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Trapeziectomy vs Trapeziectomy with Ligament Reconstruction and Tendon Interposition in Management of Trapeziometacarpal Arthritis

A systematic Review of Literature

Essay

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Abstract

Background: Osteoarthritis of thumb carpometacarpal joint is common affecting 16% to 25% of postmenopausal women.Usually it presents with pain, weakness, and deformity and it can result in significant functional impairment.Trapeziectomy and Trapeziectomy with ligament reconstruction and tendon interposition can be used in management .A systematic review of literature done to evaluate which technique is better.

Methods: after literature search ten articles were found and were reviewed to evaluate final outcome of both techniques in management of trapeziometacarpal arthritis.

Results: after evaluation of all studies trapeziectomy and trapeziectomy with ligament reconstruction and tendon interposition are nearly similar as regard pain ,pinch ,grip strength and adverse effects so after LRTI was preferred to avoid instability or weakness from simple trapeziectomy ,trapeziectomy regains its place in trapeziometacarpal arthritis management.

Conclusion :no difference between trapeziectomy or LRTI in the final outcome so trapeziectomy is preferred in trapeziometacarpal arthritis management.

Keywords: "trapeziometacarpal", "arthritis"," trapeziectomy", ligament reconstruction "and "tendon interposition".


بسم الله الرحمن الرحيم
وَأَنْزَلَ اللهُ عَلَيْكَ الْكِتَابَ والْحِكْمَةَ
وَعَلَّمَكَ مَا لَمْ تَكُنْ تَعْلَمُ وَكَانَ فَضْلُ
اللهِ عَلَيْكَ عَظِيمًا
سورة النساء 113
صدق الله العظيم

الاهداء

بادئ ذى بدئ اوجه الشكر والعرفان لله الواحد القهار فله الفضل فى اى نجاح تم التوصل اليه فى حياتى كاملة.

أود ان اعبر عن أسمى آيات الشكروالامتنان للأستاذ الدكتور محمد مصطفى الماحى أستاذ جراحه العظام كليه الطب جامعه عين شمس لإشرافه الدقيق وتوجيهاته القيمه ومساعدته الوافرة.

أحب ان اوجه خالص الشكر وألامتنان للأستاذ الدكتور أحمد نعيم عطيه استاذ مساعد جراحه العظام جامعه عين شمس على أشرافه الدقيق وجهوده المخلصه وتشجيعه المثمر ومساعدته الوافره .

أتقدم بالشكر لقسم العظام بجامعه عين شمس ورئيس القسم السيد الأستاذ الدكتور هاني حفنى على دعمهم ومساعدتهم لى فى فتره الطبيب المقيم .

كما أننى شديد الأمتنان لوالتى وعائلتى لدعمهم المتميز لى وتوجيهم المستمر فى كافه جوانب حياتى والى روح والدى الذى غرس فى حب العلم.

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Awab Ali Mousa

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List of Abbreviations

AIMS2 ... Arthritis impact measurement scale 2

DASH .... Disabilities of arm shoulder and hand score

FCR ..... Flexor carpi radialis

JHS ..... Journal of hand surgery

LRTI ..... Ligament reconstruction and tendon interposition

PEM..... Patient evaluating measure score

PRWE.... Patient rated wrist evaluation score

TM ..... Trapeziemetacarpal

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INTRODUCTION

Osteoarthritis of thumb carpometacarpal joint is common affecting 16% to 25% of postmenopausal women. Usually it presents with pain, weakness, and deformity and it can result in significant functional impairment. The high mobility of trapeziometacarpal joint is due to the little intrinsic osseous stability of the joint. This causes this joint to be more unstable compared to the joints of the other fingers[1]. Because of this instability the joint is more susceptible to be damaged. Sixteen ligaments surrounding the first carpometacarpal joint are identified, which give strength and stability to the joint. Of these ligaments, the deep anterior oblique ligament, also known as the palmar beak ligament, is considered to be the most important stabilizing ligament[2].

The majority of the disease in the early stages can be managed with non-operative treatments such as activity modification, hand therapy with splinting, analgesics, and the use of corticosteroid injections[3]. When symptoms cannot be tolerated despite non operative measures, surgery may be required also stage **- 1 -** and **- 1 -** usually

require surgery . Patients commonly request surgery when everyday tasks become impossible, by which time the trapeziometacarpal (TM) joint is usually stiff and deformed. The primary goal of surgery is pain relief whilst providing stability, strength, and mobility of the thumb.

Grevis introduced trapeziectomy in 1949[3], however surgeons reported weakness and instability from this procedure. Then soft tissue arthroplasty techniques were developed due to morbidity with trapeziectomy alone, they include: flexor carpi radialis tendon interposition in the trapezial space introduced by Froimson[4], Burton and Pelligrini's[5] combined ligament reconstruction and tendon interposition (LRTI), also using half of the flexor carpi radialis tendon.

Many believed that these procedures addressed concerns about loss of thumb height and stability of the thumb metacarpal joint. Other surgical options include partial trapeziectomy and interpositional arthroplasty (soft tissue, silastic, and titanium), arthrodesis of the trapeziometacarpel joint, and total joint replacement[6].

Recent evidence suggests that trapeziectomy alone and trapeziectomy with other technical modifications have similar outcome. So this study will try to examine the extent to which current evidence about the effectiveness of simple trapeziectomy, compared with trapeziectomy with soft-tissue arthroplasty techniques in surgical treatment of thumb carpometacarpal joint arthritis[6].

MATERIALS AND METHODS

The search was conducted by using the database Medline, Cochrane library and JHS {Journal of Hand Surgery} using the following keywords: "trapeziometa-carpal", "arthritis"," trapeziectomy", ligament reconstruction "and "tendon interposition". The initial literature search identified 314 articles which were assessed for possible inclusion.

Inclusion criteria:

- English literature.
- Journal articles.
- Between 1949 till 2015.
- Describing management of primary trapeziometacarpal arthritis.
- Randomized control trials, retrospective or prospective studies.
- Human studies.

Exclusion criteria:

- Articles describing other finger or joint arthritis.
- Articles on post traumatic or secondary osteoarthritis.