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Letter to the Editor

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Letter to the Editor

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Dear Editor,

Computed Tomography (CT) and direct X-ray evaluations of the whole bone structure of the 80-year-old male patient, who has been admitted to the emergency service due to head and body trauma as a result of falling, has been conducted upon orthopedical clinical consultation request following superficial wounds on extremities. Although there were no pathologies observed as a result of the fall, other than elderness related osteopythe on a few areas, the case has been considered interesting especially due to extremely visible femur trabecular lines on the radiogram of this patient. Since it is generally not possible to observe trabecular lines on the coronal section in a normal radiogram, we requested the visual for further analysis.

Georg Hermann von Meyer, who is a famous anatomist and Karl Culmann, an engineer and a mathematician, starts working together in 1860's to establish the fundamentals of Wolff's law on femure, which inspired the Eiffel Tower (Skedros JG, 2011). Caput femoris is spherical and collum femoris is vulgarly circular in a mature femur (Georg Hermann von Meyer). It has been assumed that the existence of trabecules on the spongiosis, which is located on the top edge of the femur, and the two arcus are present throughout the tampering and straining lines on the bone, produced as a result of the stress caused by weight. One of these arcs are originated from the inner cortex of the femur shaft whereas the other is originated from the exterior cortex (Singh M, 1970). In Wolff Law, it has been hypothesized that the trabecular formation which is reflected as stress and pressure lines on the proximal structure of the femur, attribute functionality to the bone by establishing a mathematical stress orbit which resembles a Fairbarn crane. It has been detected that trabecular structures are lined in such form to display unilateral resistance against the weight throughout the main stress direction, which is created as a result of functional weight bearing (Jan Von Houcke). It has been also reported that such permutation of the trabecular trajectory, which establishes the static and mechanical dynamic of the bone structure, allows distribution of weight by modifying the peripheral diameter of the bone mass (Jan Van Houcke). This trabecular structure forms a circular curve that resembles a spider web throughout the collum femoris with thin girders and which aincludes the interior bone marrows. (Georg Hermann von Meyer). Culman reported that these were short and solid, cantilever

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girders located between trabecular compression patterns and tension stress orbits. Due to the shape and structure of the fibers spanning towards the sensitive filamentous web located inside the wide bone marrow gap, these remain outside the resorbed trabecules during the development of bone structure (Jan Van Houcke). This is generally perceived as condensated cortex trabecular laminae. It has been understood that the proximal coronal section of the femur connects to the cortex with the help of linear structures that stretches in the form of small laminae and it has been also understood that the exterior lamina works as a support system that supports the cortex due to their long formation (Hermann 2011). On his work on congenital hip dislocations on elderly woman with ostheoporosis, Urist has reported that primary trabecules become visible as a result of resorbing other trabecule groups. According to Singh et al., when femur trabecular structure of patients with advanced ostheoporosis becomes visible, this is the grade 6 or normal trabecular structure (all trabeculae visible and of normal thickness) (Fig. 1 and Fig. 2). Ostheoporotical trabecular structure in our case falls in line with this category. In recent years; problems in the continuity of the trabecular structure or in another saying, traumatized trabecular structure is assumed to be a more reliable method when compared to Shentom-Menard line in the diagnosis process of fractures on the collum femoris.

Figures

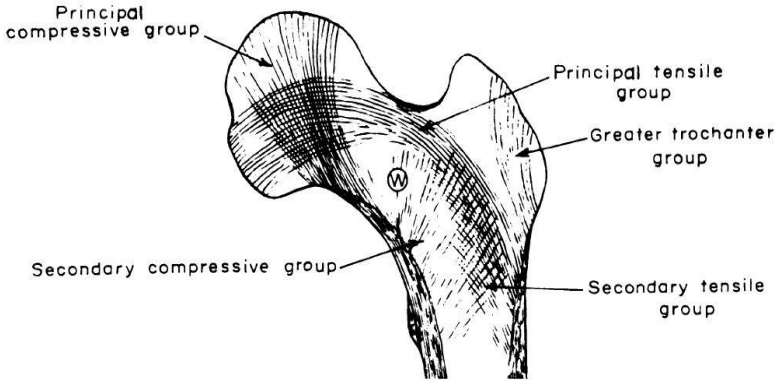

Figure 1. Normal trabecular structure and Ward's Triangle (W) or Grade 6 according to criteria of Singh and associates (4).

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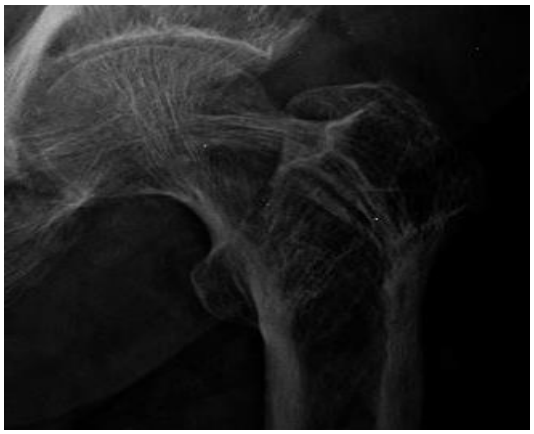

Figure 2. Normal trabecular structural pattern and Ward's Triangle (Grade 6) are visible on X-ray of this male adult patient.

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