A39 Additional Information for Identification Purposes Via the Study of Cam-Type Deformity of the Hip

Laura Donato, Via Tripolitania 195, Rome 00199, ITALY; Marco Straccamore, MD, Sapienza University of Rome, viale Regina Elen 336, Rome 00100, ITALY; Alessandro Di Luca, MD, Via Domenico Chelini 7, Roma 00197, ITALY; and Costantino Ciallella, Viale Regina Elena 336, Rome, ITALY*

The goal of this presentation is to highlight the importance of a morphological variation, such as the cam-type deformity, as a useful tool for personal identification.

This presentation will impact the forensic science community by taking into account the cam-type deformity to gain important information in identifying unknown human remains by providing information about life style and possible pathologies.

The cam-type deformity of the hip is a morphological alteration of the femoral head neck junction. Such manifestation is considered part of the Femoral-Acetabular Impingement Syndrome (FAI). This disease develops consequently to hip flexion because of an abnormal contact between the acetabular cavity and femoral head neck junction. This causes the deformity and the loss of the round shape of the head of the femur, due to several and repeated traumas toward the upper labrum of the acetabular cup and the adjacent chondral structures, resulting in a deformity of the acetabulum of the pelvis. The cam-type deformity's main feature is the formation of extra bone in the upper segment of conjunction between the body and the head of the femur.

The presence of this clinical condition can either be painless or cause pain and functional limitation of the hip, due to the deformities of the acetabular labrum and articular cartilage. As a consequence of the FAI, the cam-type deformity can be linked to hip dysplasia, previous fracture of the pelvis and femur, childhood hip disorder, and septic arthritis. Scientific literature states that significant morphological variations of the femoral head-neck junction, due to physical activities and/or occupational stress, can be a possible manifestation. Sports such as soccer, hockey, and horseback riding may be the cause of this deformity of the head and body of the femur. In these cases, the peculiar stance of the subject, as in hockey for example, causes a morphological response of the bone structure of the proximal epiphysis of the femur. This feature is also typical in sports or in jobs in which the subject remains standing for long periods of time. In these cases, the deformity is caused by the normal and involuntary favoring of one of the legs.

By the anthropological examination of the bones of a subject, both of the femur and of the whole skeleton, it is possible to detect this type of modification of the physiological structure. This study compares two subjects, both affected by cam-type deformity due to different pathological and occupational conditions. Bones belonging to these individuals have been macroscopically examined with the goal of finding features leading to pathology or occupational stress. Particular physical activities or pathological conditions linked to cam-type deformity, such as limping, can provide additional and useful information for the reconstruction of identity in cases of recovered unidentified corpses.

International literature is not lacking information about the cam-type deformity, yet this feature has not yet been taken into account for identification purposes.

Cam-Type Deformity, Identification, Forensic Anthropology