

Closed reduction and percutaneous pinning of the acute acromioclavicular separation.

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การรักษาข้อ acromioclavicular เคลื่อนหลุดโดยวิธีดึงจัดกระดูกเข้าที่ และยึดตรึงข้อ โดยใช้เข็มแทงผ่านผิวหนัง แล้วให้บริหารข้อโดยผู้ป่วยช่วยขยับข้อด้วยตัวเอง

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มหาวิทยาลัยขอนแก่น

บทคัดย่อ

การศึกษาวิธีการรักษาข้อ acromioclavicular เคลื่อนหลุดโดยวิธีการดึง จัดข้อเข้าที่ ยึดตรึงข้อโดยใช้เข็ม Kirschner แทะผ่านผิวหนังแล้วให้ผู้ป่วยบริหารข้อแบบช่วยขยับข้อด้วยตัวเอง ในโรงพยาบาลศรีนครินทร์ มหาวิทยาลัยขอนแก่น ตั้งแต่ กรกฎาคม 2534 ถึง ธันวาคม 2535 พบว่าผู้ป่วยทั้งหมด 14 คน เป็นเพศชายทั้งหมด อายุโดยเฉลี่ย ของผู้ป่วย 33.79 ปี เป็นข้อด้านซ้าย 6 ราย และเป็นข้อด้านขวา 8 ราย สาเหตุของการบาดเจ็บที่ข้อเกิดจากอุบัติเหตุจากการจราจร เป็นส่วนใหญ่ มีเพียง 2 รายที่เกิดจากสาเหตุอื่น คือบาดเจ็บจากกีฬา 1 ราย และโดยช้างทำร้าย อีก 1 ราย

การแบ่งกลุ่มของการบาดเจ็บของข้อพบว่าเป็นแบบที่ 3 11 ราย และแบบที่ 4 จำนวน 3 ราย ก่อนการรักษาระยะระหว่าง coracoid process กับกระดูกไหปลาร้า มีค่าเฉลี่ยเท่ากับ 1.74 เซนติเมตร หลังการยึดโดยใช้เข็ม Kirschner มีค่าเฉลี่ยเท่ากับ 1.02 เซนติเมตร ในขณะที่ค่าเฉลี่ยของข้างปกติเท่ากับ 0.76 เซนติเมตร เวลาเฉลี่ยในการผ่าตัดเอาเข็ม Kirschner ออกเท่ากับ 58 วัน หลังผ่าตัด ผู้ป่วย 3 ราย (21.4%) สามารถเคลื่อนไหวข้อไหล่ข้างที่บาดเจ็บได้โดยไม่มีภาวะเจ็บปวดภายใน 2 สัปดาห์ หลังผ่าตัด ผู้ป่วย 13 ราย (92.88%) สามารถทำได้ใน 4 สัปดาห์ ผู้ป่วย 12 ราย (85.71%) สามารถเคลื่อนไหวข้อได้เท่ากับข้างปกติใน 8 สัปดาห์ ผู้ป่วย 4 ราย (28.57%) มีการถอนของเข็มที่ยึดก่อนการผ่าตัดเอาออก และ 1 รายในจำนวนนี้มีการติดเชื้อ เป็นหนองที่ผิวหนังเนื่องจากเข็มเลื่อนทะลุผิวหนังออกมา

Abstract

A prospective study of closed reduction percutaneous pin fixation and early passive range of motion exercise of the acute acromioclavicular joint separation was done in Srinakarind hospital, Khon Kaen, Thailand during July 1991 to December 1992, 14 male patients were included, average age was 33.79 years, 6 were left side and 8 were right side, traffic accidents were the major cause of injury, only one was by sport injury and the other one was hit by an elephant, 11 cases were type III dislocation and 3 cases were type IV, average preoperative coracoclavicular gap was 1.74 centimeters. Average postoperative gap was 1.02 centimeters and average gap of the normal side was 0.76 centimeters. Average time of pin removal was 58 days postoperatively, 3 cases (21.42%) of the patient had pain free motion of the shoulder at 2 weeks postoperatively and 13 cases (92.88%) had pain free motion at 4 weeks, 12 cases (85.71%) had normal range of motion of the shoulder at 8 weeks. 4 cases (28.57%) had retrograde pin migration and one had pin tract infection.

