CLINICAL FEATURES OF HIP FRACTURES IN THE ELDERLY

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Abstract: Hip fractures are a significant medical concern among elderly individuals and are considered one of the most common and critical injuries encountered in this population. The incidence of hip fractures increases with age due to physiological changes in bone structure, decreased bone density, and the presence of comorbidities. The weakening of musculoskeletal support especially due to osteoporosis and sarcopenia plays a major role in predisposing the elderly to these injuries. A hip fracture in the elderly is not only a mechanical injury but also a critical event that affects both physical and psychosocial health.

Key words: elderly, hip fracture, clinical features, osteoporosis, trauma, mobility, pain, rehabilitation, complications, surgery.

The clinical features of hip fractures in the elderly present with a distinct pattern, largely shaped by age-related changes in bone biomechanics, the presence of chronic diseases, and reduced homeostatic reserves. Symptoms and signs are generally more subtle in elderly patients compared to younger individuals. Most elderly patients with a hip fracture will report pain in the hip or groin area, which may radiate to the thigh, buttock, or knee. The pain typically increases with any attempt to move the affected limb, stand, or bear weight. The affected leg is often

shortened and externally rotated due to the muscular forces acting on the femur. In the context of clinical observation, the elderly may not always be able to clearly articulate their complaints, particularly in those with cognitive impairment. Thus, physicians must be alert to subtle changes such as reduced mobility, reluctance or inability to stand, or an unexplained decline in general condition. Noticeable swelling, ecchymosis, or deformity may not always be present and, in some cases, hip fractures can even be occult, only detectable via imaging studies due to preserved bone alignment or minimal displacement. Physical examination reveals significant tenderness over the hip joint, with resistance or pain upon passive movement of the limb. Although signs of external rotation and shortening are common in displaced fractures, non-displaced or impacted fractures may present with less obvious physical changes. The inability to actively lift or move the leg, the "log roll" test painful, and lack of weight-bearing capacity are strong clinical indications of a hip fracture in this population [1].

Hip fractures in the elderly are commonly categorized into intracapsular and extracapsular types, which include femoral neck fractures and intertrochanteric or subtrochanteric fractures, respectively. Intracapsular fractures often present with less obvious swelling, given the anatomical constraints, while extracapsular fractures, especially intertrochanteric fractures, may manifest with more significant local tenderness and bruising. Each type presents distinct clinical challenges due to differences in vascular supply, propensity to displacement, and healing potential. Often, hip fractures in elderly patients are precipitated by low-energy trauma, for example, a simple fall from standing height. Osteoporotic bone is less resistant to such injuries, and increased frailty further exacerbates risk. In elderly individuals, even trivial falls must be considered potentially serious, prompting thorough clinical and radiological assessment. Comorbid conditions frequently complicate the clinical picture. Cardiovascular diseases, diabetes mellitus, chronic kidney disease, and neurodegenerative disorders not only increase the risk of sustaining a hip fracture

but also may obscure the classical presentation. Patients with dementia, for example, may not localize or report pain clearly and may instead present with general agitation, confusion, or decline in function.In addition to the primary clinical features, the occurrence of a hip fracture often precipitates a cascade of secondary complications. Elderly patients are at high risk for deep vein thrombosis, pressure ulcers, pulmonary infections, and urinary tract infections as a consequence of prolonged immobility. The risk of delirium post-injury is also significant and may be exacerbated by pain, hospitalization, infection, or adverse medication effects. These complications contribute to increased morbidity and mortality, necessitating a multidisciplinary management approach [2].

Another frequent clinical issue is the occurrence of multifragmentary or comminuted fractures due to the brittleness of osteoporotic bone. Diagnosis can be challenging, sometimes requiring advanced imaging such as MRI or CT scans to confirm the extent and complexity of the injury, especially in impacted or minimally displaced fractures. Hip fractures can profoundly affect the functional status and quality of life of elderly individuals. Many patients experience a significant loss of independence post-injury, with about half never regaining their pre-fracture level of mobility. There is also a high risk of subsequent falls, further fractures, and long-term institutionalization. The psychological impact should not be underestimated. Hip fractures frequently lead to depression and anxiety due to sudden loss of autonomy and the burden of rehabilitation. Elderly individuals may require comprehensive psychological and social support in addition to standard orthopedic care. Hospitalization and surgical intervention are generally required to restore function and manage pain. However, elderly patients face higher risks of surgical complications, such as wound infection, perioperative myocardial infarction, or exacerbation of underlying comorbidities. Pre-existing frailty, malnutrition, and polypharmacy further increase perioperative risk. Careful preoperative evaluation,

optimization of underlying medical conditions, and individualized anesthesia planning are vital to reducing complications [3].

Rehabilitation is a cornerstone in the management of hip fractures in elderly patients. Early mobilization, physiotherapy, and occupational therapy are crucial for preventing complications and promoting recovery. However, rehabilitation must be tailored to individual patient needs, taking into account cognitive status, baseline functional capacity, and social support systems. The involvement of multidisciplinary teams, including physiotherapists, occupational therapists, social workers, nutritionists, and geriatricians, increases the likelihood of favorable outcomes. Secondary prevention of future fractures is essential. After a hip fracture, evaluation for osteoporosis and initiation of antiresorptive therapy, as appropriate, are important to reduce the risk of subsequent fractures. Fall risk assessment and environmental modifications also play a central role in comprehensive management. Mortality rates following hip fractures in the elderly remain high. One-year mortality estimates range from 15% to 30%, depending on age, gender, comorbidities, and pre-fracture functional status. Timely surgical intervention, effective management of comorbid conditions, and diligent rehabilitation efforts significantly affect these outcomes [4].

Socioeconomic factors also influence outcomes after hip fractures. Access to prompt medical care, appropriate surgical expertise, and availability of post-acute rehabilitation services vary among regions and can impact recovery and survival. Elderly individuals living alone or in assisted care facilities may not benefit from the same level of support compared to those with close family involvement.The burden of hip fractures in the elderly extends beyond the patient, affecting caregivers and society at large. The high cost of acute care, rehabilitation, and potential long-term institutionalization places significant demand on healthcare resources. Early identification of at-risk populations, public health efforts to promote bone health, and fall-prevention strategies in the community can help mitigate this impact.

Culturally competent and holistic approaches are increasingly recognized as essential in managing elderly patients with hip fractures. Effective communication, respect for patient autonomy, consideration of preferences regarding surgical interventions, and incorporation of advanced care planning further enhance the quality of care [5].

Conclusion:

In conclusion, hip fractures in the elderly are a multifaceted clinical entity characterized by distinct presenting features, high rates of complications, and significant morbidity and mortality. The clinical challenge lies not only in recognizing the often subtle signs and symptoms but also in navigating the complex interplay between acute orthopedic injury and chronic comorbid conditions. Multidisciplinary management, early intervention, and comprehensive rehabilitation are keys to improving outcomes. Further research is necessary to better understand the pathophysiology of these injuries in the elderly and to develop targeted prevention and treatment strategies that address the unique needs of this vulnerable population.

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