Multidirectional Instability

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I. DEFINITIONS: What are we talking about here???

- Clinical Confusion: Atraumatic laxity + pain
- Clinical Confusion: Voluntary posterior instability
- Clinical Confusion: Traumatic instability in a lax shoulder
- Biomechanical Confusion: Laxity does not equal instability.

- Neer and Foster, JBJS 1980: "Symptomatic translation of the humeral head in more than one direction"..."relatively rare".

- Biomechanical Definitions:
  - Laxity: A passive characteristic of a joint, which allows passive mobility or translation of the humeral head on the glenoid, which may or may not be associated with symptoms. It is a necessary feature of normal shoulder motion.
  - Instability: Symptomatic translation of the humeral head out of the glenoid during active shoulder motion with muscle contraction.

II. CONTEMPORARY CLINICAL EXPRESSION:

- Painful instability in more than one direction.

III. ETIOLOGY:

- May be congenital (see below)
- May be acquired (repetitive microtrauma or submaximal loading causing stretch injury to ligaments)
- Usually both acquired and congenital
- May occur as component of Ehlers-Danlos or Marfan's syndromes

IV. PATHOANATOMY:

- Capsular laxity, especially inferior glenohumeral ligament

- **May occur in combination with a Bankart lesion if there is associated trauma (TUBS and AMBRI is not accurate...there is a spectrum of pathology....my opinion)**
- **Rotator Interval Capsular deficiency is hallmark and is expressed as large Sulcus sign with arm in external rotation. In more advanced cases there may be actual dysplasia or aplasia of the superior glenohumeral ligaments.**
- **Posterior instability is usually a component of MDI to some degree.**
- **Glenoid dysplasia may be a factor (three dimensional imaging is helpful)**
- **Dynamic components may be seen as scapular winging which then causes loss of the glenoid support for humeral head and associated instability.**
- **Beware voluntary instability overlay**

V. CLINICAL EXAMINATION:

- **Apprehension in more than one direction.**
- **Painful sulcus sign...especially important if positive with arm at side in external rotation. This means rotator interval insufficiency is significant.**
- **Laxity sometimes difficult to test in office.**
- **May have mixed features of impingement and scapulothoracic dyskinesis, which is secondary to instability.**

VI. TREATMENT OPTIONS:

- **Always try conservative first: Rotator cuff strengthening + axioscapular muscle strengthening + modalities. Therapist directed but mostly patient on own.**
- **Conservative Treatment Results:**
  - **Cooper and Brems, JBJS 1992: Only 15% of patients needed surgery**
  - **Burkhead and Rockwood, JBJS 1992: 29/33 satisfied with P.T.**
  - **Misamore and Fitzgibbons, 1996: < 20% needed surgery**
- **Conservative Treatment Results (My experience):**
  - **Most young, active patients are not happy if they can't do their sport**
  - **Even after surgery some cannot return to sports like throwing and swimming.**
  - **Activity and lifestyle modifications may be necessary for satisfactory outcome.**
  - **We all get "stiffer" with age.**

VII. TREATMENT OPTIONS: Open:

- **Many studies:**
- **Neer never reported long term follow-up.**
- **Columbia group and others reported long term follow-up with good-excellent results > 85%**

VIII. TREATMENT OPTIONS: Arthroscopic:

- **Not much in peer review literature yet.**
- **Thermal capsulorrhaphy experience has been very poor with failure rates 30-60% in MDI.**
- **Suture plication results with early follow-up are at least as good as open so far.**

XI. MY TREATMENT APPROACH AFTER FAILED THERAPY:

- **Anterior-inferior MDI is treated with arthroscopic capsular shift and rotator interval closure with patient in beach chair position.**
- **Posterior component of significance is treated with patient in lateral decubitus and a posterior capsular shift arthroscopically.**
- **Very large sulcus sign with arm in external rotation means aplasia of rotator interval and open shift is combined with rotator interval reconstruction.**
- **I always get a C.T. Arthrogram and look for glenoid dysplasia. Glenoid osteotomies are sometimes performed but prognosis for ultimate stability in this case is poor.**