Introduction

An acromioclavicular dislocation is one of the common musculoskeletal injury around the shoulder joint but the treatment of this injury is controversial. The accepted method of treatment are, conservative treatment (Post 1985, Larsen et al 1986, Dias et al 1987, Taft et al 1987, MacDonald et al 1988), acromioclavicular fixation (Eskola et al 1987), coracoclavicular fixation (Lancaster et al 1987, Warren Smith et al 1987, Ho et al 1988, Tsou 1989), tendon transfer (Karlsson et al 1986, Larsen et al 1987, Bunnelli et al 1988, Ferris et al 1989) and closed reduction and percutaneous pin fixation (Mikusev 1987).

The end results of the methods were varies because of the criteria of measurements, the conservative treatment seem to have shorter rehabilitation period but had residual subluxation about half of the cases while operative treatment had longer time of postoperative care and had the risk of operative complication around 10-20%. (Post 1985, Galpin et al 1985, Larson et al 1986, Escola et al 1987, MacDonald 1988).

In 1991, the author designed the method of closed reduction, guided percutaneous smooth pin fixation of the acromioclavicular joint and follow by early auto passive range of motion exercise. The experience with 14 cases of acute acromioclavicular

dislocation treated by this method is the subject of this report.

Materials and Methods

From July 1991 to December 1992, 14 cases of acute traumatic acromioclavicular dislocation type III or more was treated at Srinakarind hospital, in all cases had 3 X-ray examinations, A-P view, A-P stress view and transaxillary view of both shoulders, the coracoclavicular distant was measured, and translation of the acromion process from the distal end of the clavicle was identified.

The patient was treated by closed reduction and percutaneous smooth pin fixation under fluoroscopic control as soon as possible, after fixation every cases got X-ray examination at 1st day, 8th week postoperatively and after the smooth pin was removed.

Rehabilitation was started on the 1st day postoperatively by instructed the patient to do the autopassive range of motion exercise of the injured shoulder (forward flexion and abduction) and pendulum exercise.

Evaluation of the patient was done at 2nd, 4th, 6th and 8th week post operatively in range of motion of the shoulder joint functional ability of the shoulder (table I) and pain on joint motion (table II).

The patient who got injury more than 3 weeks, open fracture, multiple injury around the shoulder girdle, psychiatric patient and failure to follow up was excluded from this study.

Surgical technic

Put the radiolucent pillow under the scapula of the affected side, set the image intensifier to get the true A-P image of the acromioclavicular joint (15° cephalic tilting of the source) (Fig 1), closed reduction was tried and compare the position of the joint with the normal side is the good guide for anteroposterior translation.

The skin is draped as routine, again the joint is reduced and the position of the joint is confirmed by-image intensifier, only perfect reduction can be accepted because only minimal translation of the joint in the image intensifier will be the problem of fixation.

After-good reduction, small stabbed wound was made at the lateral aspect of the acromion process, by using number 12, 4 inches needle as a pin guide, the 2 mm. Kirschner wire is used to fixed the joint, usually 2 pins are enough. (Fig 2)

Again the position of the pin is checked by using image intensifier, if the position is acceptable the pins are cut, bended and embedded under the deltoidius muscle. The skin was closed and the arm sling is used for postoperative splinting.

