Internal Fixation of Femoral Neck Fractures: An Atlas

Femoral neck fractures are a prevalent challenge in orthopedic surgery, particularly among elderly patients and those with compromised bone health. These fractures pose unique diagnostic and therapeutic considerations due to the complex anatomy and biomechanics of the hip joint. Internal fixation has emerged as a cornerstone treatment strategy, aiming to restore joint stability, promote bone healing, and minimize complications. This article presents a comprehensive overview of internal fixation techniques for femoral neck fractures, providing a valuable resource for orthopedic surgeons and healthcare professionals involved in the management of these injuries.

Classification of Femoral Neck Fractures

Femoral neck fractures are classified according to their location and displacement. The Garden classification is commonly used to describe the fracture pattern based on the degree of displacement and involvement of the femoral head.

Internal fixation of femoral neck fractures: An Atlas

by Pauline PATRY

4.4 out of 5

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Screen Reader	: Supported
Print length	: 331 pages

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- **Garden Type I:** Undisplaced or minimally displaced fractures
- **Garden Type II:** Partially displaced fractures with less than 50% displacement
- **Garden Type III:** Completely displaced fractures with more than 50% displacement and involvement of the femoral head
- **Garden Type IV:** Subcapital fractures involving the femoral head

Imaging Evaluation

Radiographic imaging is crucial for the diagnosis and assessment of femoral neck fractures. Standard anteroposterior (AP) and lateral views of the hip are typically obtained to visualize the fracture pattern and determine the degree of displacement. In complex cases, computed tomography (CT) scans may be necessary to further evaluate the fracture configuration and assist in surgical planning.

Surgical Approaches

The surgical approach for internal fixation of femoral neck fractures depends on the fracture pattern, patient factors, and surgeon preference. Common approaches include:

- **Anterior approach:** Provides direct access to the anterior aspect of the femoral neck. It is commonly used for Garden Type I and II fractures.

- **Posterior approach:** Allows visualization of the posterior aspect of the femoral neck. It is suitable for Garden Type III and IV fractures.
- **Lateral approach:** Involves accessing the femoral neck through a lateral incision. It is less commonly used due to the risk of damaging the greater trochanter.

Internal Fixation Techniques

Various internal fixation devices are employed to stabilize femoral neck fractures, including:

- **Screws:** Single or multiple screws can be used to provide compression and maintain fracture reduction.
- **Plates:** Plates can be used to bridge the fracture fragments and provide additional stability.
- **Dynamic Hip Screws (DHS):** DHS combines a screw with a sliding plate that allows some movement at the fracture site to promote bone healing.
- **Intramedullary Nails:** Intramedullary nails provide intramedullary support and stability.
- **Fixation Hybrids:** Hybrid constructs combining different fixation devices may be used to address complex fracture patterns.

Choice of Fixation Technique

The choice of internal fixation technique depends on the specific fracture characteristics, bone quality, patient factors, and surgeon experience. Factors to consider include:

- **Fracture stability:** Unstable fractures require more robust fixation to maintain reduction.
- **Bone quality:** Osteoporotic bone may require specialized fixation devices for adequate support.
- **Patient factors:** Patient age, activity level, and medical comorbidities influence the choice of fixation technique.

Postoperative Management and Rehabilitation

Postoperative management following internal fixation of femoral neck fractures involves:

- **Weight-bearing restrictions:** Partial or non-weight-bearing precautions are typically recommended to protect the fracture site during healing.
- **Physical therapy:** Range-of-motion exercises and strengthening exercises are essential to restore joint mobility and function.
- **Follow-up imaging:** Regular radiographic or CT scans are obtained to monitor fracture healing and assess the stability of the fixation.

Complications

Like any surgical procedure, internal fixation of femoral neck fractures carries potential complications, including:

- **Avascular necrosis:** Interruption of blood supply to the femoral head can lead to avascular necrosis, a serious complication that may compromise joint function.

- **Nonunion:** Failure of the fracture to heal properly, requiring further intervention.
- **Implant failure:** Breakage or loosening of the fixation devices.
- **Infection:** Surgical site infection is a rare but serious complication.

Internal fixation is a crucial surgical technique for the management of femoral neck fractures, enabling the restoration of joint stability, promotion of bone healing, and minimization of complications. This article has provided an in-depth overview of the classification, surgical approaches, internal fixation techniques, postoperative management, and potential complications associated with femoral neck fractures. By understanding these aspects, orthopedic surgeons and healthcare professionals can optimize their approach to these complex injuries and improve patient outcomes.

For a more comprehensive exploration of this topic, we highly recommend the book "Internal Fixation of Femoral Neck Fractures An Atlas," which delves deeper into the nuances of surgical techniques, case studies, and evidence-based management strategies.

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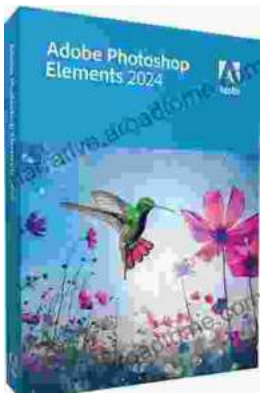

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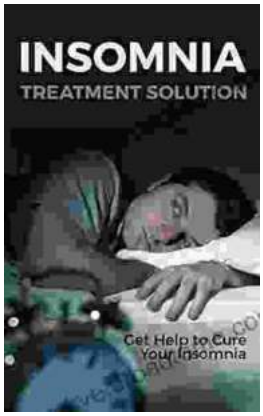

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