Use of Biceps Tendon as A graft in Treatment of Massive Irreparable Rotator Cuff Tear

Thesis

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بسم الله الرحمن الرحيم

﴿وأنزل الله عليك الكتاب
والحكمة وعلّمك ما لم تكن تعلم
وكان فضل الله عليك عظيماً﴾

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Nabil Mahmoud Hassan Elembaby

Contents

List of Tables

List of Tables (Cont...)

List of Figures

List of Figures (Cont...)

List of Figures (Cont...)

List of Figures (Cont...)

List of Abbreviations

AC	: Acromio-clavicular joint
BT	: Biceps tendon.
E.R	: External rotation
EX	: Extention
Fig	: Figure.
GH	: Glenohumeral joint
I.R	: Internal rotation
IS	: Infraspinatus
MRA	: Magnetic Resonance Arthrography.
MRI	: Magnetic Resonance Imaging.
NSAID	: Non-steroidal anti-inflammatory drugs.
RC	: Rotator cuff
RCT	: Rotator cuff tear
ROM	: Range of motion.
SC	: Subscapularis
SS	: Supraspinatus
ST	: Scapulothoracic
TM	: Teres minor
UCLA	: University of California Los Angeles
US	: Ultrasound

Introduction

The glenohumeral (shoulder) joint is a ball-and-socket type of synovial joint that permits a wide range of movement; however, its mobility makes the joint relatively unstable **(Aguar and Dalley, 2005)**.

Four of the scapulohumeral muscles (intrinsic shoulder muscles) are supraspinatus, infraspinatus, teres minor, and subscapularis are called rotator cuff muscles because they form a musculotendinous rotator cuff around the glenohumeral joint. All except the supraspinatus are rotators of the humerus; the supraspinatus, besides being part of the rotator cuff, initiates and assists the deltoid in the first 15° of abduction of the arm. The tendons of the SITS muscles blend with and reinforce the fibrous layer of the joint capsule of the glenohumeral joint, thus forming the rotator cuff that protects the joint and gives it stability. The tonic contraction of the contributing muscles holds the relatively large head of the humerus in the small, shallow glenoid cavity of the scapula during arm movements **(Aguar and Dalley, 2005)**.

DeOrio and Cofield, 1984, defined massive rotator cuff tears as those in which the length of the greatest diameter of the tear measured more than 5 cm; other authors have defined massive cuff tears as those that involve at least 2 tendons **(Shane et al., 2010)**.

Massive tears are always associated with weakness and, especially in young patients, often with painful disability. Massive

tears are rarely due to an acute injury; rather, they are usually chronic and are associated with myotendinous retraction, loss of musculotendinous elasticity, fatty infiltration of muscles, static (superior) subluxation of the humeral head, and ultimately, osteoarthritis **(Christian et al., 2011)**.

Static superior subluxation of a glenohumeral joint with an acromiohumeral interval of 7 mm or less on an anteroposterior radiograph with the arm in neutral rotation is associated with an exorbitantly high repair failure rate and considered indicative of irreparability of a tear. Static anterior subluxation, as detected on computed tomography (CT) or magnetic resonance imaging (MRI), though less well studied, appears to be indicative of irreparability of an anterosuperior tear. Stage 3 or 4 fatty infiltration of the rotator cuff muscles as determined by CT or MRI has repeatedly been associated with irreparability of rotator cuff tears **(Goutallier et al., 2003)**.

Treatment depends on the presenting symptoms (pain and/or disability), age, and functional level. Other issues such as medical comorbidities, the presence of an intact coracoacromial arch, and possible concomitant glenohumeral arthritis are also factors that must be considered in the treatment plan. The treatment options range from conservative (nonoperative) to surgical intervention. Surgical options include débridement with or without partial rotator cuff repair, tendon transfer, muscle tendon slide procedures, the use of rotator cuff allografts and synthetic grafts, arthrodesis, and shoulder arthroplasty, including the use of reverse ball prostheses **(David et al., 2006)**.

Aim of the Work

This work aims to evaluate the clinical outcomes in patients with irreparable massive rotator cuff tears whom treated with The LHB tendon patch grafting that seems to be one of the useful options for surgical treatment of irreparable massive rotator cuff tears.

ANATOMY

The four muscles that compose the rotator cuff take their origin from the body of the scapula and envelope the humeral head (Fig.1), as they insert along the tuberosities of the proximal humerus. The musculotendinous cuff is firmly adherent to the underlying glenohumeral capsule and provides circumferential reinforcement ***(Warner, 1993).***

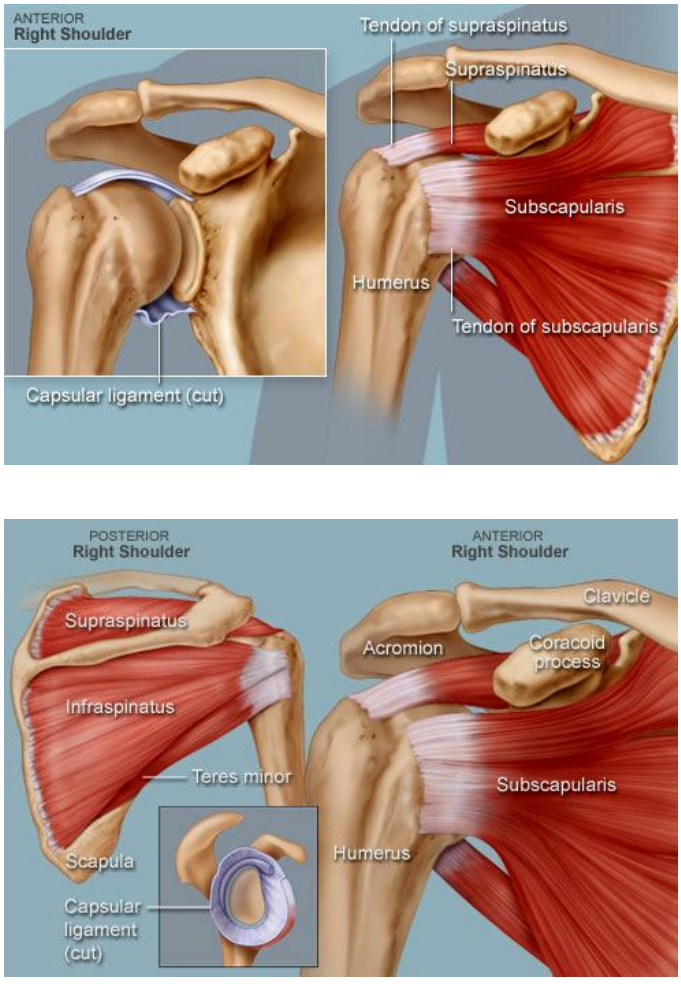

Figure (1): Anatomy of the Rotator Muscles ***(Web MD, 2011).***