

Association of Anterior Shoulder Dislocation with Seizure

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Abstract :

Background : In patients with epilepsy the commonest type of shoulder dislocation following a seizure is the posterior type.

Though not so common after a seizure, an anterior shoulder dislocation often merits special attention due to high incidence of recurrence and therefore the need for surgical reconstruction to treat the instability.

Methodology : A cross-sectional study was conducted on patients coming to Emergency of Orthopaedics Department of a tertiary care hospital. The study period was of 6 months and total of 60 patients were evaluated. Patients of age group between 18-50 years, with history of seizure and with shoulder dislocation were included however patient's age less than 18 years and more than 50 years and those who were severely ill were excluded from study.

Investigations : X-rays, MRI, USG, CT SCAN WITH 3D RECONSTRUCTION

Results : 60 patients with shoulder dislocation were analysed. Out of total 60 cases of shoulder dislocations 55 had anterior and 5 had posterior shoulder dislocation. Out of 55 anterior shoulder dislocations 30 are fresh cases and 25 were recurrent shoulder dislocation cases. Of total 30 fresh cases of anterior shoulder dislocation 25 has trauma being the cause of anterior shoulder dislocation and 5 has non trauma (seizure) being the cause of anterior shoulder dislocation. Of 25 Recurrent Shoulder Dislocation cases 14 had trauma being the cause of dislocation and 11 had Non trauma (Seizure) being the cause of shoulder dislocation. Of 5 fresh cases of Anterior Shoulder Dislocation with Seizure 3 has combined Hill Sach's and Bankart lesion and of 11 Recurrent cases of Shoulder Dislocation with Seizure 7 had combined Hill Sach's and Soft Tissue Bankart lesion.

Conclusion : Anterior shoulder dislocation has an important association with seizure disorder and is likely to have associated soft tissue or bony lesions and which in turn may cause future instability of the joint

Keywords : Recurrence ; Seizure; Shoulder dislocation; Shoulder Instability; Bankart's lesion; Hill Sach's lesion

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I. INTRODUCTION

In patients with epilepsy the commonest type of shoulder dislocation following a seizure is the posterior type. Though not so common after a seizure, an anterior shoulder dislocation often merits special attention due to high incidence of recurrence and therefore the need for surgical reconstruction to treat the instability.

We carried out a study to determine the association of seizure with anterior shoulder dislocation since anterior shoulder dislocation mainly leads to instability of shoulder joint.

II. MATERIAL AND METHODS

We carried out a cross-sectional study on patients coming to Emergency of Orthopaedics Department of a tertiary care hospital. The study period was of six months and total of 60 patients were evaluated (including both males and females). Patients of age group 18-50 years, with history of seizure and with shoulder dislocation were included however patient's age less than 18 years and age more than 50 years and those who were severely ill were excluded out from the study.

PROCEDURE METHODOLOGY :

The shoulder dislocations were first treated on emergency basis and Xrays were done to identify the type of shoulder dislocation. Appropriate reduction techniques were used to reduce the dislocations. The patients were further asked about the mode of injury causing the shoulder dislocation and the history were noted properly. They were further followed up with special investigations like MRI,USG of shoulder, CT scan shoulder with 3D reconstruction to determine any type of bony or soft tissue lesions which may be the cause of future recurrence of shoulder dislocation.

