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VOLUME 10, NUMBER 7

COMPLEX DISLOCATION OF THE PIP JOINT

When the “Jammed Finger” Won’t Reduce

Hand Surgery Resource provides concise, evidence-based education on hand trauma diagnosis and management. This issue reviews complex (irreducible) proximal interphalangeal (PIP) joint dislocations, a rare but surgically urgent variant of the common finger PIP dislocation.

Introduction

Complex, or irreducible, PIP joint dislocations are a rare but critical variant of a common hand injury, the PIP dislocation. Unlike simple dislocations, closed reduction always fails because the proximal phalanx head and neck becomes trapped by tendons or soft tissue like the collateral ligament or the lateral band of the extensor hood becomes entrapped in the joint and prevents an anatomic reduction. Early recognition prevents repeated failed reduction attempts and prevents delaying the required surgery needed for these harder-to-treat injuries.



Figure 1. Complex dislocation of the left long finger after failed closed reduction attempt.

Pathophysiology

A deviation force first ruptures the collateral ligament then further flexion, deviation, and torsion split the lateral band off the central slip, forcing it over the proximal phalanx condyle and into the joint. At times the deforming force continues until it also ruptures the central slip. In volar complex dislocations, the proximal phalanx head becomes trapped between the flexor digitorum superficialis and flexor digitorum profundus thus blocking a successful closed reduction.

Related Anatomy

Central slip, lateral bands, proper and accessory collateral ligaments, volar plate, flexor digitorum superficialis and profundus, and the head of the proximal phalanx.

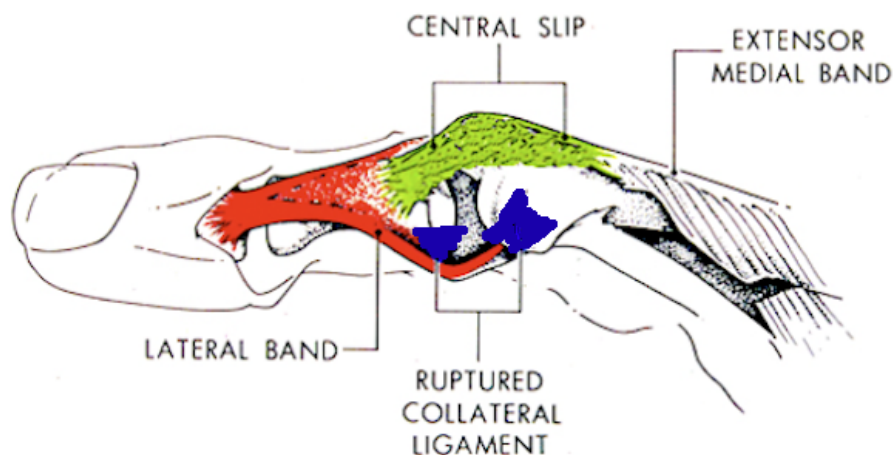


Figure 2. Complex dislocation of the left long finger pathoanatomy with ruptured collateral ligament (blue), lateral band torn off the edge of the central slip and displaced into joint (red), and intact central slip (green) .

Incidence and Related Conditions

PIP dislocation is a very common hand injury; the complex, irreducible subtype is very rare and usually closed, though about one-fifth are open injuries. Related conditions include proximal and middle phalanx fractures, collateral ligament and volar plate injuries, and central slip rupture.

Differential Diagnosis

Simple, reducible PIP dislocation, PIP fracture-dislocation, isolated central slip rupture (boutonniere), and collateral ligament injury without dislocation.

Symptoms

Finger deformity, ecchymosis, swelling of the PIP joint, and joint pain following digital trauma. Sideline reduction attempts typically fail or only partially correct the deformity.

Typical History

A young athlete sustains a flexion-torsion injury to the finger while tackling or catching. The finger appears deformed; a coach or teammate attempts to “pop it back in,” but the joint remains malaligned, and the player presents later with persistent pain and deformity. A dog leash wrapped around a finger can also provide the torsional trauma needed to produce a complex PIP dislocation.

A gentle reduction attempt under digital block fails, confirming the diagnosis. Collateral ligament stability, tendon function, and neurovascular status should all be assessed as accurately as possible. Open dislocations should be diagnosed by a careful exam of all associated skin lacerations. After a failed closed reduction, the digit often remains deviated and malrotated.

