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Impact of the Reverse Hill-Sachs Lesion in the Management of Posterior Shoulder Dislocation

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Original Research Article

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Abstract: The posterior shoulder dislocation is a rare entity and the diagnosis is often late. The age of the dislocation and the importance of the défect huméral are crucial factors which determine the possibility of trying an orthopaedic reduction. Between 2012 and 2016, 09 patients presenting a posterior shoulder dislocation were taken treated in our hospital. The standard radiography allowed to make the diagnosis of the posterior shoulder dislocation and to objectify in only 3 cases the McLaughlin lesion without being able to specify the size of this one. While the systematic realization of a tomography allowed to diagnose the défect huméral at all the patients while specifying its size.
Keywords: Shoulder dislocation, Posterior, Reverse Hill-Sachs lesion, Tomography.

INTRODUCTION

Posterior glenohumeral dislocation is a very rare entity among all shoulder dislocations. In 2/3 of the cases the diagnosis is very late, which considerably changes the therapeutic choice as well as the prognosis.

The purpose of our study is to analyze the impact of the diagnostic delay and the size of the humeral notch on the therapeutic management of posterior dislocation of the shoulder, and to propose in the light of a critical analysis of a series of cases a practical attitude.

METHODS

We conducted a retrospective study of 09 patients with posterior dislocated shoulder dislocation within the department of orthopedic surgery and traumatology of the University Hospital of Rabat over a period of 5 years stretching between January 2012 and December 2016, with a decline between a minimum of 8 months and a maximum of 5 years. Patients were included in the study according to the following criteria: posterior dislocation of the shoulder; recent or old; reduced orthopedically or surgically.

RESULTS

It was an all-male population aged between 22 and 40 years old. The left shoulder was affected seven times. The circumstances of occurrence were dominated by: violence (4 cases), accidents on public roads (2cas), sports accidents (2 cases) and a case of fall with reception hard the stump of the shoulder.

The attitude of the shoulder was typical in all patients who presented with an upper limb in internal rotation with limitation of external rotation. No vascular or nervous disorders have been reported in our patients. The diagnosis time was on average 35 days with extremes of 0 days and 06 months (Table 1).

Posterior dislocation was confirmed in the nine patients after standard radiography of the shoulder (Figure 1), with the two frontal and lateral views only showing the presence of the humeral notch in 3 cases.

The CT scan of the shoulder was systematic in all patients and revealed the presence of a Mac Laughlin notch in all cases, ranging in size from 10% to 40% of the humeral circumference. Orthopedic reduction was attempted in 7 cases with a diagnostic delay of 0 days to 30 days and a Mac Laughlin notch size of 15-40%.

This reduction was successful in 3 cases that had a humeral defect varying between 10 and 20% and whose diagnosis was made the day of the trauma for 2 patients and the 10th day for the third.

In one patient, initially admitted to D0 in another hospital structure for a second episode of posterior glenohumeral dislocation, the shoulder was unstable after orthopedic reduction attempt. The realization of the scanner made it possible to objectify the presence of a humeral notch of the order of 40%, thus imposing the recourse to a bloody reduction with filling of the humeral notch by transfer of the sub-scapular tendon and the trochin according to the technique of HAWKINS and NEER.

Dislocation was irreducible in 3 cases. The first patient was admitted on the third day with a notch measuring 30%, the second patient consulted only after one month of the trauma and the humeral notch was of the order of 15%. In these two cases, the deltopectoral approach has reduced dislocation without being able to objectify a cause for this irreducibility. While in the third case; diagnosed on the day of the trauma with a defect not exceeding 15% (Figures 2 and 3), the interposition of long portion of the biceps prevented any orthopedic reduction.

Surgical treatment was performed immediately; without any attempt at orthopedic reduction; in 2 cases presenting a glenohumeral dislocation dating successively 3 months and 6 months with a defect of the order of 30%. These two patients underwent a blood reduction with filling of the humeral defect according to the technique of HAWKINS and NEER.

The functional result at the last follow-up was satisfactory in 8 cases, whereas only one patient presented post-traumatic omarthrosis.

