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Management of traumatic anterior shoulder dislocation in the 17- to 25-year age group: a dramatic evolution of practice

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Background: Anterior shoulder dislocation in the young patient is a common problem, yet there is no universal agreement on its management.

Methods: In this study, we comprehensively surveyed all members of the British Elbow and Shoulder Society (BESS) to ascertain their preferred methods of treating young patients with traumatic, anterior shoulder dislocation. We then repeated exactly the same survey 7 years later to find out whether practices had changed and if any consensus of opinion had been reached.

Results: The number of surgeons indicating their preferred stabilization procedure was arthroscopic more than quadrupled from only 16% in 2002 to 71% in 2009, while the numbers of those preferring an open technique fell in a correspondingly dramatic manner. The numbers who now potentially offer stabilization surgery to first-time dislocators virtually doubled from 35% to 68%. There was also a big rise in the use of magnetic resonance imaging (MRI) arthrograms as an investigation prior to surgery and in the use of bioabsorbable anchors during surgical stabilization. There remain, however, aspects of treatment and rehabilitation where little consensus exists.

Conclusion: Rarely in the history of orthopaedic surgery has such a dramatic and widespread change in operative technique occurred in such a short space of time. Rarer still has such a change been prospectively documented.

Level of evidence: Survey Study of Experts.

Keywords: Management; traumatic; anterior shoulder dislocation

Prevalence of this condition

The shoulder is the most common major joint to dislocate.[9,11,12] Indeed, a previous study has shown that glenohumeral dislocation occurs more frequently than all other dislocations put together.[18] While they may occur posteriorly or inferiorly, the humeral head is displaced anteriorly in up to 98% of shoulder dislocations.[19] A Danish study estimated the incidence of shoulder dislocation at 17 cases per 100,000.[13] Hovelius took a random sample in the Swedish population and identified that 1.7% individuals reported a history of shoulder dislocation.[7] More recently, a Greek study observed 308 patients over a period of approximately 6 years and found an overall recurrence rate of 50%, but a higher recurrence rate of 89% in the young

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(range, 14-20 years) age group.[4] Owens et al in 2009 showed that the incidence of shoulder instability among U.S. military personnel (1.69 per 1000 person-years) was considerably higher than others have previously reported for the general U.S. population (0.08 per 1000 person-years). In fact, male gender, white race, and an age of less than 30 years were significant independent risk factors for injury.[17]

Purpose of this study

During the 1990's, shoulder surgery established itself as an independent specialty, partly due to the diagnostic and therapeutic influences of the arthroscope. Considerable resource was invested in the development of arthroscopic techniques, especially in the management of shoulder instability. However, by the turn of the millennium, it was clear that there was no universal agreement on the merits of arthroscopic stabilization surgery. In 2002, the senior author decided to canvas a representative group of UK shoulder surgeons, all members of the British Elbow and Shoulder Society (BESS), to gain a ''snapshot'' of how shoulder surgeons in the UK treat young patients (range, 17-25 years) with traumatic, anterior dislocation of the shoulder. Subsequently, in 2009, we chose to repeat the study to ascertain whether practices had changed over the past 7 years and to see whether any consensus had emerged for treating these injuries, particularly given the evolving influence of arthroscopic surgery.

History of shoulder stabilization

Since Hippocrates' description, shoulder stabilization surgery has progressed in leaps and bounds. In 1923, Bankart described the Bankart's lesion as well as its management.[1] This was followed by the Magnuson-Stack procedure described in 1943, which involved transferring the subscapularis from its attachment on the lesser tuberosity to a point lateral to the bicipital groove. Subsequently, the Putti-Platt procedure was introduced in 1948. In 1954, Latarjet[14] proposed the Bristow procedure that was later popularized by Helfet. In 1965, du Toit and Roux[6] used staples to attach the capsule to the anterior glenoid rim.

Arthroscopic repair with metal staples, which was plagued with unacceptable recurrence rates (33%) as well as high complication rates between 5% and 10%, was first introduced by Johnson in 1982.[10] This was followed by transglenoid sutures introduced by Morgan and Bodenstab in 1990[16] and popularized by Caspari and Savoie.[3] The major disadvantage of this technique was the multiple points of fixation for the labrum, while its disadvantages were the technical difficulty and the trans-scapular drilling that placed the supra-scapular nerve in jeopardy. Wolf reported using a metal anchor and tying knots with absorbable sutures in 1993.[22] In 1996, Speer et al introduced a bio-absorbable single point transfixing implant − suretac − for intra-articular labral repair.[20] In 1994, Snyder modified this technique using permanent sutures.[21] Compared with transglenoid repair techniques, suture anchor repair techniques allow for knots to be tied in the joint arthroscopically, thus avoiding the risk of and need for a posterior incision. Newer implant designs allow for suture repair using anchors without knots thus eliminating knot tying altogether.

Materials and methods

In 2002, a comprehensive, 3-page questionnaire (Fig. 1) was mailed to all BESS members (164 consultant orthopaedic surgeons). In 2009, the exercise was repeated, with the questionnaire being mailed to 172 consultant orthopaedic surgeons.

On each occasion, the same questionnaire was sent out. This ensured that we could make a direct comparison of the responses. The questionnaire presented 2 scenarios. The first one questioned the management of the young, first-time, traumatic dislocator, while the second scenario questioned the management of the recurrent, traumatic dislocator. For each scenario, questions were asked about the initial reduction, investigations undertaken, timing of any surgery, preferred stabilization procedure, detail of surgical technique, period of immobilization, and rehabilitation programs instigated. Tick boxes were used to give a choice of possible answers and comments were invited. The survey was conducted in an anonymous fashion. Few responses to the survey were excluded due to the following reasons (Table I). Statistical analyses of the results were done using the chi-square test.

Results

Response rate

Response rates were high. In 2002, the response rate amongst the target group was 83%; in 2009, it was 92%.

Initial reduction and analgesia

The initial reduction of the dislocated joint in both surveys was most often carried out in the Emergency Department by the Emergency doctor (Table II). Reduction in both surveys was performed predominantly under sedation. On some occasions Entonox or general anaesthetic was used (Fig. 2). In both surveys the sedation was usually provided by the 'Accident & Emergency' doctor (Fig. 3).

First scenario: First-time dislocation

The surgeons were given the scenario of a young patient presenting to them with a first-time, traumatic, simple, anterior shoulder dislocation confirmed on plain radiograph.

Investigations

In 2002 and in 2009, the vast majority of respondents indicated that after initial reduction, plain x-ray would be