

# ORIGINAL ARTICLE

## Evaluation of posteromedial talus fractures

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### ABSTRACT:

**Background:** A posteromedial talus fracture is a specific type of fracture that occurs in the talus bone. The present study was conducted to evaluate cases of posteromedial talus fractures. **Materials & Methods:** 85 patients of posteromedial talus fractures of both genders was assessed using radiographs such as AP- view, lateral view and CT scan was also performed. Parameters such as type of fracture, treatment given and complications were recorded. **Results:** Out of 85 patients, males were 50 and females were 35. Type of fracture was medial tubercle in 35, posteromedial body fracture in 28 and posterior process in 22 cases. Treatment given was cast in 27, ORIF in 38 and excision in 20 cases. The difference was significant ( $P < 0.05$ ). Common complications were subtalar arthritis in 2 patients, non-union in 6 and stiffness of ankle joint in 1 patient. The difference was significant ( $P < 0.05$ ). **Conclusion:** The common fracture was medial tubercle, posteromedial body fracture and posterior process. Non-union, subtalar arthritis and stiffness of ankle joint were common complications observed in the study.

**Key words:** subtalar arthritis, talus, foot

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### INTRODUCTION

A posteromedial talus fracture is a specific type of fracture that occurs in the talus bone, which is one of the major bones of the ankle joint.<sup>1</sup> The talus bone plays a critical role in connecting the foot to the leg bones and facilitating movement of the ankle joint. A posteromedial talus fracture refers to a fracture that occurs on the posterior (back) and medial (inner) aspect of the talus bone.<sup>2</sup> Fractures in this region can vary in severity and complexity, and they may involve different parts of the bone, such as the body or the neck of the talus. These fractures can result from traumatic injuries, such as falls, high-energy impacts, or twisting injuries.<sup>3</sup>

Peripheral talar fractures comprise fractures of the lateral and posterior process with its lateral and medial tubercle, the medial or medio-caudal ridge, the talar head as well as traumatic osteochondral lesions of the lateral and medial talar dome. They are a heterogeneous entity of injuries in terms of mechanism, pathology, treatment, and outcome.<sup>4</sup> However, they share some common traits, for which reason they are analyzed together: they are rare, easily

overlooked, and show poor results if neglected.<sup>10</sup> Peripheral talar fractures are more common than central body fractures of the talus or talar neck fractures. The incidence of peripheral talar fractures has traditionally been estimated with 0.3 to 1% of all ankle injuries.<sup>5</sup> The present study was conducted to evaluate cases of posteromedial talus fractures.

### MATERIALS & METHODS

The present study comprised 85 patients of posteromedial talus fractures of both genders. All patients gave their written consent to participate in the study.

Data such as name, age, gender etc. was recorded. A careful local examination was done. The posteromedial talar body fracture pattern was assessed using radiographs such as AP- view, lateral view and CT scan was also performed. Parameters such as type of fracture, treatment given and complications were recorded. Results were statistically analyzed using chi-square test. P value less than 0.05 was considered significant.

### RESULTS

**Table I Distribution of patients**

Total- 85		
Gender	Males	Females
Number	50	35

Table I shows that out of 85 patients, males were 50 and females were 35.

**Table II Assessment of parameters**

Parameters	Variables	Number	P value
Fracture	Medial tubercle	35	0.76
	Postero- medial body	28	
	Posterior process	22	
Treatment	Cast	27	0.52
	ORIF	38	
	Excision	20	

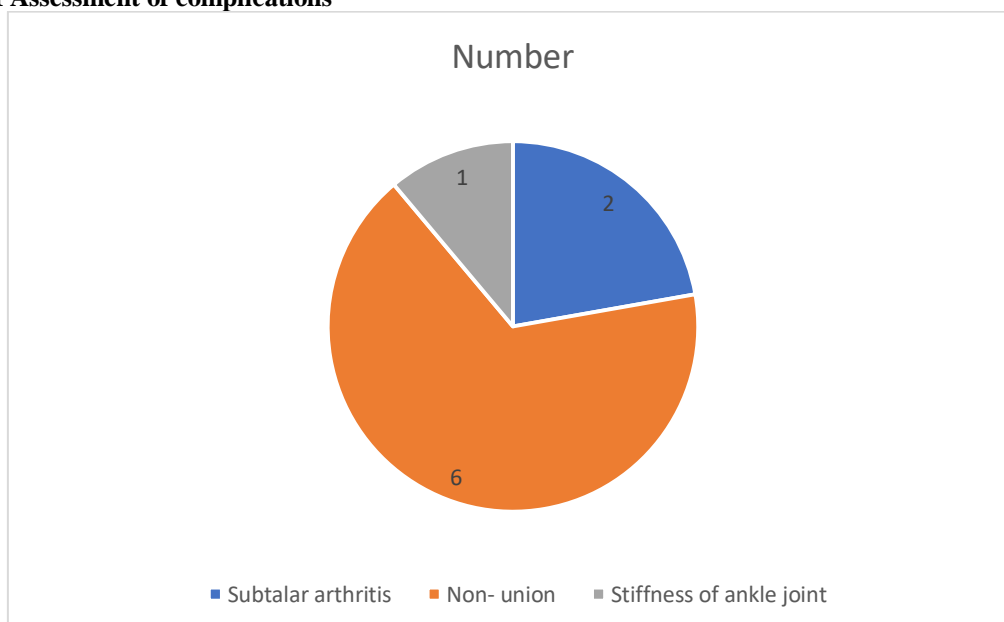
Table II shows that type of fracture was medial tubercle in 35, postero- medial body fracture in 28 and posterior process in 22 cases. Treatment given was cast in 27, ORIF in 38 and excision in 20 cases. The difference was significant (P< 0.05).

