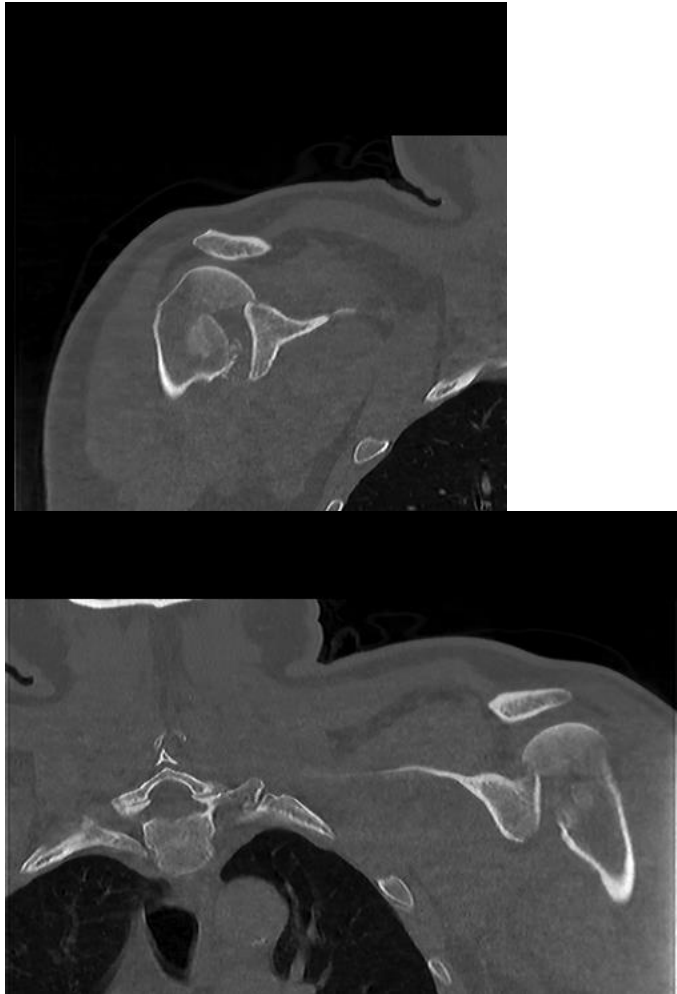
Symptoms:

- **Pain:** Severe pain at the shoulder.
- **Swelling and Deformity:** Visible swelling and deformity.
- **Limited Movement:** Difficulty moving the arm.

Diagnosing Fracture-Dislocations:

- **Physical Examination:** Checking for pain, swelling, deformity, and nerve injuries.
- **Imaging:**
 - **X-rays:** Standard views to assess the fracture and dislocation.
 - **CT Scans:** For detailed images.
 - **CT Angiography:** Useful for identifying vascular structures in certain fracture patterns.





Types of Fracture-Dislocations:

- **Neer Classification:** Based on the number and location of fracture fragments.
- **Edelson Classification:** Another system used for categorizing these injuries.

Treatment Options:

1. **Non-Surgical Management:**
 - Limited to patients with significant comorbidities and limited baseline mobility.
 - **Immobilization:** Using a sling.
2. **Surgical Management:**
 - Needed for most cases to ensure proper alignment and healing.
 - **Closed Reduction:** Gentle techniques to realign the shoulder without surgery.
 - **ORIF (Open Reduction and Internal Fixation):** Aligning and fixing the bones with plates and screws.
 - **Arthroplasty:** Joint replacement surgery for severe fractures.

Post-Operative Rehabilitation:

- **Early Exercises:** Gentle movements to prevent stiffness.
- **Gradual Progression:** Moving to more active exercises and strengthening routines as healing progresses.

Possible Complications:

- **Infection:** Risk after surgery.
- **Bleeding:** Risk of bleeding during or after surgery.
- **Non-Union:** Bone fails to heal.
- **Malunion:** Bone heals incorrectly.
- **Nerve Injury:** Potential nerve damage.
- **Ongoing Instability:** Recurrent dislocations.
- **Need for Revision Surgery:** Additional surgeries to correct issues.

Lessons Learned:

- Accurate diagnosis and imaging are essential.
- Conservative management is viable for a select group of patients.
- Surgery is often required for proper alignment and healing.
- Proper patient selection and tailored rehabilitation programs are essential for optimal outcomes.
- Understanding the injury helps in choosing the right treatment strategy.