



Review Article

Review of Inter trochanteric neck femur fractures and scope of Ayurveda as a  
supportive medicine

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ABSTRACT:

Intertrochanteric femur fractures are a very common injury seen in the elderly. Understanding the pathophysiology as well as the proper treatment options will significantly decrease the risk of mortality and morbidity of this injury. This activity reviews the evaluation and treatment of intertrochanteric femur fractures and highlights the role of the inter-professional team in evaluating and treating patients with this condition.

According to Ayurveda literature femur is classified as Nalakasthi which is long bone. Head of Femur is involved in hip joint.

KEY WORDS:

1. INTRODUCTION:

Intertrochanteric fractures are defined as extracapsular fractures of the proximal femur that occur between the greater and lesser trochanter. The intertrochanteric aspect of the femur is located between the greater and lesser trochanters and is composed of dense trabecular bone. The greater trochanter serves as an insertion site for the gluteus medius, gluteus minimus, obturator internus, piriformis, and site of origin for the vastus lateralis. The lesser trochanter serves as an insertion site for the iliopsoas. The calcar femorale is the vertical wall of dense bone that extends from the posteromedial aspect of the femur shaft to the posterior portion of the femoral neck. This structure is important because it determines whether or not a fracture is stable. The vast metaphyseal region has a more abundant blood supply, contributing to a higher union rate and less osteonecrosis compared to femoral neck fractures.[1][2]

Objectives:

- Describe the most common mechanisms of injury that can result in intertrochanteric femur fractures.
- To observe the structural changes in anatomy of intertrochanteric femur neck fractures
- To assess the probability of risk of thromboembolic events post fracture as long bone fractures are more prone to develop thromboembolisms and fat embolisms.
- To analyze the quality of life post development of I.T. fractures as patients remain bed ridden if these are not operated in time

Etiology

These fractures occur both in the elderly and the young, but they are more common in the elderly population with osteoporosis due to a low energy mechanism. The female to male ration is between 2:1 and 8:1. These patients are also

typically older than patients who suffer femoral neck fractures. In the younger population, these fractures typically result from a high-energy mechanism.[3]

### Epidemiology

These fractures along with other hip fractures are associated with high morbidity and mortality. Currently, 280,000 fractures occur annually with nearly half of these due to intertrochanteric fractures. By 2040, it is estimated to increase 500,000.[4]

### History and Physical

These patients typically present with a short and externally rotated lower extremity. Past medical and social history should be obtained to optimize perioperative management and to prepare for postoperative rehabilitative care. It is important to evaluate the skin (open versus closed fracture) and the neurovascular status. Evaluation of a range of motion is typically not possible due to pain. Basic lab studies such as complete blood count, comprehensive metabolic panel, and coagulation studies should be obtained to recognize abnormalities that may need time to correct prior to surgical stabilization. Early involvement of an inter-professional team including anesthesia and internal medicine or geriatrics is ideal to medically optimize surgical candidates for operative repair.

### Diagnosis:

Plain radiographs are the initial films chosen to evaluate for these fractures. The recommended views include the anteroposterior (AP) pelvis, AP and cross-table lateral of the affected hip and full-length radiographs of the affected femur. Although the diagnosis can be made without pelvic films, pelvic radiographs are useful to assist in preoperative planning for restoration of the proper neck-shaft angle. Full-length radiographs of the femur are useful to assess for deformities of the femur shaft which could affect the placement of an intramedullary nail and evaluation of prior implants in the distal femur. CT and MRI are typically not indicated but can be used if radiographs are negative, although the physical

exam is consistent with a fracture. MRI is indicated if there is an isolated greater trochanteric femur fracture and intertrochanteric extension is of concern. Additionally, a physician-assisted AP traction view of the injured hip can be helpful in further characterizing fracture morphology and feasibility of closed reduction or need for open reduction techniques.[5][6]

### Structural changes expected in anatomy of Intertrochanteric Femur Neck Fracture

These fractures are usually a result of a ground-level fall in the elderly population and are classified as either stable or unstable. Determination of stability is important as it helps determine the type of fixation required for stability. Stable fractures have an intact posteromedial cortex and will resist compressive loads once reduced. Examples of unstable fractures include: comminution of the posteromedial cortex, a thin lateral wall, displaced lesser trochanter fracture, subtrochanteric extension and reverse obliquity fractures. This Evans classification breaks down intertrochanteric femur fractures based on displacement, number of fragments and the type of fragment displaced.

Type I is a 2 part fracture,

Type II are 3 part fractures

Type III are 4 part fractures.

The A subclassification in type I fractures is used for non displaced fractures while B fractures are displaced.

In type II fractures, the A subclassification describes a 3 part fracture with a separate GREATER trochanter fragment while the B subclassification describes a 3 part fracture with a LESSER trochanter fragment.

