Recent Advances

In Management Of Trapeziometacarpal Arthritis

Essay

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In Orthopaedic Surgery

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بســـم الله الرحمن الرحيـــم

((قالوا سبحانك لا علم لنا إلا ما علمتنا
إنك أنت العليم الحكيم))

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ABSTRACT

The choice of operative procedure is tailored to the individual patient, with factors being the patient's age and functional demands, including occupation and activities, and the extent and stage of disease. Currently, the most accepted treatments are variations of the trapezial resection suspension arthroplasty introduced by Eaton and Littler. Fundamentally, the specific procedure selected will depend on the presence of cartilage erosion at TMJ and ST joint.

KEY WORDS

Recent

Trapeziometacarpal

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List of Abbreviations

Abr.	Term
APL	Abductor pollicis Longus
DAOL	Deep anterior Oblique Ligament
DIML	Dorsal Intermetacarpal Ligament
DRL	Dorsoradial Ligament
DT II MC	Dorsal TrapezioII Metacarpal Ligament
DTTL	Dorsal TrapezioTrapezoid Ligament
ECRL	Extensor Carpi Radialis Longus
FCR	Flexor Carpi radialis
IML	Intermetacarpal Ligament
LRTI	Ligament reconstruction and Tendon Interposition
MCPJ	Metacarpophalangeal joint
POL	Posterior Oblique Ligament
RSTL	Radial Scaphotrapezial Ligament
SAOL	Superior Anterior Oblique Ligament
STJ	Scaphotrapezial Joint
T III MC	Trapezio III Metacarpal Ligament
TCL	Transverse Carpal Ligament
TCL	TrapezioCapitate Ligament
TMJ	Trapeziometacarpal joint
UCL	Ulnar collateral ligament
VST	Volar Scaphotrapezial Ligament
VT II MC	Volar TrapezioII Metacarpal Ligament
VTTL	Volar TrapezioTrapezoid Ligament

Aim of the Work

This essay aims to clarify and identify the most appropriate and recent modalities of treatment for trapeziometacarpal arthritis.

Introduction

Introduction

Osteoarthritis of the Trapezio-metacarpal joint (TMJ) is a common disabling condition. It is more common among women than men [1]. The articular surface of the trapezium and first metacarpal has reciprocal concave surfaces. This configuration is Often referred to as either (saddle joint) or concavoconvex.

Motion at this joint is derived from the differing radii of curvature of the articular surfaces, with that of the metacarpal being 33% larger than that of the trapezium. However, the differing radii of curvature also make the joint incongruous except for at the extremes of motion, subjecting the joint to increased contact stresses [2].

The trapezio-metacarpal joint of the thumb is responsible for the circumduction motion of the normal thumb and it has a great importance in the activities involving grasping and pinching and allows movement in two planes, adduction and radial abduction and retropulsion & antipulsion. The ligamentous structures that are supporting the TMJ are relatively loose which allow some actual motion, in a third axis, namely rotation [3].

The surfaces of this articulation are kept in opposition by the tone of the muscles and by the surrounding ligaments. Five main ligamentous structures were identified: (1) the anterior oblique ligament, (2) the ulnar collateral ligament, (3) the first intermetacarpal ligament, (4) the posterior oblique ligament, and (5) the dorsoradial ligament. It was observed that the anterior oblique ligament is the primary stabilizer of the trapeziometacarpal joint and is taut in abduction, extension, and pronation [4].

Pain and swelling at the base of the thumb are the most common complaints. As the osteoarthritic changes progress, instability, loss of motion and strength are also observed. The pain is particularly accentuated by repeated pinching and grasping [5, 6].

Management of (TMJ) includes either conservative or surgical measures Conservative treatment includes splinting, injection of corticosteroids and adaptation.

Surgical interventions Goals are to restore thumb function; provide a pain- free, stable, and mobile joint; and preserve strength such as metacarpal osteotomy [7], Arthrodesis [8], Arthroscopy [9], interposition arthroplasty [10] trapezium excision [11], Total joint arthroplasty [12].

Applied Anatomy and Biomechanics

APPLIED ANATOMY AND BIOMECHANICS

Trapeziometacarpal joint (TMJ), is a distinguishing and unique feature of the human opposable thumb. It is also described as the basal joint because it is the "base" from which the thumb has a large range of motion, allowing the hand to perform sophisticated movements by means of prehensile activities [13]. The trapeziometacarpal joint is commonly referred to as an incongruous saddle joint. It makes possible the wide circumduction of the thumb, enabling activities such as grasping and pinching [14], that involves three arcs of motion: flexion–extension, abduction–adduction ,and pronation – supination [15].

The axis of the thumb at the TMJ rests in a pronated position, flexed approximately 80º relative to the plane of the metacarpals of the fingers. This optimizes thumb positioning for opposition to the tips of the fingers for prehensile activities [16,17].