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PECULIARITIES OF POSTERIOR SHOULDER DISLOCATION. DIAGNOSIS AND TREATMENT

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SUMMARY

Introduction

Posterior shoulder dislocation occurs in 2–5% of all dislocations of the humerus. At the initial examination correct diagnosis is not established in 60–79%. Almost always it is accompanied by a reverse Hill Sachs defect (McLaughlin lesion), size of which is progressing with time after dislocation. Real problem is that it is often impossible to collect anamnesis – patient may have an epileptic attack that he does not remember. Approximately 15% of posterior humerus dislocations are bilateral.

Aim

To identify the features of diagnosis and develop a differentiated approach to the treatment of posterior shoulder dislocation depending on size of the humerus head defect.

Patients, methods and results

Results of surgical treatment of 40 patients (35 men and 5 women from 20 to 70 years old) posterior shoulder dislocation (20 – right, 16 – left, 4 – bilateral) were analyzed. Time from injury was from 6 days to 53 months. Depending on timing from injury and its type, differentiated approach to reconstructive surgery was used. In postoperative period, immobilization was carried out in the position of the external rotation of 20° and abduction of 30° for a period of 4–6 weeks.

RÓŻNORODNOŚCI ZWICHNIĘCIA TYLNEGO BARKU. DIAGNOZA I LECZENIE

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STRESZCZENIE

Wprowadzenie

Zwichnięcie tylnego barku występuje w 2–5% wszystkich dyslokacji kości ramiennej. Podczas wstępnego badania prawidłowa diagnoza zwykle nie jest postawiona w 60–79%. Niemal zawsze towarzyszy mu odwrotny defekt Hill – Sachsa (uszkodzenie McLaughlina), którego intensywność postępuje z czasem po zwichnięciu. Prawdziwy problem polega na tym, że często trudno jest zebrać wywiad, pacjent może mieć atak epilepsji, którego nie pamięta. Około 15% tylnych dyslokacji kości ramiennej jest obustronnych.

Cel

Identyfikacja cech diagnozy i opracowanie zróżnicowanego podejścia do leczenia zwichnięcia tylnego barku w zależności od wielkości wady głowy kości ramiennej.

Pacjenci, metody i wyniki

Przeanalizowano wyniki leczenia chirurgicznego 40 pacjentów (35 mężczyzn i 5 kobiet w wieku od 20 do 70 lat) z powodu zwichnięcia barku (20 – prawy, 16 – lewy, 4 – obustronny). Czas od urazu wynosił od 6 dni do 53 miesięcy. W zależności od czasu trwania urazu i jego rodzaju, zastosowano zróżnicowane podejście do chirurgicznej operacji rekonstrukcyjnej. W okresie pooperacyjnym unieruchomienie było prowadzone w pozycji zewnętrznej rotacji przy 20° i odwodzenia przy 30° przez okres 4–6 tygodni.

Patient treatment results were evaluated by Constant-Murley score. Results depended on the time from injury to surgery and on severity of combined injuries. The largest number of excellent and good results 23 (57.5%) was obtained during the treatment of fresh cases (up to 1 month from injury), when shoulder joint stabilizers were restored and early active rehabilitation (4 weeks after operation) was started. It was possible to reach up to 81 points at the end of rehab.

Conclusions

Absence of external rotation should be used for clinical diagnosis as pathognomonic sign. Successful treatment of patients with posterior shoulder dislocation is possible with restoration of all damaged structures and differentiated approach to reconstructive surgery.

Keywords: posterior shoulder dislocation, treatment tactics

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Introduction

Posterior shoulder dislocation occurs in 2–5% of all dislocations of the humerus. Accurate evaluation of this morbidity is a difficult task, as at the initial examination correct diagnosis is not established in 60–79% (Kowalsky and Levine, 2008; Díaz Heredia *et al.*, 2017).

Almost always it is accompanied by a reverse Hill-Sachs defect (McLaughlin lesion), size of which is progressing with time.

There is also complicated posterior shoulder fracture-dislocation accompanied by a tubercle or anatomical humeral neck fracture, separately or in combination (Takase *et al.*, 2006; Díaz Heredia *et al.* 2017).

Traumatic posterior dislocation may occur when the axial force applied to the upper limb, in the position of adduction and internal rotation (Kowalsky *et al.*, 2008; Guehring

Wyniki leczenia chirurgicznego pacjentów oceniano za pomocą skali Constant-Murleya. Wyniki były zależne od czasu urazu do operacji oraz od ciężkości współistniejących urazów. Największą liczbę doskonałych i dobrych rezultatów N=23 (57,5%) uzyskano w trakcie leczenia świeżych przypadków (do 1 miesiąca od urazu), po przywróceniu stabilizatorów stawu barkowego i rozpoczęciu wczesnej aktywnej rehabilitacji (4 tygodnie po operacji). Po zakończeniu rehabilitacji możliwe było osiągnięcie 81 punktów.