Table-1: Summary of patients in our series

Patients	A.R	B.O	B.A	M.I	N.O	F.L	Z.M	F.B	B.D
Age (years)	22	26	28	32	40	36	34	32	28
Sex	M	M	M	M	M	M	M	M	M
Circumstances	SA	Violence	Fall	Violence	SA	PRA	Violence	PRA	Violence
Side	L	L	L	L	L	L	L	R	R
Time of care	J0	3 months	6 months	J0	3 days	J0	10 days	J0	15 days
Visibility of notch on X-Ray	Yes	Yes	No	No	No	No	No	Yes	N
Size of the notch on the scanner (%)	40	30	30	15	30	10	25	20	15
Attempt of orthopedic reduction	Unstable	NO	NO	Irreducible	Irreducible	Stable	Stable	Stable	Irreducible
Approach	D-P	D-P	D-P	D-P	D-P	Not operated			D-P
Cause of irreductibility	No	No	No	LPB	Non				No
Surgical gesture	HAWKINS and NEER	HAWKINS and NEER	HAWKINS and NEER	Reduction	Reduction				Reduction

M=Male, AS=Sports Accident, PRA= Public road accident, L=Left, R=Right, D-P=Deltopectoral, LPB=Long portion of biceps.

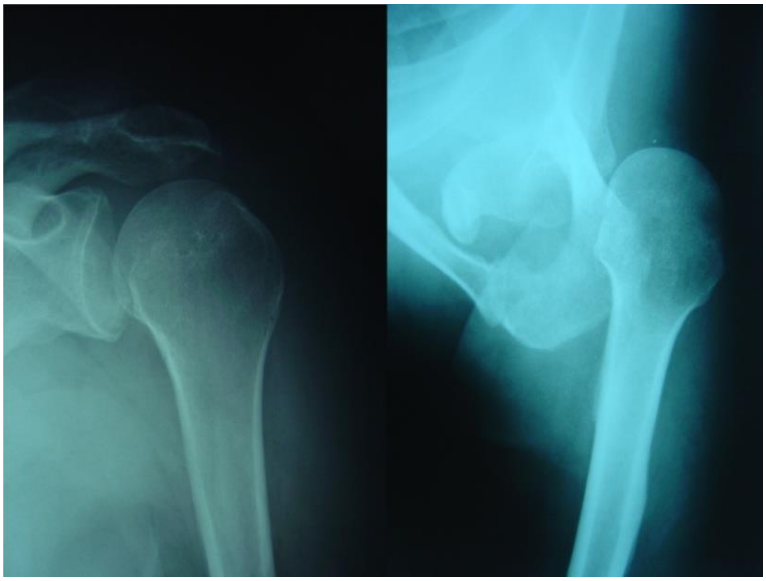

Fig-1: X-ray of the shoulder showing posterior glenohumeral dislocation without visible humeral notch.

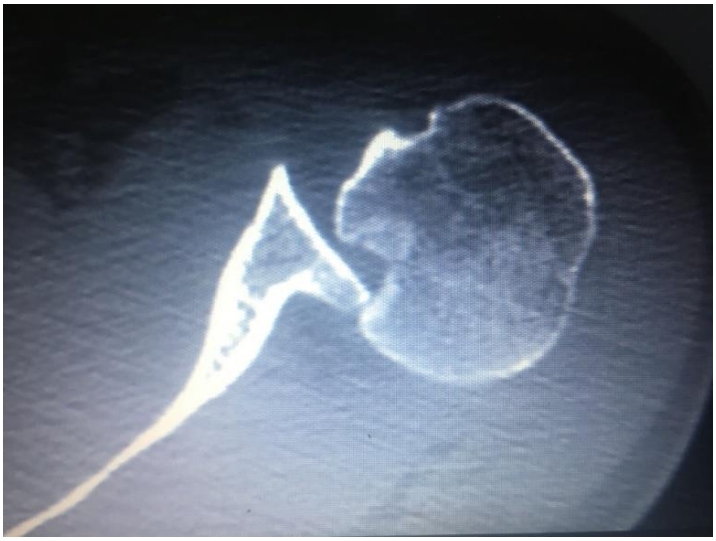

Fig-2: Shoulder scan showing posterior glenohumeral dislocation with a 15% humeral defect (not visible on x-ray)