Workup Options

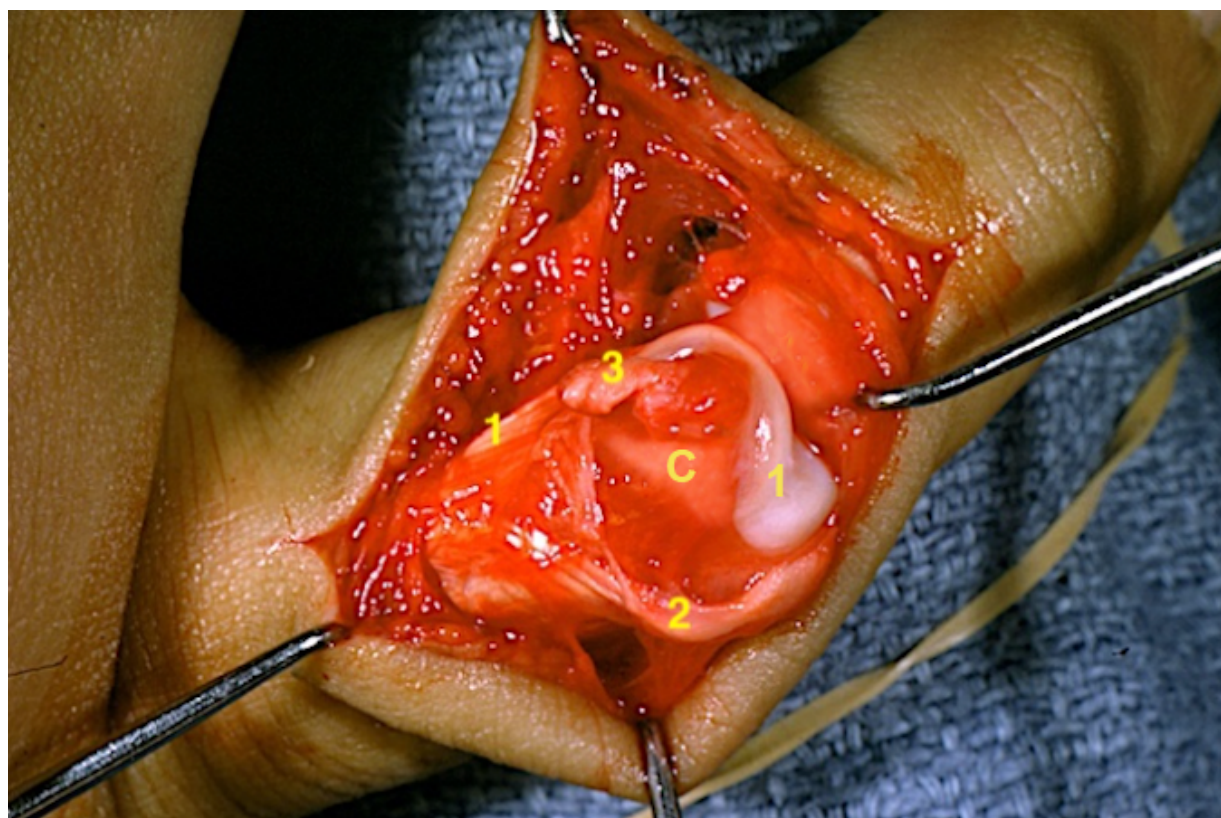
AP radiographs can show a widened joint space; lateral views may appear partially oblique due to rotational deformity at the PIP joint level. Although rarely needed, MRI can identify trapped interarticular soft tissue when other imaging is equivocal and the clinical situation isn't clear.

Conservative Treatment

True complex dislocations cannot be managed conservatively, since closed reduction always fails. Splinting or buddy taping is appropriate only after confirming a stable, reduced, simple dislocation.

Operative Treatment

Early diagnosis should prompt open reduction with extraction of the trapped lateral band or collateral ligament and anatomic repair of all injured structures. Postoperative dynamic extension splinting and early motion protocols improve functional recovery.



flexion and rotation split the lateral band (1) on the central slip (2) and force the lateral band over the proximal phalanx condyle (C) and into the joint.

Complications

Stiffness, persistent PIP joint pain, and residual deformity.

Outcomes

Early diagnosis, surgical repair, and dedicated hand therapy can yield good functional outcomes, though some limited range of motion should be expected even after timely treatment.

Key Educational Points

Suspect a complex dislocation whenever closed reduction fails. Remember, repeated forceful reduction attempts risk further injury. Widened joint space or a rotated lateral X-ray suggests interposed tissue. Open and complex PIP dislocations require urgent surgical referral, while simple, stable dislocations do well with early protected motion.

Recent References

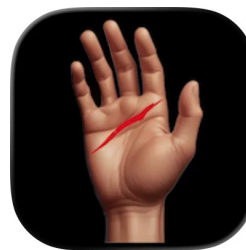
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2. Shenouda S, Means O, Fahrenkopf M. Irreducible Proximal Interphalangeal Joint Dislocation. Eplasty. 2024;24:QA1.

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