Old un reduced posteromedial elbow dislocation: A rare case report

Peer review status:
No

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Article ID: WMC004823
Article Type: Case Report
Submitted on: 06-Feb-2015, 08:31:35 AM GMT Published on: 07-Feb-2015, 07:13:06 AM GMT
Article URL: http://www.webmedcentral.com/article_view/4823
Subject Categories: ORTHOPAEDICS
Keywords: Posteromedial, dislocation, coronoid, posterior, radial, terrible triad
How to cite the article: Kembhavi RS, James B, Sugirtharaj J, Singh N. Old un reduced posteromedial elbow dislocation: A rare case report. WebmedCentral ORTHOPAEDICS 2015;6(2):WMC004823
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Source(s) of Funding:
None
Competing Interests:
None
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Abstract

Posteromedial elbow dislocation is a rare injury when compared to posterolateral elbow dislocations. In developing countries like India, old unreduced dislocations are not uncommon due to lack of medical facilities in villages. When elbow dislocation are old, management options include conservative, closed or open reduction, arthrodesis, excision arthroplasty and total elbow replacement. Treatment option depends mainly duration of injury, available functional range of movement and nature of articular surfaces. This is a case report of such old unreduced elbow dislocation which was posteromedial in 49 year old female who initially got treated with traditional bonesetter resulting in stiffness and pain. We managed patient with open reduction of elbow through posterior approach and strict postoperative rehabilitation. Functional assessment with Mayo Elbow Performance Score showed excellent results.

Case report

49 year old female came to our institute Sri Lakshmi Narayan Institute of Medical Science, in July 2014 with a history of injury around left elbow around six months back. On proper history elicitation we found mode of injury was fall on outstretched hand in a bathroom. Immediately after the injury patient underwent treatment with traditional bonesetters where bandages were applied for a period a month. She later continued to have pain and stiffness which brought her to our institute after six months post trauma. On examination there was swelling and deformity with tenderness at elbow joint. Three point bony relations between tip of olecranon, lateral and medial epicondyle were altered. There was 30° of flexion deformity with further flexion upto 60°. Supination-pronation movements were 20° each. Skin condition around elbow appeared good and there was no distal neurovascular deficit. X-ray showed posteromedial dislocation of elbow joint (Figure 1). Computed tomography (CT) scan (Figure 2) showed no features of old malunited fracture. Patient was posted for open reduction after thorough preoperative workup. Posterior aproach to elbow was applied. Without triceps splitting elbow joint was approached from medial and lateral side of triceps. Ulnar nerve was isolated. Coronoid, radial and olecranon fossae were filled up with fibrous tissues and were removed. There was no articular irregularities. We were able to achieve congruent open reduction without triceps lengthening. To achieve stability thick radiocapitellar Kirschner-wire was passed. Limb was immobilized for three weeks postoperatively with plaster of paris. Mobilization was started at three...
weeks after Kirschner-wire removal. Patient was put on vigorous active and active assisted range of movement exercises. Functional assessment with Mayo Elbow Performance score at six months showed a score of 95(excellent)(Figure 3). Radiological assessment at 4, 12 and 36 weeks showed no signs of resubluxation of joint or myositis ossificans (Figure 4).

Discussion

Elbow joint is second most commonly dislocated joint after shoulder[5,6]. Elbow dislocations are classified as posterior, anterior, lateral, medial or divergent depending on ulnar relation to distal humerus. Posteromedial elbow are very rare compared to posterolateral dislocations. That too old unreduced posteromedial dislocations are less reported. Elbow dislocations are also classified as simple or complex injuries depending on associated fractures around elbow[2]. Associated fractures becomes increasingly important for management since they increase instability. ‘Terrible triad’ involves a radial head fracture, a coronoid tip fracture and a dislocation of the elbow and that’s when elbow will be highly unstable[4]. Mechanism of injury involves fall on outstretched hand when a combination of axial loading supination/external rotation of the forearm with posterolateral based valgus force results in elbow dislocation which is commonly seen in posterolateral elbow dislocation. In case of posteromedial elbow dislocation, a varus posteromedial force is responsible. In our case too patient fell on her outstretched hand in a bathroom with probable varus posteromedial force which resulted in posteromedial elbow dislocation. Neglected and unreduced elbow dislocations are not uncommon in developing countries like India[7,8]. There is a habit of people approaching to traditional bone setters immediately after trauma because of easy accessibility of those in villages and lack of education on health issues. In our case too patient approached to local bone setter immediately after trauma and continued treatment there for a month. In fresh fractures CT is useful investigation especially to identify minute fractures which will be missed in plain radiographs. In older dislocations too, CT plays important role in identifying malunited fractures and to know articular irregularities. In our case, there were no such findings. Treatment options for old unreduced elbow dislocation depends mainly on duration of injury, available range of movements and nature of articular surfaces[9,10,11,12,13]. Treatment options include conservative management, closed or open reduction, arthrodesis, excisional arthroplasty or total elbow replacement. Conservative management can be tried if patient has got functional range of movements from 30°-130° with a arc of 100°[11]. Our patient had flexion deformity of 30° with further flexion upto 60°(arc of only 30°). Hence we decided for surgical management. Closed reduction is generally indicated till three weeks post trauma. After 3 weeks, closed reduction will be difficult due to surrounding soft tissue contractures and also has increased chance of fracture while manipulation due to juxtaarticular osteoporosis. Hence open reduction is advised in such cases[9,10]. Most studies suggest open reduction for elbow dislocation up to 3 months and other studies shows that it can be done till two years[14,15]. In older dislocation with damaged articular surfaces other surgical options have to be considered like elbow arthroplasty, excisional arthroplasty, or arthrodesis[9,11,12,13].Total elbow arthroplasty is to be considered in elderly patients since it has limited life span and is cost-prohibitive. Excision arthroplasty is easy option but it will give highly unstable elbow and hence discouraged now a days. In our patient duration of injury was six months and intraoperatively we found out articular surfaces to be in good condition and hence we decided to go ahead with open reduction procedure.

Different surgical approaches have been described for open reduction of elbow in case of old dislocations. Most commonly used is Speed’s posterior approach with triceps lengthening procedures like V-Y plasty to facilitate reduction[16]. Krishnamoorthy et al[17] showed combined medial and lateral approach without triceps lengthening is better alternative to posterior approach. We used posterior approach without triceps lengthening since it was not required for us to facilitate reduction. We opened both medial and lateral side of the joint with aggressive dissection without triceps splitting since studies shows that triceps splitting approach may cause fibrosis in the muscle restricting flexion in the future.

Conclusion

Posteromedial elbow dislocation is one rare injury. Old unreduced posteromedial elbow dislocation when properly managed with open reduction and strict postoperative physiotherapy protocol it is possible to achieve good functional elbow. This case report also highlights lack of knowledge on health issues and poor availabilities of medical facilities in developing countries like India which will cause increase in morbidities among patients and also give tougher challenges to
surgeons dealing with them later.

References

Instr Course Lect. 2007; 56:369-76
Illustrations

Illustration 1

Figures 1

Illustration 2

Figure 2
Illustration 3

Figure 3

Illustration 4

Figure 4