Bilateral Monteggia fracture in adults

Obostrana Monteggia fraktura kod odraslih

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Abstract

Introduction. In 1814 Giovanni Monteggia first described two cases of fractures of the proximal third of ulna with dislocation of the radial head. These fractures are more common in children than in adults, and mutual Monteggia fracture is a rare complication. This study presents a treatment course of a patient with bilateral Monteggia fracture. Case report. A 55-year-old patient was injured by falling in the yard. Radiography showed bilateral Monteggia fracture type II (by the Badon classification). Operative treatment of fracture was done by a compression plate on the right side and by the zuggurtung technique on the left one. Closed repositioning of the radial head was done on both sides. The patient was wearing a plaster splint for the upper arm for 21 days. After removing the fixation, the function of the elbow was determined by the Broberg Morrey score (BM) which was on the right side 45.5 and on the left side 47.5. After the proper physical therapy, four months after the surgery, BM score was 100 on the right side, and 93 on the left one.

Conclusion. Surgical treatment and early rehabilitation is the key for the return of good function of both elbows.

Key words: ulna fractures; radius; dislocations; internal fixators; rehabilitation.

Introduction

Fracture of the proximal ulna with dislocation of the radius is known by its eponym as Monteggia fracture. It was first described by Giovanni Monteggia in 1814. It is more common in children, while in adults it occurs as a result of the effects of a direct force, after being hit by a stick and trying to protect the forearm, namely, by falling to the stretched hand with the forearm extremely proned 1,2. Monteggia fracture was classified by Badou (1976) into four types of fracture depending on the side of the luxated radial head. The most common are type I, where there is anterior dislocation of the radial head and type II where there is posterior or posterior-external dislocation of the radial head. Until the appearance of AO plates and stable osteosynthesis, these fractures were treated conservatively and, in general, functional results after treatment used to be very unsatisfactory 3-8. Bilateral Monteggia fracture in adults is very rare. Kloen et al. 5 described a bilateral Monteggia fracture that had been treated surgically, as in the patient we presented.

Case report

A 55-years-old female patient was injured when falling on the flexed forearm with a burden in the hands. After the fall, the patient did not lose consciousness nor vomited, and referred immediately to the Traumatology Center. The patient was inspected clinically and radiographically. Based on
the findings, the diagnosis was bilateral Monteggia fracture (Figures 1a and 1b). There were no neurovascular outages and hospitalization was suggested. The patient refused hospitalization, so an attempt of orthopedic repositioning the upper arm was made and plaster splints were applied on both sides. Subsequently, at the following check-up, the patient agreed to be hospitalized and surgically treated.

Upon admittance and an appropriate preoperative care 8 days after the injury the patient was surgically treated. Fracture of both proximal ulnas was approached by the posterior side. After repositioning the fracture and osteosynthesis by a compression plate with seven screws on the right, repositioning of the ulna was done on the left side and osteosynthesis was performed with zuggurtung technique. Closed repositioning of the luxated radial head was done bilaterally. Intraoperatively, we made radiography to check the position of the radial heads (Figure 2). Upper arm plaster splints were placed bilaterally. Postoperatively, cephalosporins and aminoglycosides were applied intravenously, and on the 6th postoperative day oral antibiotics were prescribed. On the postoperative day 13 stitches were removed and the patient was discharged to home treatment. On the 21st day after operation plaster splints were removed. The function of the elbows was evaluated by the Broberg Morrey (BM) score and it was on the right side 45.5, and on the left one 47.5 (BM score values were between 15 and 100). The patient was referred to physical therapy on the outpatient basis. After four months the patient came to regular check-up. X-rays showed the full consolidation of both fractures of the ulna (Figure 3). The right BM score was 100 (130° of flexion, extension 0°, 90° pronation, supination 90°), while the left elbow BM score was 93 (130° of flexion, extension 20°, 90° pronation, supination 90°); there were no neurologic events.
Discussion

Fractures of the proximal end of the ulna with dislocation of the radial head are serious injuries and their treatment remains a challenge for the orthopedist.

Monteggia fractures are produced by the direct force, the most common effect of blunt force, when a patient tries to defend him (her) self. Evans \(^9\) proved that the cause of the fracture may be forced pronation and forearm during the fall by testing it on cadavers. Fall from a scooter and traffic accidents in the modern world befall to leading cause of Monteggia fracture. The presented patient was injured by falling to the flexed arm - similar to the direct effects of blunt force as the main cause of fracture.

Until the appearance of AO plates and stable osteosynthesis, these fractures were treated nonoperatively by plaster splints. Following the rule, this kind of treatment resulted in a very poor function of the elbow, and led to a subsequent disability of the patient. The appearance of AO plate provides stable osteosynthesis of fractures, early mobilization of the elbow, so the complications are significantly rare \(^4, 5, 7, 8\) In addition to plate, Ring et al. \(^10\) announce the use of zuggurtung technique to achieve a satisfactory stability of fracture. In our study, for the stabilization of the ulna fracture, we used an AO plate on the right side and on the left zuggurtung technique. There were no complications during the treatment. Both fractures healed for the same period regardless of the type of osteosynthesis.

Arenas et al. \(^11\) describe nerve lesions in Monteggia fracture primarily of the anterior interosseal nerve, with spontaneous remissions. Ring et al. \(^4\) describe lesions of \(n.\) interossealis posterior, \(n.\) medianus, \(n.\) ulnaris or both nerves, which are rare and occur in the open Monteggia fracture.

Konrad et al. \(^2\) described in their study the occurrence of non-healing fractures in 6 patients (out of 63) and heterotopic ossification in 7 patients. Korner et al. \(^8\) reported a revision of the surgery in 14 patients out of 68, as well as the appearance of osteoarthritides changes at the humeroradial and radioulnar joint. In our study we noted the appearance of the described complications. Function of both elbows was completely recovered – BM score for the right elbow was 100, and for the left one 93.

Conclusion

Bilateral Monteggia fracture in adults is very rare and requires anatomical reposition of the ulna, its stable osteosynthesis, reposition of the luxated radial head and early rehabilitation. This method of treatment allows complete recovery of elbow function.

REFERENCES


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