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Лечение несращений плечевой кости по методу Г.А. Илизарова

Treatment of humerus nonunion using G.A. Ilizarov technique

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Лечение несращений плечевой кости является одной из наиболее сложных проблем, с которой сталкивается хирург в своей практической деятельности. Обычно для коррекции данной патологии используются следующие методы: интрамедуллярный остеосинтез гвоздем, блокирование (interlocking), фиксация пластинками, аллотрансплантация. В нашей серии по методу Г.А. Илизарова было пролечено 46 пациентов. Возраст пациентов составлял от 21 года до 62 лет, средний возраст – 32 года. Первичное лечение осуществлялось с помощью DCP (динамической компрессионной пластинки), гвоздей Раша и пластинок, фиксируемых винтами. Продолжительность лечения составляла 5-11 месяцев (в среднем – 8 месяцев). При применении аппарата Илизарова достигался хороший объем движений в локтевом и плечевом суставах. Средний период контроля составлял 15 лет в пределах от 1 года до 22 лет. Сращение было получено во всех 46 случаях.
Ключевые слова: несращение плечевой кости, метод Илизарова.

The management of the humerus nonunion is one of the most challenging problems that the surgeon confronts in his practice. The procedures traditionally used are: IM nailing, interlocking, plating, transplantation of allograft. In our series, 46 cases with nonunion has been treated by G.A. Ilizarov technique. The age range was: 21-62 years with an average of 32 years. The initial treatment was done by DCP, Rush nails & plates with screw fixation. The duration of treatment ranged from 5-11 months (average 8 months). With the Ilizarov fixator application a good range of elbow & shoulder motion was achieved. The average follow-up period was 15 years with a range of 1-22 years. Union was achieved in all the 46 cases.
Keywords: Humerus nonunion, Ilizarov technique.

INTRODUCTION

Humeral nonunions are often painful and unstable. Good surgical management is sometimes very difficult. Fixation with plates and screws and bone grafting may fail. The outcome of revision operation may be adversely affected by restricted movement of elbow. In most cases, the patient has been several times operated with resultant scarring and cicatrization of the surrounding soft tissues. This renders the environment around the fracture site avascular. Nonunion occurs most commonly in transverse or comminuted middle and lower one third fractures, fractures with distraction or soft tissue interposition, open injuries, infection and fractures treated by internal fixation. Nonunion rate in closed fractures varies from 0-6 %, while the nonunion rate after open reduction ranges from 0-12 % [1]. Success rates after DCP and autogenous grafting ranges from 90-95 %. Recent studies showed that the G.A. Ilizarov Technique is more popular than vascularized bone grafts for humeral shaft nonunions [1, 2, 4, 5].

METHODS

For the last 22 years (’91-’13) in different hospitals 46 cases of humeral nonunion were treated in patients aged from 21-62 years. 32 cases were following previous operation failure and 4 cases – failure of conservative treatment. Female predominated with an average of 32 years.

Two pairs of transosseous cross wires were fixed to two rings (one above and one below the nonunion site). Schanz screw with on 90o arch with oblique support was sometimes connected with the upper ring for further stabilization [7-9]. Correction and compression were obtained through threaded rods to induce osteogenesis.

RESULTS

In all the 46 patients bony union was achieved. The mean period for bony union is 7 months, range 5-11 months.

Table I

Shows sex incidence and its percentage

Sex	Number	Percentage (%)
Female	27	58.70 %
Male	19	41.30 %

The main aetiology was open fracture as presented in table II.

Table II

Shows Aetiology

Open fractures	21 cases
Complication of surgically treated fractures (failed open reduction)	17 cases
Osteomyelitis	08 cases
Total =	46 cases

DISCUSSION

Nailing plating and bone grafting are the accepted traditional methods of managing nonunion of humerus. But a significant number of patients requires other procedures. G.A. Ilizarov method for the treatment of humeral nonunion has many advantages. But several technical problems may arise if the details of the technique are not followed

precisely. For successful outcome it is important to maintain the bone ends in good and stable fixation. In order to provide firm stability and to avoid axial deviation during distraction, the assembly of fixator in our cases usually required one or two rings proximally, one or two distally. Another important factor is to achieve good contract of the bones. A partial contact in one of our cases was the cause of nonunion; but in that case we refixed the apparatus and later on good union was achieved. Fixation with Ilizarov apparatus in the upper middle and lower third by using Schanz screw with 90o arch and oblique support is biomechanically and anatomically superior to that with a plate [1, 5, 6, 8, 10]. The most important thing is that the patient cane mobilize the shoulder and elbow soon after the operation with Ilizarov apparatus.

CONCLUSION

The Ilizarov technique for the treatment of humeral nonunion is very effective and offers many advantages. The advantages of this technique are that it allows for the simultaneous treatment of infection, nonunion, shortening, deformity and problems of soft tissues. In all our cases complications were not severe and did not influence the results.

Fig. 1. 67 years old lady. Deformity of right arm

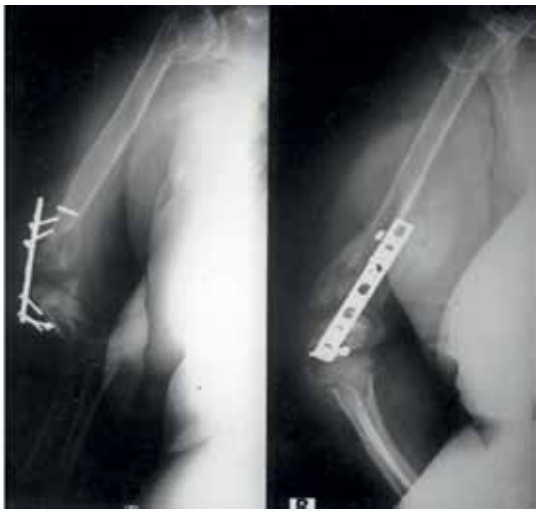

Fig. 2. Radiographic view. Implant failure of right humerus

Fig. 3. Radiographic view of right humerus with the Ilizarov fixator in situ

Fig. 4. Full union is achieved

Fig. 5. No deformity is visible (front view)

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