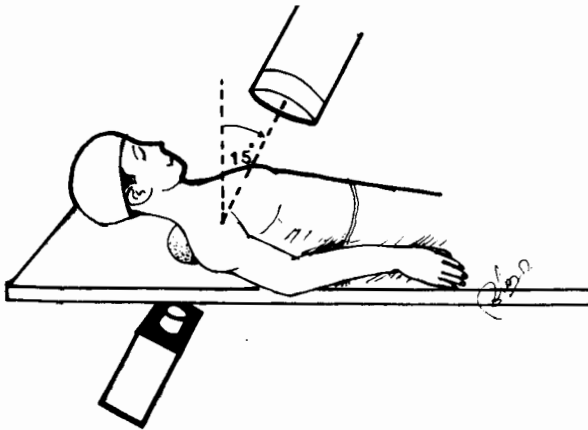


Fig. 1 The position of the patient and image intensifier

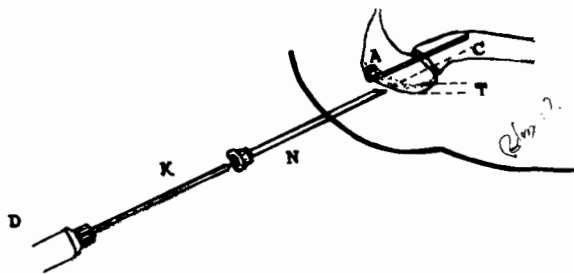
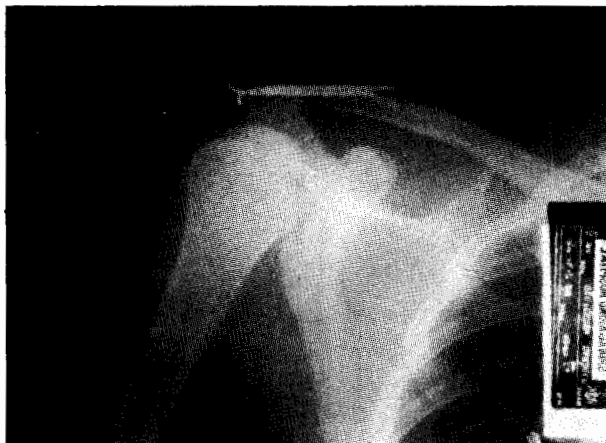
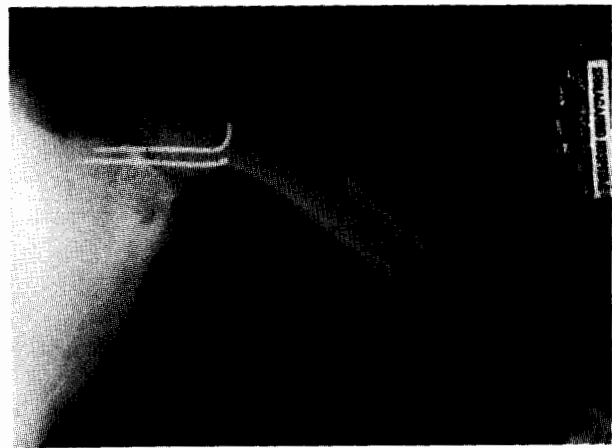


Fig. 2 Kirschner wire insertion

C = clavicle, A = acromion process, J = joint
T = acromion thickness, N = aiming needle (No 12)
K = Kirschner wire (2 mm.), D = Power drill



A



B

Fig. 3 The position of the Kirschner wires after fixation.
A - A-P view, B - Transaxillary view

Table I Shoulder function grading

- 1 = normal function as before injury
- 2 = Can work with discomfort
- 3 = unable to work
- 4 = unable to do active daily living.

Table II Pain grading

- 1 = no pain
- 2 = mild pain on joint motion
- 3 = severe pain on joint motion
- 4 = pain at rest

Result

14 male patients were included in our study, average age was 33.79 years (13-61 years), the cause of injury was traffic accident in 13 cases, one sport injury and one was hit by his elephant. Average time from injury to operation was 4.14 days (1-15 days), average operative times was 20 minutes (10-30 minutes) and average time of pin removal was 58 days. (50-77 days), 3 cases had pain free motion of the shoulder at 2 weeks postoperatively and within 4 weeks 13 cases had pain free motion of the shoulder, 12 cases had normal range of motion of the shoulder at 8 weeks postoperatively.

The average normal coracoclavicular gap was 0.76 centimeters (0.6-1.0 centimeters), the preoperative gap of the injured side was 1.74 centimeters. (1.1-2.5 centimeters) average post operative gap was 1.02 centimeters (0.5-1.5 centimeters) and average gap after pin removal was 1.15 centimeters (0.8-1.5 centimeters) (table III)

Complication

4 cases had premature pin migration and one case got pintract infection, the migrated pin was removed and the patient recovered unevenly without any residual disability.

Discussion

Closed reduction percutaneous pin fixation is not the best method of acromioclavicular joint fixation, but it is simple, easy to reproduce and the result is predictable.

To obtain good result the beginner must be started with the thin patient first, carefully follow the procedure, good orientation before insertion of the first pin and after good fixation, the tip of the Kirschner wire must be bended and embedded underneath the deltoid muscle to prevent early migration of the pin.

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