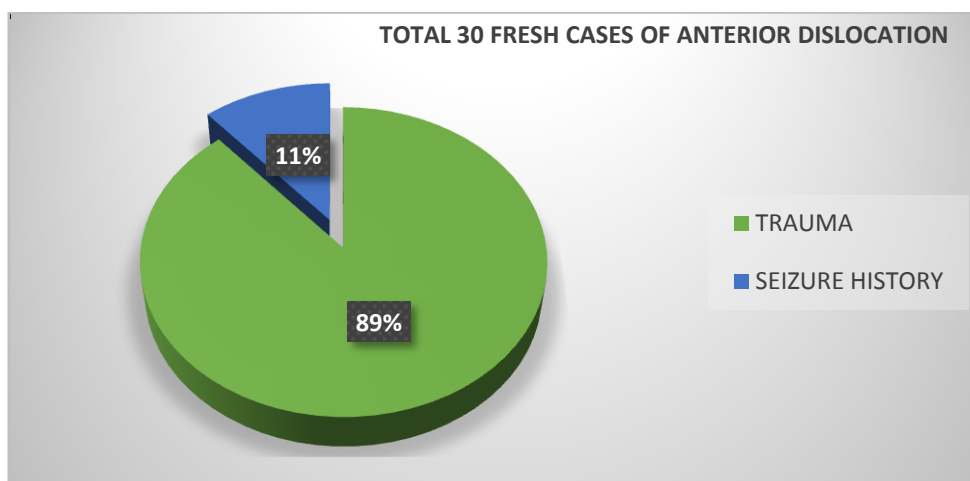
III. RESULTS AND OBSERVATIONS

60 patients with shoulder dislocation were analysed and it was found that 58 were males and 2 were female.

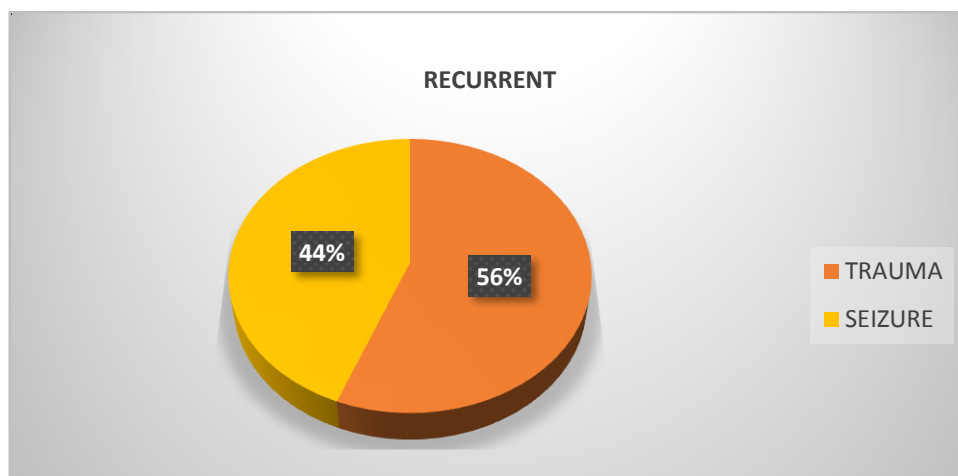
Minimum age was 18 years and maximum age was found out to be 42 years with mean age group of maximum shoulder dislocation was 25±6 years.

Of 60 shoulder dislocations, 55 were found out to be of anterior and 5 were found out to be of posterior type. Of 5 posterior shoulder dislocation cases 4 were atraumatic(i.e due to seizure) and 1 had trauma as the cause of dislocation.

Further it was found out that out of 55 anterior shoulder dislocation 30 were fresh cases and 25 were recurrent cases. Among the 30 fresh cases of anterior shoulder dislocation which were analysed, it was found that 25 were due to trauma and 5 were atraumatic i.e due to seizure.



Again, among 25 cases of recurrent shoulder dislocation 14 were found out to have associated trauma history being the cause of dislocation whereas 11 came out to have seizure as the cause of dislocation and were associated with recurrence of shoulder dislocation in subsequent episodes.



From these results it was found out that there is a significant association of anterior shoulder dislocation with seizure disorder. (Total 16 out of 55 anterior shoulder dislocations)

The results were analysed further for association of any particular type of seizure disorder which may be related to anterior shoulder dislocation and it was found out that among 16 cases of anterior shoulder dislocation (both fresh and recurrent cases) associated with seizure disorder 15 were caused by GTCS (Generalised Tonic Clonic Seizures) and only 1 was caused by partial seizures.

The cases of anterior shoulder dislocations with seizure disorders were further followed up with MRI and relevant investigations to find out any particular type of soft tissue or bony lesions associated with it.

The analysis showed that out of 5 fresh cases of anterior shoulder dislocation caused by seizure, 3 cases had combined lesion of Hill Sach's and Bony Bankart, 1 case had combined lesion of Hill Sach's and Soft tissue Bankart and only 1 patient had Soft tissue Bankart only.

