Summary

SUMMARY

The elbow is one of the most important joints of the upper extremity, because it places the hand in space away from or toward the body, it provides the linkage, allowing the hand to be brought to the trunk, head, or mouth.

Normally, the arc of flexion - extension ranges from 0 to 150 degrees and the arc of supination - pronation ranges from 80 degrees in supination to 75 degrees in pronation. This range far exceeds what is normally required for activities of daily living, which usually ranges from 30 degrees in extension to about 130 degrees in flexion. Supination-pronation is from 50 degrees in pronation to 50 degrees in supination. **(Vasen et al , 1995)**

The post-traumatic elbow stiffness is considered as one of the most well recognized complication following elbow joint trauma and this is due to specific anatomy of elbow joint and the way that peri-articular tissues respond to various types of trauma. The pathology of post-traumatic elbow stiffness can be classified into extra-articular causes, intra-articular causes and mixed causes. **(Morrey , 2005)**

For many years, the post-traumatic elbow stiffness was believed to be unavoidable and almost untreatable but the more aggressive approach to the causes of the problem and recent advance in elbow arthroplasty have changed this opinion in recent years.

The evaluation of post-traumatic elbow stiffness can be done with:

A. **Patient history:** subjective description of motion deficits, presence or absence of pain, duration of elbow stiffness, pervious surgery of elbow and presence or absence of previous infection. **(Issack and Kenneth , 2006)**

B. **Clinical examination**: inspection, palpation, passive and active range of movement, strength, and complete neurovascular assessment. **(Barron and catalano , 2002)**

C. **Radiographic examinations:** most cases are evaluated only by routine X-ray techniques; other methods as computed tomography and magnetic resonance imaging are required for selected special cases. **(Greenspan , 2004)**

Management of posttraumatic elbow stiffness is based on prevention, non-surgical treatment and surgical treatment if failed non-surgical treatment. The aim of management of post-traumatic elbow stiffness is to provide a functional and painless range of motion required for activities of daily living , which is extension-flexion of 30 degrees to 130 degrees (an arc of motion of 100 degrees) and supination- pronation of 50 degrees to 50 degrees (an arc of motion of 100 degrees) .

Prevention is by early active motion after traumatic injuries and by the use of non-steroidal anti-inflammatory drugs combined with rehabilitation program. (**Nirschil and Morrey , 2000)**

Non-surgical treatment:

Is by supervised physical therapy [graduated active-assisted stretching exercises] often combined with static progressive splinting (turnbuckle) (**O"**

Driscoll 2002)

Surgical treatment:

Using either Arthroscopic or open surgical techniques:

- **Arthroscopic release :**

  If elbow arthroscopy can be performed safely and with facility, then it becomes the best tool and can be used for almost every elbow contracture (Fig. 2**). (Barron and catalano , 2002)**

- **Open surgical release :**

  The main types of operations used for post-traumatic stiffness are:

  1. **Soft-tissue release operations:** for patients with mild or no degenerative changes .(**O' Driscoll , 2006)**
  2. **Interposition fascial arthroplasty operations:** for younger patients with advanced degenerative changes. **(Manat , 2001)**
  3. **Total elbow arthroplasty operation:** for older patient or low-demand patients with advanced degenerative changes. **(Szekeres and Graham , 2006)**
  4. **Elbow distraction device**: using external fixator. (**Gausepohl et al , 2006)**
  5. **Arthrodesis:** should be considered a salvage procedure especially when total elbow arthroplasty or interposition arthroplasty could not be done. **(Galley et al , 2007)**