**Table III Assessment of complications**

Complications	Number	P value
Subtalar arthritis	2	0.01
Non- union	6	
Stiffness of ankle joint	1	

Table III, graph I show that common complications were subtalar arthritis in 2 patients, non- union in 6, and stiffness of ankle joint in 1 patient. The difference was significant (P< 0.05).

**Graph I Assessment of complications**



**DISCUSSION**

The talus has no muscle or tendinous attachments and is supported solely by the joint capsules, ligaments, and synovial tissues. Ligaments that provide stability and allow motion bind the talus to the tibia, fibula, calcaneus, and navicular. The tendon of the flexor hallucis longus lies within a groove on the posterior talar tubercle and is held by a retinacular ligament. The spring (calcaneonavicular) ligament lies inferior to the talar head and acts like a sling to suspend the head. The posterior process of the talus consists of medial and lateral tubercles. The medial tubercle is smaller and is the attachment site for the posterior portion of the deltoid. The lateral tubercle is larger and is the attachment site of the posterior talofibular ligament.<sup>6,7</sup> Between the two tubercles is the groove for the flexor hallucis longus (FHL) tendon. Fracture

patterns of the posteromedial talus vary. Radiographs often underestimate or miss these injuries entirely.<sup>8</sup> Computed tomography (CT) scans are essential in cases where posteromedial talar body fractures are suspected to aid in diagnosis and gain further understanding of fracture complexity.<sup>9,10</sup> The present study was conducted to evaluate posteromedial talus fractures.

We found that out of 85 patients, males were 50 and females were 35. We found that type of fracture was medial tubercle in 35, postero- medial body fracture in 28 and posterior process in 22 cases. Treatment given was cast in 27, ORIF in 38 and excision in 20 cases. Giuffrida et al<sup>11</sup> studied 6 patients with posteromedial talar body fractures. All of the injuries in their study were high-energy injuries associated with a medial subtalar joint dislocation. The initial diagnosis was

missed in four individuals. Closed reduction and casting were used to treat three patients. Five of the six individuals had chronic subtalar instability. Four patients needed subtalar joint arthrodesis, and one needed tibiotalar calcaneal arthrodesis.

We observed that common complications were subtalar arthritis in 2 patients, non-union in 6, and stiffness of ankle joint in 1 patient. Ebraheim et al<sup>12</sup> presented the diagnosis and clinical outcome of 4 patients with fractures of the posteromedial process of the talus. In 2 patients, the posteromedial process fracture was missed initially, which led to painful non-unions. One patient was treated with excision of a non-union, and the other patient with a non-union refused further surgery. Two patients underwent ORIF through a posteromedial approach. CT scans were useful in defining the fracture in all four patients. Cast treatment was recommended for displaced fractures or fractures without significant subtalar joint involvement. ORIF was recommended for displaced fractures with significant subtalar joint involvement.

The posterior lateral approach between the peroneal tendons and the Achilles tendon to the talar body is made impractical by the posterior and distal position of the distal fibula, which makes visualization of the talus, subtalar, and talocrural joints difficult.<sup>13</sup> In addition, this approach necessitates a fibular osteotomy to complete exposure of the talar body, which necessitates the disruption of the syndesmotric ligaments between the tibia and the fibula, although this approach can provide excellent visualization of the talar body. Most authors therefore advocate the treatment of the posterior talar body through a medial approach by way of an osteotomy of the medial malleolus of the distal tibia.<sup>14</sup>

## CONCLUSION

Authors found that the common fracture was medial tubercle, postero-medial body fracture and posterior process. Non-union, subtalar arthritis and stiffness of ankle joint were common complications observed in the study.

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