INTRODUCTION

The shoulder complex consists of a series of articulations, numerous muscles and many ligaments, bursae and capsules. The anatomical joints include the glenohumeral joint (GHJ), the acromioclavicular joint (ACJ) and the sternoclavicular joint (SCJ). In addition, the scapulothoracic joint and the subacromial joint comprise the physiological joints. The GHJ is the center of movements at the shoulder complex with the ACJ and the SCJ extending the field of motion. (Hess2000).

Glenohumeral instability is the inability to maintain the humeral head centered in the glenoid fossa. (Matsen et al 1994).

Laxity is defined as asymptomatic passive translation of the humeral head relative to the glenoid .The condition is usually bilateral with generalized joint laxity and patients don't usually complain of shoulder laxity (Dowdy and O'Driscoll 1993, 1994, Allen 1999).

Instability is defined as excessive symptomatic translation of the humeral head relative to the glenoid during active motion. Patients will complain of shoulder instability symptoms (Allen 1999).

A complex interaction between static and dynamic factors maintains GHJ stability. Both factors function to allow maximum GH rotation while limiting excessive translation of the humeral head on the glenoid (Carr 1996, Warner and Boardman 1999).

The dynamic components of shoulder stability consist of the rotator cuff, deltoid, and long head of the biceps muscle forces, which work synergistically to compress the humeral head into the glenoid fossa a

phenomenon termed concavity compression. . (Lee SB et al 2000, Halder et al 2001A, Halder et al 2001C).

The capsular ligaments, glenoid labrum, intraarticular pressure, and articular cartilage surfaces collectively provide static stability to the glenohumeral joint. At the extremes of motion, such as maximum internal or external rotation, capsuloligamentous restraints passively stabilize the joint by resisting joint translation. (Bigliani et al 1996, Motzkin et al 1998, Hurschler et al 2000, Levine and Flatow 2000, McCluskey and Getz 2000, Kelkar et al 2001).

The pathoanatomy that can contribute to anterior shoulder instability includes Bankart lesions, bony Bankart lesions, capsular injury, excessive capsular laxity, Hill-Sachs lesions, rotator cuff and subscapularis muscle injuries, glenoid fractures, and glenoid dysplasia. (Gill and Zarins 2003).

The shoulder is the most commonly dislocated joint in the body accounting for approximately 45% of all dislocations. (Kazar and Relovszky 1969) anterior glenohumeral dislocations represent 84% of all dislocations around the shoulder. (Cave et al 1974).

The most common complication following anterior glenohumeral dislocation and instability is the recurrence of the instability. Many factors can influence on the incidence of redislocation, such as age of the patient, associated fractures and the effect of post reduction treatment. (Arciero et al 1994, Hovelius 1999, Itoi et al 1999, 2001, 2003, Slaa et al 2004).

Several classification systems have been proposed for instability of the GHJ, generally based on the degree, circumstances, direction and frequency of instability. (Rowe and Zarins 1982, Gerber and Ganz 1984,

Silliman and Hawkins 1993, Walch 1996, Gerber and Nyffeler 2002, Lewis et al 2004).

Diagnosis of traumatic glenohumeral instability entails a detailed history taking, careful clinical examination to confirm the impression obtained from the history, Standard tests of glenohumeral laxity are of value in the differential diagnosis between traumatic and atruamatic instability. (Protzman 1980, Rowe and Zarins 1981, Silliman and Hawkins 1993, Warme et al 1999).

Although the history and physical examination are the essential tools in diagnosis shoulder instability, a number of radiographic modalities may be helpful in clarifying the diagnosis. Plain radiographs are helpful in diagnosing glenoid and humeral head fractures and C T Scan and MRI will give further data about the associated pathology. (Rockwood et al 1996, Bradely et al 2003, Young et al 2005).

Examination of the shoulder under anesthesia and diagnostic shoulder arthroscopy helps to define some of the pathology associated with recurrent instability. (Cofield et al 1993, Silliman and Hawkins 1993, Tillander and Rolf 2001, Abrams et al 2002).

Successful treatment of anterior instability of the shoulder requires a balance between restoring joint stability and minimizing loss of glenohumeral motion. Despite discussions to the contrary, there is no single "essential lesion," as proposed by Bankart, that is responsible for recurrent anterior shoulder instability, the choice of operative treatment must be tailored to correct the abnormality that is identified at the time of surgery. A variety of promising arthroscopic techniques have been developed for the treatment of anterior shoulder instability; however, open stabilization remains the standard, especially for severe instabilities,

revision procedures, and for athletes who participate in contact sports. (Paxinos et al 2001, Gill and Zarins 2003).

There are two basic types of surgical approaches for shoulders with anterior instability: **"anatomic"** and **"non-anatomic"** repairs. (Burkhard and Wulker 2004, Millett et al 2005).

With anatomic repairs, the goals are to restore the labrum to its normal position and to reestablish the appropriate tension in the shoulder capsule and ligaments to regain the normal biomechanics (Sciaroni et al 2002). Depending on the pathoanatomy encountered, anatomic repairs were historically accomplished either with the classic Bankart procedure that was popularized by Rowe (Bankart 1939, Rowe and Zarins 1984, Rowe et al 1987, Gill et al 1997) or with the capsular shift procedure that was popularized by Neer (Altchek et al 1991, Warner et al 1995, Wirth et al 1996, Jolles et al 2004).

The goal of non-anatomic surgical procedures is to stabilize the shoulder by compensating for the capsulolabral and osseous injury with an osseous or soft-tissue checkrein that blocks excessive translation and restores stability. Examples of non-anatomic types of stabilizations include the Bristow and Latarjet procedures, which are transfers of the coracoid to the glenoid (Helfet 1958); the Magnuson-Stack procedure (Magnuson and Stack 1943), which is an advancement of the subscapularis that was popularized by De-Palma; and the Putti-Platt procedure, which is an imbrication and shortening of the subscapularis (Osmond-Clark 1948).

Residual pain, recurrent instability, restriction of external rotation and capsulorrhaphy arthropathy were reported as the major complications

of these procedures. (Kronberg and Brostrom 1990, Lusardi et al 1993, Zwaag et al 1999, Tauber et al 2004, Ahmad et al 2005).

In the modified Boytchev procedure, The conjoined tendon of the short head of biceps and corachobrachials muscles along with the tip of coracoid process are rerouted deep to the subscapularis muscle, then reattached to its base in anatomic position providing a dynamic muscular sling immediately anteroinferior to the glenohumeral joint, especially when the arm is in a vulnerable position of abduction and external rotation.

Incentives in choosing this procedure were the relative simplicity of the technique, the short operative time, early postoperative mobilization, and the lack of need to open the joint. (Boytchev 1951, Conforty 1980, Ha'eri and Maitland 1986, Hibbey et al 1993, González et al 2000, Chatterjee ND 2002).