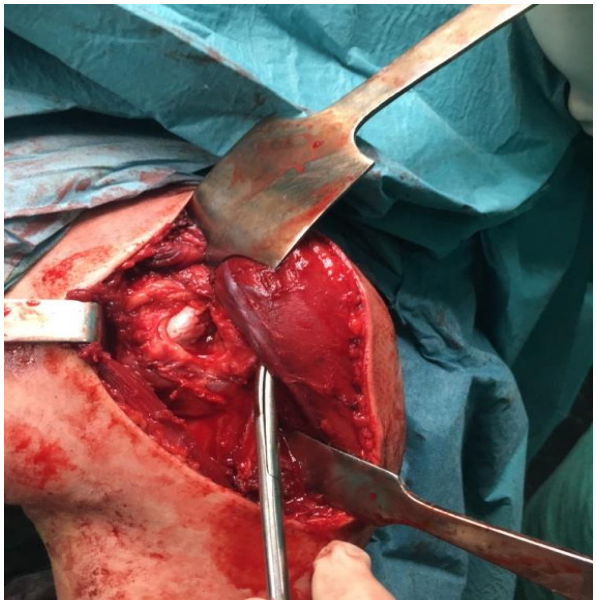

Fig-3: Deltopectoral approach showing Hill-Sachs lesion.

DISCUSSION

Posterior glenohumeral dislocation is rare; it represents only 2% of all shoulder dislocations. 60% of GHP dislocations go unnoticed during the first emergency consultation [1, 2].

If there is suspicion of posterior glenohumeral dislocation on the clinico-radiographic report, the CT scan confirms the diagnosis and specifies the size of the humeral notch, called "Mac Laughlin's notch" or "reverse Hill-Sachs lesion". This lesion corresponds to an impression on the anterior surface of the humeral head created by the impaction of the posterior border of the glenoid cavity on the humeral head. This defect increases in size and depth with the age of displacement by progressive erosion [3, 4].

In our series, the standard radiography could objectify the presence of the cephalic defect only in 3 cases, without being able to specify the size of this one. While the systematic realization of the scanner showed the humeral defect in all the patients while specifying its size. Excluding the size of the humeral notch is prognostically important for management. It is schematically small (<25%), medium (25-50%) or large (> 50%) and involves different therapeutic strategies [3].

When the Mac Laughlin Notch does not exceed 25%, the therapeutic course will depend on the delay in management and all authors agree that closed-area orthopedic reduction is possible before 21 days, after which time most authors consider dislocation to be chronic or inveterate [1, 5].

Beyond 21 days, the anterior healing tissue suggests that a closed reduction is doomed to failure. Khiami thinks that, in any case, a mild orthopedic reduction can be attempted, but in the case of irreducibility, open reduction remains in order [3]. This is, for most authors, conducted delto-pectoral, but some prefer a posterior approach. The causes of irreducibility are rarely found, but sometimes interposition of the long portion of the biceps may be the cause [1, 3].

If the shoulder is stable to intraoperative testing with the same defect of less than 25%, the immobilization will be six weeks in internal rotation, prohibiting hand in the back. In case of instability after testing for reduction, Cicak [1] recommends the transfer of the proximal third of the subscapularis tendon into the defect according to the Mc Laughlin technique, or to transfer the trochin according to the technique of HAWKINS and Neer for improve stability conditions.

In the case of a medium-sized notch, between 25 and 50%, the reduction is recommended in all cases in the open in order to avoid any risk of complete fracture of the humeral head. The key discussion is the prevention of recidivism in such an important notch. Several procedures are described, Some recommend impaction recovery, but there is no publication in the literature [3]; others advise the filling of the defect with the tendon of the subscapularis [6] or the trochin [7, 8, 9, 10], to fill the bone defect with an allograft, or even to carry out an osteotomy of external rotation of the humeral head to remove the capital defect from the glenoid. The transfer of the trochin appears to give better results than Mc Laughlin's intervention because the consolidation is obtained more quickly [5].

In the notches of more than 50% of the radius of the head, age is a determining factor. In young people under 60, in France [11], there is room for

autologous transplant recovery. In Anglo-Saxons, screwed allograft is a proposed therapeutic solution [1, 2, 6]. The simple prosthesis remains the gold standard in the notches of more than 50% in the elderly (total if there is a lesion of the osteoarthritic glenoid).

CONCLUSION

Posterior glenohumeral dislocation is a rare entity among all dislocations of the shoulder and its diagnosis is often late. The realization of a scanner is of considerable importance in its management by highlighting and precision of the size of the cephalic defect; which is a crucial factor in the therapeutic management of posterior dislocation of the shoulder.

Conflicts of interest

The authors do not declare any conflict of interest.

Contributions of the authors

All authors have read and approved the final version of the manuscript.

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