Unicameral Bone Cyst in a 15 y/o Male High School Lacrosse Player

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Background: 15 y/o male high school lacrosse goalie with a previous unremarkable orthopedic history presented with pain in the 2nd proximal phalanx after a light but direct blow from a lacrosse ball during practice. On observation, the 2nd digit had developed immediate considerable edema. Palpation revealed instability within the 2nd digit with pain radiating down the digit with the bump test. The athlete was unable to flex or extend due to shooting pain. It was determined that the athlete should be sent for physician examination. The digit was immediately iced, splinted, and the athlete was sent to a walk-in radiography clinic. Differential Diagnosis: 2nd metacarpal fracture, 2nd proximal phalanx fracture, sprained 2nd metacarpal phalangeal joint, phalanx contusion, MCP dislocation Treatment: Upon Examination the same day in the walk-in radiography clinic, the physician ordered radiographs. Results revealed a fracture to the second phalanx towards the distal epiphyseal plate. In addition, the radiograph showed a unicameral bone cyst proximal to the epiphyseal plate. The cyst is believed to have created a pathological weakness in the bone leaving it susceptible to fracture. In order to repair the damaged bone, the cyst would need to be removed, and a cadaver graft would have to be transplanted into the void. At this time however, the pathological fracture and the surgery to repair the bone was ruled to be non-emergent. The fracture was treated with a cast/splint for 3 weeks and to date is completely healed. The athlete has elected to delay any surgical procedure until after the fall football season. Uniqueness: Unicameral Bone cysts are often found in teenagers and are more common in males. These lesions are most commonly found in the epiphysis of long bones, with the humerus being the most common (50-60%), followed by the proximal femur (30%), and pelvis (2%). It is rare to find these types of cysts in other bones. Typically it not pathologically fractured the lesion will gradually resolve itself. When a UBC is found, the physician will take an in depth past medical history of the family including anything that may predispose the patient such as a history of rheumatologic conditions, bone tumors, endocrine disease, or cancer. Also, the physician will perform a screening examination of the axial skeleton and uninvolved extremities. It is very rare for a patient to have more than one UBC. Although it is not known what predisposes someone to this condition, it is thought that it occurs when there is an outgrowth of the epiphyseal plate or an abnormal pocket of synovial fluid. Conclusions: 15 y/o male lacrosse goalie with no previous medical history was found to have a unicameral bone cyst in the epiphyseal plate of the 2nd phalanx, which resulted in a pathological fracture. The athlete was casted for 3 weeks and now wears an aquaplast splint in his gloves to allow participation without restriction. Occasionally he will complain of pain in the 2nd digit when hit directly, however it is felt that there is minimal risk of sustaining further pathological damage before surgery. The overall occurrence of UBCs is unknown because many resolve themselves within the first two decades or are not discovered because they are asymptomatic. They are most commonly found in high school age athletes when pathological fractures occur due to the increased stress on the bones with the demand of high school athletics. The most common sites are the epiphyseal plates of long bones. Relevant Evidence: A plain X-Ray film is enough to diagnose a UBC, especially with the proximal phalanx. MRI and CT scan are subpar because the lesions density and location of the athlete.