Case report

Bilateral traumatic scapholunate dissociation: Case report

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ABSTRACT

In 1923, Destot described scapholunate dissociation (SLD) which results from disruption of the scapholunate interosseous ligament. Several hypotheses have been proposed to explain SLD, such as traumatic, congenital, ligamentous laxity, and synovial pathology. We are presenting a very rare and challenging case of elderly patient who had traumatic bilateral scapholunate dissociation after a fall, which was managed by ligament reconstruction using bone anchor suture, and kirschner wire fixation. The identification of risk factors for frequent falls among older persons is of paramount importance to prevent further serious injuries.

1. Introduction

In 1923, Destot described scapholunate dissociation (SLD) which results from disruption of the scapholunate interosseous ligament [1]. Several hypotheses have been proposed to explain SLD, such as traumatic, congenital, ligamentous laxity, and synovial pathology. However, trauma is the most common cause mainly after a fall on outstretched hands [2]. In acute SLD, physical findings may include swelling in the anatomical snuffbox and dorsal radiocarpal joint. Weakness and pain are associated with wrist loading activities. Plain radiographs are always obtained to evaluate for fracture or other abnormalities. Helpful signs such as The Terry Thomas sign which is a diastasis between the scaphoid and lunate with a gap greater than 3 mm [3].

We report a case of a traumatic bilateral wrist injury that led to bilateral SLD. The work has been reported in line with the SCARE criteria [4].

2. Patient information

A 62-year-old male known case of diabetes, hypertension, and dyslipidemia came to the emergency department after he fell from the stairs on his outstretched left hand. He was mainly complaining of left wrist pain and swelling, tenderness at the snuff box, and decrease range of motion. Left wrist plain radiographs and Computed tomography (CT) of the wrist showed a scapholunate distance of 5 mm (Figs. 1-2). A thumb spica cast was applied and the patient was booked for surgery during the following week. Three days later, the patient came again to the emergency department after he fell in the bathroom complaining of right-sided wrist swelling and pain. Plain radiographs and CT wrist were performed which showed right side increase scapholunate distance which was 8 mm. The patient was referred to cardiology and neurology for further investigations to evaluate the cause of the frequent falls and he has been cleared. After 4 days from the second fall, he underwent bilateral scapholunate ligament reconstruction using bone anchor suture, and K-wire fixation. Preoperative vital signs and investigations were within normal ranges (Figs. 3-4).

2.1. Diagnostic assessment

2.2. Therapeutic intervention

The patient underwent bilateral scapholunate ligament reconstruction using bone anchor suture, and k wire fixation. The surgery was done by the senior author Dr. Almishal. Intraoperatively, the scapholunate ligament was found to be avulsed from the scaphoid bilaterally. Fixation was done using 2 size 0.45 k wires, fixing scaphoid to the lunate, and scaphoid to the capitate. The scapholunate ligaments were repaired using a bone anchor suture. After the surgery, he received oral antibiotic and analgesia for 1 week then he was followed up in outpatient clinic to assess the wounds and with regular X-rays. K-wires were removed after 8 weeks (Figs. 5-6). The patient has good active wrist and fingers flexion and extension. Also, he was referred to the hand therapist for active range of motion exercises and edema control. He received total of 6...
sessions with the hand therapist. Patient returned to his daily life activities 12 weeks after the surgery.

3. Discussion

SLD most of the time is a unilateral injury because the probability of sustaining an identical complex ligament injury to both wrists would be extremely small [5]. Santarelli et al. reported a case of bilateral SLD in a 21-year-old male with trauma, significant wrist pain, and limitation of motion. 6 months in between his left and right wrist injuries [6].

Some believe that cases of bilateral SLD without a trauma are a different pathology and are less likely than unilateral SLD to evolve into scapholunate advanced collapse [7]. Vance et al. reported a case of asymptomatic bilateral SLD, he mentioned that ligamentous laxity could be a causative factor [8]. Hergenroeder et al. reported a case of bilateral atraumatic SLD for which they suggested a multifactorial causation combining congenital ligamentous synovitis, and minor or repetitive trauma [9]. In the case we presented, the patient had bilateral traumatic wrist injuries, intraoperatively, scapholunate ligaments were found to avulsed bilaterally.