Wnioski

Nieobecność rotacji zewnętrznej powinna być wykorzystane do diagnozy klinicznej, jako oznaka patognomoniczna. Pomyślne leczenie pacjentów z dyslokacją tylnego barku jest możliwe przy przywracaniu wszystkich uszkodzonych struktur i zróżnicowanego podejścia do operacji rekonstrukcyjnych.

Słowa kluczowe: zwichnięcie tylnego barku, strategie leczenia

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et al., 2017). However, the real problem is that it is often impossible to collect anamnesis – patient may have an epileptic attack that he does not remember, or cramps, as a result of metabolic disorders (hypoglycemia, hypocalcemia). Posterior dislocation of the shoulder was observed in patients after alcohol or drug abstinence, from electric shock or after electrotherapy (Ozer *et al.*, 2005; Robinson and Aderinto, 2005).

Approximately 15% of posterior humerus dislocations are bilateral (Iosifidis *et al.*, 2006), which erases clinical signs when contralateral shoulder is examined.

In neglected cases, range of movements moderately increases due to the development and increase of humerus McLaughlin lesion, but the rotation remains limited and painful.

Surgical treatment is challenging because there is no clear choice of treatment methods according to the time of injury, humeral head defect size and biomechanically reasonable positions of the shoulder joint posterior stability.

Aim

To identify the features of diagnosis and develop a differentiated approach to the treatment of posterior shoulder dislocation depending on the size of the humerus head defect.

Patients and methods

Results of surgical treatment of 40 patients with posterior shoulder dislocation were analyzed. There were 35 men and 5 women aged from 20 to 70 years (average 43.2 years) with 20 right, 16 left and 4 – both extremities injured. Time from injury until surgery was from 6 days to 53 months.

Among injury mechanisms there were: fall from height (N=9), epilepsy or hypoglycemic coma (N=6, 4 of them bilateral), road traffic accident (N=5), direct impact (N=3), other injuries (N=17).

For clinical diagnostics, the next tests were used: absence of external rotation (active and passive), JerkTest, Kim's test (Figure 1).

For instrumental diagnostics, X-ray was performed in direct, lateral and axial projections, CT or MRI.

Depending on time from injury and its type, following surgical procedures were performed:

1. If humeral head defect was up to 20% (19 patients) – open reduction and filling of the defect with subscapular muscle tendon, subpectoral tenodesis of long biceps head tendon were performed.
2. Patients with defects up to 25% of humeral head (9 patients) – were treated with open reduction, and filling of the humeral head defect with subscapular muscle tendon connected to fragment of the small tuberculum (McLaughlin-Neer surgery).
3. If patients had defect from 25% to 40% of humeral head (6 patients) – we performed open reduction, and bone block defect autoplasty or alloplasty.
4. In cases where humeral head defect was more than 40% (4 patients) – shoulder arthroplasty was performed.
5. If defect of posterior edge of the glenoid was identified (2 patients) – we made boneblock defect autoplasty, osteosynthesis and posterior capsuloplasty.

In postoperative period, immobilization was carried out in the position of the



Figure 1. Appearance of a patient with limited external rotation

external rotation of 20° and abduction of 30° for a period of 4–6 weeks.

Results

Patient treatment results were evaluated by Constant-Murley score. Results depended on the onset of treatment and severity of combined injuries. The largest number of excellent and good results N=23 (57.5%) was obtained after treatment of fresh cases (up to 1 month from injury), when shoulder joint stabilizers were restored and early active rehabilitation (4 weeks after surgery) was performed. It was possible to reach up to 81 points at the end of rehabilitation.

Shoulder joint range of movements was evaluated immediately after the start of rehabilitation, after 6 months and one year after surgery. The largest increase in range of movements was observed on the first stage of rehabilitation from 2 to 6 months after surgery. A year later there were no significant increases in movement's amplitude.

The most widespread complication of surgical treatment of posterior shoulder dislocation was restriction of external rotation and hypotrophy of rotator cuff muscles while deltoid muscle saved its form and function (5 patients), two patients had flexion contracture, three – restriction of abduction, osteoarthritis of shoulder joint was observed in one patient.

Conclusions

Absence of external rotation should be used for clinical diagnosis as pathognomonic sign.

In case of posterior glenoid damage, in addition to reconstructive surgery on the humerus, glenoid rim should be restored.

Successful treatment of patients with posterior shoulder dislocation is possible with restoration of all damaged structures and differentiated approach to reconstructive surgery in this pathology, depending on time after injury and the size of humeral head defect.

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