

Case Report

VARIATION IN THE SHAPE OF ARTICULAR FACET OF TALUS- A RARE CASE REPORT

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ABSTRACT

Talus is the second largest tarsal bone and helps to transfer weight and pressure forces across the ankle joint. The present case reported a rare variation in the articular facet of the talus. During routine teaching of undergraduates in department of Anatomy a right sided talus with a triangular and concave articular facet on plantar surface of body and absence of sulcus tali was found. It was also observed that this plantar articular facet of body was continuous with the posterior articular facet of head. The variation in shape of calcaneal articular facet of tali is important for the clinician and physiotherapists to understand the underlying etio-pathogenesis of various ankle disorders and also for orthopaedic surgeons during treatment procedures on ankle joints.

Keywords: Talus, Articular Facet, Plantar Surface

INTRODUCTION

Kaur *et al.*, (2011) mentioned that talus is the second largest tarsal bone and has a unique structure designed to channel and distribute body weight. It takes part in the formation of Talocrural, Talocalcaneonavicular and Subtalar joints. Garg *et al.*, (2013) mentioned that the Subtalar (Talocalcaneal) joint is a complex articulation in both structure and function. Iqbal *et al.*, (2012) described that the articular facet present on the plantar surface of body of talus is oval and concave in shape and it articulates with the posterior facet of calcaneum which is oval and convex. Medial and distal to this articular facet is the sulcus tali which completes the sinus tarsi and separates this articular facet from the articular facets on head of talus. Bilodi (2006) mentioned that the talus is the main connector between the foot and leg and helps to transfer weight and pressure forces across the ankle joint. Garg *et al.*, (2013) also mentioned that the fracture of talus is quite common and usually results from twisting of ankle or automobile accidents. Therefore, knowledge about the variations in the anatomical structure and the articular facets of talus is significant not only to anatomists but also to orthopaedic surgeons.

CASES

We reported a variation in the shape of the articular facet present on the plantar surface of body of one dry human talus of right sided. It was observed during routine teaching of undergraduates in Department of Anatomy, Gian Sagar Medical College & Hospital, Patiala. The right sided talus showed the presence of a triangular & concave facet on the plantar surface of body which is normally oval & concave in shape. It was also observed that there was absence of sulcus tali and there was continuation of plantar articular facet of body with the posterior articular facet of head.

DISCUSSION

Kumar *et al.*, (2014) stated that multiple factors may contribute for the variations in articular facets of talus such as geographical area and difference in life style. Various studies has previously examined talus for the presence of variations in its articular facets and classified them into five types. Bilodi (2006)

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reported that in type- 1, tali showed single articular facet on their plantar surface. In type -2, there is ridge dividing articular facet into two parts. In type -3, articular facet partly separated by non articular groove and ridge. In type-4, two articular facets were separated by non articular groove. In type -5 tali showed continuity of articular facet on plantar surface of body with facet on plantar surface of head. In the present case, we observed type 5 Talus.

However, the incidence of type 5 Tali varies in different studies. Bilodi (2006) reported that the incidence of type 5 Tali is 18.41%, Garg *et al.*, (2013) reported in 5% cases and Arora *et al.*, (1979) reported in 2% cases. These studies did not report any variation in shape of the articular facet, nor did they mention the absence of sulcus tali.

We reported a rare type-5, talus bone with the presence of a triangular articular facet on plantar surface of body as well as absence of sulcus tali. Such a variation has not been previously reported in the accessible literature (Figure 1).



Figure 1: Showing Articular Facets on Plantar Surface; a. Triangular Articular Facet on Body; b. Articular Facet of Head

Clinical Relavance

Kaur *et al.*, (2011) mentioned that the variation in shape of calcaneal articular facet of tali may be due to population differences, racial differences, built of an individual, type of gait, and place of living i.e. hilly or plane area or congenital defects. Verhagen (1993) mentioned that such variations in the shape of articular facets may lead to unstable joints which are more likely to suffer trauma, accidents and other biomechanical stress due to uneven weight distribution and further lead to arthritic changes in the subtalar joint. Therefore, prior knowledge about the anatomical variations of the articular facets of talus is important for the clinician and physiotherapists to understand the underlying etio-pathogenesis of various ankle disorders such as talocalcaneal arthritis, pes planus or flat foot deformity which may be inherited or congenital condition associated with mild subluxation of subtalar joint and valgus deformities. The relationship of talus and calcaneum with each other must also be considered by orthopaedic surgeons during treatment procedures like internal and external fixation, osteotomy, arthrodesis and anatomic reduction of head.

Conflict of Interest

None

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Funding

None required.

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