Type III fractures are 4 part fractures.

According to Sushruta Samhita the chikitsaka in that era were used to apply “**kapata shayana**” where they were used to apply two-two nails ( Keelaka) on both sides of fractured femur bone and one below the foot dorsum in order to immobilize the bone[7]

## Risk assessment and post-operative complications

Regardless of treatment choice, there remains a 20% to 30% mortality risk in the first year following fracture, with males having a higher mortality rate compared to females. In patients who are treated nonoperatively, cardio-pulmonary, thromboembolic events and sepsis are the most common complications seen.[8]

Operative complications include blood loss anemia, infection, nonunion, and collapse, among others. One of the more recognized complications of implant-related failure is screw cutout, which is usually caused when the cephalomedullary screw is placed at a tip apex distance greater than 25 millimeters. If this occurs, a corrective osteotomy with open revision reduction and internal fixation is usually needed in the young patient, whereas in the elderly, treatment for this complication is typically conversion to hip arthroplasty. Another recognized complication with the placement of a long intramedullary device in the elderly population is anterior perforation of the distal femur cortex. This is the result of a mismatch of the radius of curvature of the femur and the implant. The incidence of nonunion is low, less than 2%.

## Scope of ayurveda as a supportive medicine in IT Neck Fractures

1. From Ayurvedic perspective use of Ayurveda drugs like “Lakshadi Guggul” Kukulandtwak Bhasma”, ”Gandha taila” Pinda Taila” have proven to be effective in healing the IT fracture.
2. Panchakarma procedures like Basti, Snehana, Swedana have great advantage towards pain management in Fracture neck femur Patients
3. Internal oleation (Abhyantar Snehapana) with Gandha Taila is an effective treatment to heal the
4. Internal Oleation with Pinda Taila is useful in strengthening muscles, as in ITN femur Fractures Muscles usually loose their tone due to disuse atrophy.
5. Ayurvedic anlgesics like “maha vata widhwans rasa” Vatagajankush rasa” Brihat Vata Chintamani Rasa” “Langallyadi

guggul”” Raupya yuktamahayograj guggul” should be encouraged, as allopathy analgesics if used long term may cause gastritis, gastric ulcers, colitis and kidney injury.

## DISCUSSION:

1. Patients should be educated on post-operative rehabilitation, physiotherapy, and importance of prompt treatment in IT fractures.
2. Awareness should be created in people that not reducing the IT fracture could lead to life threatening complications including Fat embolism, thromboembolism which could Lead to thromboembolic event like Myocardial Infarction, Pulmonary Embolism, Thromboembolic Brain stroke, post IT fracture DVT.
3. Also they must be educated that if IT fractures are not reduced they could hamper the further quality of life of elderly population in whom these IT fractures are most common

## REFERENCES:

- [1] Karakus O, Ozdemir G, Karaca S, Cetin M, Saygi B. The relationship between the type of unstable intertrochanteric femur fracture and mobility in the elderly. *J Orthop Surg Res.* 2018 Aug 22;13(1):207. [PMC free article] [PubMed]
- [2] Sharma A, Sethi A, Sharma S. Treatment of stable intertrochanteric fractures of the femur with proximal femoral nail versus dynamic hip screw: a comparative study. *Rev Bras Ortop.* 2018 Jul-Aug;53(4):477-481. [PMC free article] [PubMed]
- [3] Kani KK, Porrino JA, Mulcahy H, Chew FS. Fragility fractures of the proximal femur: review and update for radiologists. *Skeletal Radiol.* 2019 Jan;48(1):29-45. [PubMed]
- [4] Yang Y, Lin X. [Epidemiological features of 877 cases with hip fraction]. *Zhonghua Liu Xing Bing Xue Za Zhi.* 2014 Apr;35(4):446-8. [PubMed]
- [5] Park JH, Shon HC, Chang JS, Kim CH, Byun SE, Han BR, Kim JW. How can MRI change the treatment strategy in apparently isolated greater trochanteric fracture? *Injury.* 2018 Apr;49(4):824-828. [PubMed]
- [6] Gong J, Liu P, Cai M. Imaging Evaluation of the Safe Region for Distal Locking Screw of Proximal Femoral Nail Anti-Rotation in Patients

- with Proximal Femoral Fracture. Med Sci Monit. 2017 Feb 08;23:719-724. [PMC free article] [PubMed]
- [7] Sushrut Samhita Chikitsa Sthana 3/48,49
- [8] Cha YH, Lee YK, Koo KH, Wi C, Lee KH. Difference in Mortality Rate by Type of Anticoagulant in Elderly Patients with Cardiovascular Disease after Hip Fractures. Clin Orthop Surg. 2019 Mar;11(1):15-20. [PMC free article] [PubMed]

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