

“Arthrolysis and radial head replacement in a case of post traumatic stiff elbow”

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ABSTRACT –

INTRODUCTION - stiffness of the elbow joint after trauma is a well recognised disabling entity interfering with daily life activities. Causes of the condition can be intrinsic like a sequelae of intra articular fractures such as cartilage damage, articular incongruity and adhesions; extrinsic causes can be as a result of contracture of capsule or collateral ligaments , extra articular malunions and heterotrophic ossification. Treatment of the stiffness of the elbow though a well understood entity is a challenging aspect with equivocal results. Various non operative measures like static progressive and dynamic elbow splinting are tried initially. Operative intervention can be tried when conservative treatment fails or in elbows with functional arc of less than 100 degrees. Open contracture release, arthroscopic contracture release , interposition arthroplasty , partial or total elbow arthroplasty are the surgical options available.

MATERIALS and METHODS - Here we discuss a case of a 24 years male patient presenting with stiff elbow for 1 year ,almost an ankylosed elbow on radiographs following a comminuted radial head fracture initially managed by a quack which was treated with open arthrolysis and radial head arthroplasty. **RESULTS** – The patient had fixed extension deformity and supination, pronation largely restricted. With above treatment and a structured post operative rehabilitation the patient had an arc of movement of about 100 degrees at the end of 6 months. **DISCUSSION**- The patient was satisfied with the results as the debilitating condition no longer restricted him from doing his daily activities. **CONCLUSION** – Well orchestrated arthrolysis with proper post operative rehabilitation gives satisfactory results with a good functional painless elbow with the radial head prosthesis possibly increasing the functional range and avoiding valgus instability post radial head excision. However large study groups are required to ascertain the role of radial head replacement in such scenarios.

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I. Introduction

Stiffness of the elbow joint is a well known entity. Most activities of daily living (ADL) require elbow range of motion (ROM) arcs comprising 100°(30°-130°) of flexion/extension and 100°(50°/50°) of pronation/supination. Flexion/supination loss generally causes more disability than extension/pronation.

It can be due to various causes which may be either intrinsic or extrinsic. Intrinsic causes are usually intra articular fractures and malunions, joint incongruity, loose bodies and adhesions , inflammatory arthropathy , osteochondritis dissecans ,while extrinsic pathologic conditions include heterotrophic ossification, skin conditions such as eschar after burn, muscle conditions such as myositis ossificans, capsular fibrosis/adhesions and postoperative hardware impingement.

Classification of posttraumatic elbow stiffness into intrinsic, extrinsic, or combined contractures has been proposed by Morrey . Most posttraumatic stiff elbows have both intrinsic and extrinsic components.

The patients are evaluated based on the duration of symptoms, initial injury, previous surgical procedures, trials of splinting , previous surgeries and the expectations of the patient. ROM of the elbow joint should be evaluated properly along with other surrounding joints and elbow stability is looked for. The examination of the ulnar nerve is of utmost importance .

Standard radiographs to look for intra articular pathology along with CT scan or MRI are done is necessary.

II. Materials And Methods

Here we discuss a case of a 18 year old young male patient who presented to us with a stiff left elbow joint.

The patient presented to the OPD with chief complaints of elbow stiffness since last 1 year.

On evaluation the patient gave a history of injury to the elbow joint 1 year back , following which had pain and swelling and was treated by a local quack with massage and splinting.

The stiffness which started post splinting progressed to a severity where the patients ADL were severely hampered.

On examining the elbow joint was fixed in extension and the patient had jog of movements in the elbow in coronal plane , with negligible movements in the axial plane. The skin condition appeared to be good with no signs of infection and the neurovascular status was found to be intact.

On radiological examination we found that it was a case of radial head fracture (Mason type 3) , with ulno humeral and radio capitellar joint showing signs of ankylosis. The shoulder joint and the forearm were found to be radiologically normal.

The patient also had gross valgus instability probably due to damage to the ligamentous complex.

Since ankylosis was unlikely to benefit from conservative trial of treatment, the patient was planned for surgical intervention .The patient was operated through a standard posterior approach , the radiological findings were confirmed with presence intra articular ankylosis between both ulnohumeral and radio capitellar joints.The triceps muscle was found to be contracted which was addressed by V - Y plasty. Meticulous arthrolysis was performed , with extensive excision of ankylosed fragments.Radial head was excised through the same approach . The elbow was checked for intraoperative range of motion . The elbow was still unstable with valgus stress despite repairing the support structures.

Hence intra operative decision was taken to replace the radial head with prosthesis, which possibly helped gain some valgus stability. Standard closure was done and the patient had no immediate post operative complications.



Fig. 1. Intial X -RAY



Fig. 2. Follow up after 6 months.

III. Results & Discussion

The patient was placed in a posterior splint for two weeks post operatively. Assisted active ROM was started at 2 weeks and was continued for 4 months post operatively. At 6 months of follow patient had an arc of ROM 30°- 100° flexion/extension and 50° of supination/pronation Though joint arthrolysis addressed the issue of intra articular ankylosis, it did not provide for stability of the elbow joint especially after excision of the radial head. Radial head replacement which was done through the same approach helped gain intra operative valgus stability. The structured post operative mobilisation was of paramount importance in gaining an almost function arc of ROM. Well orchestrated arthrolysis along with post operative ROM protocol helps achieve a painless, satisfactory and stable elbow motion.

IV. Conclusion

Radial head replacement possibly adds to the valgus stability of the elbow joint. However larger study series are required to ascertain the role of radial head replacement also possible long term complications of the prosthesis.

References

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