Further out of 11 cases of recurrent anterior shoulder dislocations with seizure history, 7 were found out to have combined lesion of Hill Sach's and Bony Bankart, 3 had combined lesion of Hill Sach's and Soft tissue Bankart and only 1 had soft tissue Bankart only.

The results showed significant number of combined lesions of soft tissue and bony Bankart associated with anterior shoulder dislocations caused by seizure disorder.

IV. DISCUSSIONS

Finding a relationship between a type of shoulder dislocation and seizure disorder has been an interest of many, since **Aufrac**⁽⁶⁾ first reported relation between bilateral anterior shoulder dislocation with seizure disorder. Although by literature, posterior shoulder dislocation is one that commonly occurs following an episode of seizure, but the association of anterior shoulder dislocation with seizure is no doubt important.

A theory describes strong pull of pectoralis major and latissimus dorsi muscle during an episode of seizure is the commonest mechanism of posterior shoulder dislocation where head of humerus is levered out posteriorly^(1,7,8). But an anterior shoulder dislocation may also occur following it. A study by **John C. DeToledo et al.**⁽³⁾ not only describes that imbalance between agonist and antagonist muscle are responsible for type of shoulder dislocation that are occurring, it also relates the significant association of anterior shoulder dislocation with seizure. Results of our study is also indicative that anterior shoulder dislocation following seizure is not less in number.

As we are understanding the biomechanics of shoulder joint more clearly day by day, interests are growing on determining link between seizure pattern and type of shoulder dislocation. In, a case series and review of literature by **Lisa Langenbruch, Carolin Rickert et al.**⁽⁴⁾ reports that 3 out of 15 cases of shoulder dislocation following seizure were of anterior type. These studies are indeed playing a major turnover and change in view that anterior shoulder dislocation is also quite important and is associated with seizure disorder.

An important issue of association of anterior shoulder dislocation with seizure is its recurrence. The cause of recurrence may be due to soft tissue or bony lesions that are created during forceful dislocations due to seizure. **Martin Bujhler et al.**⁽²⁾ nicely describes this in his study. Similarly, we have found in our study that out of 16 case of anterior shoulder dislocation caused by seizure, 10 cases have combined lesions of Hill Sach's and Bony Bankart. The recurrence being a major morbidity in patient's life, affecting his daily activities. Many studies thereby are trying to point towards the recurrence associated with seizure and the importance of treating and preventing it. **U. Rethnam et al.**⁽⁵⁾ also points towards the importance of recurrence of anterior shoulder dislocation in seizure disorder and the need of its appropriate treatment.

In relations to the study by **M.E Betz**⁽⁹⁾ and **Andrew Roy Mc Kean**⁽¹⁰⁾ our study was also able to show that, GTCS (Generalised Tonic Clonic Seizures) was the common cause of anterior shoulder dislocation. This again is pointing towards the study of **John C. Detoledo et al.**⁽³⁾ and **Lisa Langenbruch**⁽⁴⁾ et al. that shoulder dislocation type is associated with the direction of force that the patient is sustaining during seizure. But, as the manifestations of posture of the body during a seizure can be in a different way, telling a particular type of dislocation is associated with a particular seizure pattern is quite difficult. But, from our study, it can be said that there is a good association of anterior shoulder dislocation with seizure which must not be forgotten.

Lastly, seizure is a great burden to the patient due to its unpredictability and debalating nature and recurrence of anterior shoulder dislocation adds to it further. Taking all these things in count, it makes the anterior shoulder dislocation associated with seizure highly important and thereby predicting and treating the recurrence an outmost target.

V. CONCLUSION

Anterior shoulder dislocation has an important association with seizure disorder and it might be due to associated lifestyle factors or environmental or metabolic effects which is still to be determined. But, this study proves that seizure causing anterior shoulder dislocation is likely to have associated soft tissue or bony lesions. These lesions in turn may cause future instability of the joint and the treatment of the same to prevent future recurrence becomes the outmost important.

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