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Open Dorso-lateral Dislocation of Proximal Interphalangeal Joint: A Rare Injury Pattern

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Abstract:

Finger dislocations are common injuries with outcome depending on the adequacy of the management that includes early assessment and reduction followed by good rehabilitative workup. It is not uncommon to see neglected and delayed presentation of the injury. Most of these injuries are closed ones and open stretching of the skin by the traumatic event as a part of open dislocation is an uncommon pattern. Open dorso-lateral dislocation is an uncommon injury and our report presents one such case and its satisfactory management.

Key words: Dislocations, Finger injury, Splints, Traction, Pain, Humans.

Introduction

Proximal interphalangeal (PIP) dislocation is one of the commonest dislocations of the body [1]. Mostly the dislocation is dorsal but volar or lateral ones are also reported. Inadequate management may have morbid outcome with decrease strength and persistent pain. [2]. Careful knowledge of anatomy and meticulous reduction coupled with early physiotherapy is of paramount importance in getting satisfactory result. The open injuries need cautious infection prevention and soft tissue respect while managing the associated wound.

Case Report

A 32 year old female patient presented to us after sustaining a trauma to her left little finger as she fell to the ground from moving two-wheeler accidently. She was carrying her child in the lap while the bike took a sharp turn. She fell in the road while attempting to save her child from falling into the road and her left hand bore the brunt. Her extended little digit got injured with an open wound over the palmar surface. She was rushed to a nearby primary healthcare center for first aid before being referred to us. The characteristic deformity indicating a PIP dislocation was evaluated for severity of wound and contamination [Fig.1]. Radiographs were advised after giving a shot of broad spectrum empirical antibiotic intravenously. The radiograph confirmed the diagnosis as dorsolateral dislocation of ring finger PIP joint [Fig.2].

The ring block was given under aseptic condition and after informed consent and thorough cleaning, copious lavage and urgent reduction was planned. The wound was not much contaminated and

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debridement was done accordingly. There was no associated tendon or distal neurovascular injuries on table assessment. The closed reduction was done with standard manner of traction and dorsal directed force to proximal and volar directed force to displaced middle phalanx. The reduction was easily achieved with satisfactory finger motion [Fig.3]. The fluoroscopic confirmation of the reduction was done for concentricity of the reduction. The wound was closed and the procedure was uneventful. The fingers were splinted with buddy-taping in slight flexion as the reduction was assessed to be stable after the procedure.

The stitches healed uneventfully and were removed on tenth post-operative day. The patient was encouraged for early active range of motion



Fig.1: Clinical picture of open dislocation.

exercise as per tolerance. There was no fresh complaints and re-dislocation through entire follow up at three, six, twelve week and then at three and six months. At one year follow up, the patient was pain free and performing activities of daily living on her own.

Discussion

An axial force applied to an extended finger results in PIP dislocation [3]. Most of such dislocations are reported to be missed on initial evaluation not being meticulous [4]. Dorsal and volar are two common patterns of dislocation. A rotational variety is also reported to occur and warrants a careful observation and imaging for appropriate management [5]. Open fracture is a bad prognostic factor along with comminution and multiple fractures [6]. The PIP joint dislocation is often underestimated and undertreated to cause morbidity and functional limitation. Small digit axis



Fig.2: The radiograph showing the dislocation.

is a common site for hand trauma to the tune of 37% of all hand injuries [7]. Open dislocations and irreducible ones may require open reduction [8]. For injuries with presentation of more than an hour, certain kind of digital anesthesia is helpful [9]. Most of these injuries require immediate reduction and splinting under regional anesthesia [10]. Post-reduction radiograph should be evaluated for congruency of the reduction [11]. Early active movement has now been advised for better results [12]. Accurate diagnosis and urgent reduction with adequate management of soft tissue structures is prerequisite to a successful result and optimal functional outcome [13]. The irreducible pattern of dislocations may require use of advance imaging modalities like magnetic resonance imaging (MRI) to report interposing structure and other relevant details [14]. Most of the dislocations treated well with good outcome when appropriately managed. The reported incidences of open dislocation with palmar wound resulted from the force of injury are rare in published literature.

Conclusion

The magnitude and the direction of axial force over affected finger may cause an open palmar wound with dislocation. The open nature of injury warrants careful handling of the soft tissue and precautions for anti-sepsis for the best outcome. Apart from this the importance of appropriate physiotherapy and rehabilitation programme can never be underrated. This report reaffirms the reliability of adherence to basic principles of wound care in common or rare injuries alike.

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Fig.3: Radiograph showing reduction.

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