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Slipping with the waste (the wheelie bin hand injury)

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A right hand dominant gentleman in his sixties was moving his wheelie bin when he tripped and landed still holding on to the handle. His hand was trapped between the handle and the ground. He sustained lacerations at the level of his proximal interphalangeal joints of all the fingers of his right hand. The index and middle fingers both had damage to the proximal phalangeal articular cartilage and central slip. The central slip loss in the middle finger required reconstruction. The wounds healed without complication by four weeks at which point his fingers were mobilised and he regained almost full range of movement by three months. Central slip injury can be inadvertently missed by the unwary. This case highlights a relatively unusual pattern of injury affecting multiple digits and illustrates the importance of the anatomical construct through successful operative management. This right hand dominant man in his sixties was moving a plastic wheelie bin when it overturned and landed so that his hand, still on the handle, was crushed against the floor. In the background he has gout and lower limb osteoarthritis. He is a non-smoker and only occasionally drinks alcohol. On examination capillary refill time was less than two seconds and no issues were noted with tendon function in flexion or extension. However, lacerations over the PIPJs of the index middle and ring fingers raised suspicion that the central slip may be damaged. He had also avulsed the nail from his little finger. X-ray images (AP and lateral) of his right hand were taken and did not show any fracture. In the presence of the open wounds Tetanus cover and antibiotic prophylaxis in addition to analgesia, splintage and elevation of the hand were administered in the emergency department. Exploration was undertaken in theatre under GA. An above elbow tourniquet was applied at a pressure of 250 mmHg and the wounds extended to explore.

The index finger had damage to the articular cartilage and complete disruption of the central slip which was repaired with Ethibond. There was some central slip loss in the middle finger so reconstruction was required. This was achieved by drilling a hole in the proximal phalanx and then mobilising the lateral portion of the central slip. A volar slab was maintained for four weeks (until the wounds were healed). He was then referred to hand physiotherapy and he regained good movement of the MCPJ, PIPJ and DIPJ by three months. Finger extension is performed by the extensor digitorum muscle, which originates from the lateral epicondyle and has insertions on the middle and distal phalanges. At the level of the PIPJ the tendons divide into the central slip and two lateral bands. The central slip inserts into the middle phalanx while the lateral bands re-join more distally and insert into the distal phalanx. The mechanism that results in central slip disruption is forceful flexion (as here) or anterior dislocation of the proximal interphalangeal joint. In this case the injury is open so the lesion was visible however; if the injury is closed then active extension of the PIPJ with the DIPJ in flexion reveals the injury. Untreated the lateral bands will move anteriorly and a Boutonniere deformity develops. The method described here is one of local soft tissue reconstructions using readily available resources. Alternative fixation methods include the use of bone anchors and pull-out wires are alternative to drilling a hole in the phalanx. However, bone anchors are a more costly option and pull-out wires are associated with infection. In conclusion central slip injury is important to look for and treat as with inexpensive operative treatment improvement rather than deterioration in hand function can be achieved.

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