Multiple surgical techniques have been proposed to treat this problem, yet argument remains with respect to the best management [10]. Currently recommended by most authors for acute scapholunate dissociation- either a closed or open reduction with temporary internal fixation. The treatment of more chronic scapholunate injuries is more controversial and has evolved over time. During the subacute phase, between 3 and 8 weeks after injury, the ligaments are believed to heal poorly and to be no longer amenable to repair by direct suture. Tendon grafts have been reported to replace a scapholunate ligament this procedure has been technically demanding. Nonsurgical techniques including closed reduction and cast immobilization are inadequate with higher chances of developing arthritic changes. Early treatment of the acute scapholunate injury has been reported to be the most effective way of preventing degenerative progression [11]. We performed open
reduction internal fixation using k wires and ligament repair using bone anchor sutures.

Fall related injuries has been studied and many prevention programs published [12]. The identification of risk factors for frequent falls among older persons is an essential step in developing fall prevention measures. History of frequent falls within a short period in his age with his medical history of diabetes mellitus, hypertension, and dyslipidemia must be investigated thoroughly. Cardiac and neurological workups were requested to rule out other underlying diseases.

4. Conclusion

We presented a very rare and challenging case of elderly patient who had traumatic bilateral scapholunate dissociation after a fall, which was managed by ligament reconstruction using bone anchor suture, and k wire fixation. The identification of risk factors for frequent falls among older persons is of paramount importance to prevent further serious injuries.

Ethical approval

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

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Author contribution

Anas Alyamani: Writing paper, literature review and data collection.
Abdulaziz Alhujairi: Writing paper, literature review and data collection.
Obaid Almeshal: Main Surgeon, outpatient clinic consultation and data collection.

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Declaration of competing interest

No conflict of interested.

References

[1] E.T.I.E.N.N.E. DESTOT, The classic: injuries of the wrist: a radiological study, Clin. Orthop. Relat. Res. (1976–2007) 202 (1986) 3–11.
[2] Brad M. Picha, Emmanuel K. Konstantakos, Douglas A. Gordon, Incidence of bilateral scapholunate dissociation in symptomatic and asymptomatic wrists, J. Hand. Surg. Am. 37 (6) (2012) 1130–1135.
[3] Harvey Chim, Steven L. Moran, Wrist essentials: the diagnosis and management of scapholunate ligament injuries, Plast. Reconstr. Surg. 134 (2) (2014) 312e–322e.
[4] R.A. Agha, T. Franchi, C. Sohrabi, G. Mathew, A. Kerwan, S.C.A.R.E. Group, The SCARE 2020 guideline: updating consensus surgical case report (SCARE) guidelines. Int. J. Surg. 84 (2020 Dec) 226–230, https://doi.org/10.1016/j.ijsu.2020.10.034. Epub 2020 Nov 9.
[5] Idris S. Gharbaoui, David T. Netscher, Fred B. Kessler, Chronic asymptomatic contralateral wrist scapholunate dissociation, Plast. Reconstr. Surg. 116 (6) (2005) 1672–1678.
[6] J.Jay Crittenden, Daniel M. Jones, Albert G. Santarelli, Bilateral rotational dislocation of the carpal navicular: case report, Radiology 94 (3) (1970) 629–630.
[7] Idris S. Gharbaoui, David T. Netscher, Fred B. Kessler, Chronic asymptomatic contralateral wrist scapholunate dissociation, Plast. Reconstr. Surg. 116 (6) (2005) 1672–1678.
[8] Raymond M. Vance, Richard H. Gelberman, Richard M. Braun, Chronic bilateral scapholunate dissociation without symptoms, J. Hand Surg. 4 (2) (1979) 178–180.
[9] Patrick T. Hergenroeder, Arnold R. Penix, Bilateral scapholunate dissociation with degenerative arthritis, J. Hand Surg. 6 (6) (1981) 620–622.
[10] Andrew K. Palmer, James H. Dobyns, Ronald L. Linscheid, Management of post-traumatic instability of the wrist secondary to ligament rupture, J. Hand Surg. 3 (6) (1978) 507–532.
[11] Peter C. Zarkadas, et al., A survey of the surgical management of acute and chronic scapholunate instability, J. hand Surg. 29 (5) (2004) 848–857.
[12] Lidiane Ferreira, Maria de Brito Macedo, Recurrent falls and risk factors among institutionalized older people, Ciencia & saude coletiva 24 (2019) 67–75.