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Radiographs can be used to assess for arthritis or bone tumours. Electrophysiological studies may be required to evaluate nerve function, assessing both sensory and motor supply . Ultrasound is a very useful investigation as it can assess soft tissues in a dynamic way while the patient is asked to perform movements, identifying issues such as tendon instability . In addition, since the hand has a thin soft-tissue envelope, many structures can be seen very well with ultrasound that would not normally be evaluated (e.g. erosions within the joints of the fingers as an early sign of inflammatory joint disease). MRI is useful for diagnosing avascular necrosis, ligament injuries or to charac terise soft-tissue tumours. Hand swelling and stiffness Swelling followed by sti ff ness is the arch enemy of hand reha bilitation. The hand will swell after injury , surgery or infection. In response, the wrist flexes and then there is compensatory metacarpophalangeal joint (MCPJ) extension and interpha langeal joint (IPJ) flexion. If action is not taken swiftly , this position will become permanent, as collateral ligaments shrink and tissues fibrose. Hand elevation to reduce swelling, splintage in the position of safety to prevent collateral shortening (Edin b urgh position: wrist extension, MCPJ flexion, IPJ extension) and early mobilisation prevent permanent sti ff ness. Summary box 38.11 General principles of treatment /uni25CF /uni25CF /uni25CF Thumb ulnar collateral ligament injury Chronic thumb overuse or overloading leads to stretching of the ulnar collateral ligament and instability (gamekeeper’s thumb). The ligament can also rupture acutely if the thumb is forcibly abducted (skier’s thumb). If valgus stress on exam ination causes significant opening of the joint on the ulnar side then the ligament needs to be repaired surgically , as the adductor aponeurosis interposes between the torn end of the ligament and its insertion (Figure 38.43), pr eventing healing and causing chronic instability . - - - - Triangular fibrocartilage complex The triangular fibrocartilage complex (TFCC) consists of the ulnocarpal ligaments, extensor carpi ulnaris tendon sheath and a meniscus-like structure between the distal ulna and the carpus. It is continuous with the dorsal and volar wrist capsules and stabilises the distal radioulnar joint. It can undergo traumatic or degenerative tears, presenting with ulna-sided wrist pain and distal radioulnar instability . An MRI arthrogram or wrist arthroscopy aids diagnosis (Figure 38.44). Peripheral tears of the TFCC can be repaired open or arthroscopically , while central degenerative tears can be arthroscopically debrided.

Figure 38.42 Rotational deformity of the little /f_i nger. Avoid swelling and stiffness by: Elevation – reduce swelling Splintage – avoid contractures Movement – pump away swelling and encourage suppleness collateral ligament Figure 38.43 Magnetic resonance imaging showing rupture of the ulnar collateral ligament of the thumb (skier’s thumb). Figure 38.44 Magnetic resonance arthrogram showing peripheral detachment of the triangular /f_i brocartilage complex.

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