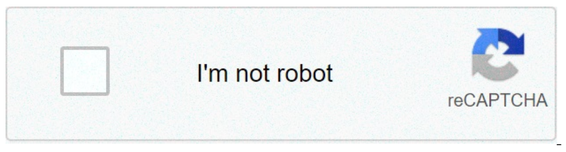

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Cmc joints of fingers

The thumb allows very special movements in a harmony with the other fingers. Most of these movements particularly pinching and gripping are possible with a functional basal joint (carpometacarpal joint) of the thumb. Because of its unique design it tends to develop earlier arthritis than those in the fingers. Destortion of this joint results in pain when it moves. Arthritis of thumb basal joint is seen more in women, older than 4o years of age.During physical examination, pain and loss of power whilst pinching or gripping, swelling and/or tenderness at the base of the thumb(picture 1), limitations in joint movements are noticed. Patient and doctor may feel friction if the thumb is tried to move in different directions when proksimal part is keeping stabil. In a normal joint, cartilage covers the ends of the bones and allows them to move smoothly and painlessly against one another. In osteoarthritis (or degenerative arthritis), the cartilage layer wears out, resulting in direct contact between the bones. In the hand, the second most common joint to develop osteoarthritis is the joint at the base of the thumb. The thumb basal joint, also known as the carpometacarpal (CMC) joint, is a specialized saddle-shaped joint that is formed by a small wrist bone (trapezium) and the first of the three bones in the thumb (metacarpal). The specialized shape of this joint allows the thumb its wide range of movement—up and down, across the palm, and the ability to pinch with the fingers (see Figure 1). Who Gets Arthritis at the Base of the Thumb? Arthritis at the base of the thumb is more common in women and usually starts after age 40. The cause of this form of arthritis is unknown in most cases. Past injuries to the joint, such as fractures or severe sprains, and generalized joint laxity may increase the chances of developing this form of arthritis at a younger age. What Are the Symptoms and Signs of Arthritis at the Base of the Thumb? The most common symptom of thumb basal joint arthritis is a deep, aching pain at the base of the thumb. The pain is often worsened with activities that involve pinch, including opening jars, turning door knobs or keys, and writing. As the disease progresses, patients may experience pain at rest and at night, and patients often note loss of pinch and grip strength. In severe cases, progressive destruction and mal-alignment of the joint occurs and a “bump” develops at the base of the thumb, which is caused by the thumb metacarpal moving out of position in relation to the trapezium. At this point, thumb motion becomes limited and the space between the thumb and index finger narrows, making pinch activities difficult (see Figure 2). The next joint up may hyper-extend to compensate. How Is the Diagnosis Made for Arthritis at the Base of the Thumb? The appearance of the thumb and the location of the pain are usually very helpful in identifying this condition. Applying longitudinal pressure along the thumb and twisting or grinding the basal joint is also helpful in reproducing symptoms (see Figure 3). Although X-rays help confirm the diagnosis, symptom severity often does not correlate directly with the joint’s appearance on the X-ray. What Are the Treatment Options for Arthritis at the Base of the Thumb? Less severe thumb arthritis will usually respond to non-surgical care. Pain medication, topical agents, splinting, and limited use of corticosteroid injections may help alleviate pain. A hand therapist might provide a variety of rigid and non-rigid splints to support the thumb during activities. Patients with advanced arthritis or who do not respond to non-surgical treatment may be candidates for surgical reconstruction. A variety of surgical techniques are available that can successfully reduce or eliminate pain and improve thumb position and function. Common surgical procedures include removal of arthritic bone and joint reconstruction (joint arthroplasty), bone fusion or realignment techniques, and even arthroscopic procedures in select cases. A consultation with your treating surgeon can help decide the best options for you (see Figure 4). Figure 1: Thumb basal joint. Figure 2: In severe cases, the thumb collapses into the palm, causing a zig-zag deformity. Figure 3: Grind test. Figure 4: Treatment diagram. Information provided by the American Society for Surgery of the Hand. Posterior carpometacarpal (CMC) dislocation is a rare condition. Treatment is usually surgical though no strict consensus can be found upon literature review. If diagnosed early and no associated fractures are found, CMC dislocation could benefit from conservative treatment comprising closed reduction and splint immobilisation. We report the case of a 26-year-old man diagnosed with a posterior dislocation of the third, fourth, and fifth CMC joints after a fall of 1.5 meters, treated by external reduction under procedural sedation and immobilisation with a cast for 6 weeks. Evolution was excellent with no relapse observed during follow-up. Our aim is to increase physician awareness of CMC dislocation so that they seek this injury in the emergency department. Unrecognised CMC dislocation can lead to neurovascular injuries as well as chronic instability and early articular degeneration.1. IntroductionCarpometacarpal (CMC) dislocation is a rare condition usually treated surgically [1, 2]. Posterior dislocation is more common (85%) than palmar dislocation [3]. Most posterior dislocations are due to high velocity trauma. Delayed treatment can result in neurovascular injuries due to oedema [3] and prolonged compression. Untreated, these lesions can result in chronic instability of the CMC joints and early articular degeneration [4]. We report the case of a 26-year-old man suffering from a posterior dislocation of the third, fourth, and fifth CMC joints after a fall of less than 1.5 meters, treated conservatively.2. Case PresentationA 26-year-old man, with no significant medical history, suffered from a posterior dislocation of the third, fourth, and fifth CMC joints after the patient stumbled and fell on his outstretched right hand. The patient presented rapidly to our emergency department with a swollen hand and complaining of acute pain. He was unable to move his wrist and kept the hand in a neutral position. Clinical examination showed posterior tumefaction of the right hand with no wound. No distal neurological nor vascular impairment was observed. Motor integrity of the fingers was preserved but revealed slight malrotation. Systemic complete examination showed no additional lesions. Despite a normal anteroposterior X-ray of the hand, an oblique view (Figure 1) showed a complete dislocation of the fourth and fifth CMC joints and a partial dislocation of the third CMC joint with no associated fractures. CT scan was performed showing no additional lesions (Figure 2). After discussion with the hand surgeon, the decision was made to reduce the dislocation in the emergency room under procedural sedation (midazolam 0.03 mg/kg associated with ketamine 1 mg/kg). Applying a longitudinal traction to the involved fingers with an associated pressure over the base of the dislocated metacarpals accomplished reduction. Examination after reduction showed correction of the malrotation. The wrist was then immobilised in a palmar splint from midforearm to the third phalanx of all fingers except the thumb, with slight dorsiflexion of the wrist. Control oblique X-ray of the hand showed adequate alignment of the CMC joints (Figure 3). Radiographs of the hand were performed during follow-up to ensure the absence of relapse. After six weeks of conservative treatment, clinical control showed no recurrence of CMC instability nor reduced strength of the hand. A 6-month follow-up did not show chronic pain of the hand.3. DiscussionCMC joints are usually stable thanks to strong transverse dorsal CMC ligaments and longitudinal volar CMC ligaments [5]. Most dislocations occur after high-energy traumatisms [6]. These lesions are often underdiagnosed in the emergency department due to the fact that patients suffering from such lesions usually present to the emergency department with other more obvious traumatisms [7]. In our case, the single traumatism of the hand made the diagnosis easier.The frequency of posterior CMC dislocation is higher than that of palmar dislocation [7]. CMC joint dislocation represents less than one percent of all hand trauma, the first CMC joint excluded [1, 7]. The dislocation of the second and the third CMC joints is even less frequent [8].When CMC dislocation is suspected based on clinical findings (pain, swelling, and lump of the joints), anteroposterior, profile, and oblique X-rays of the hand should be performed [9]. Usually diagnosed with a true lateral view X-ray of the hand, CMC dislocation can be concealed due to overlapping of the joints [9]. On posteroanterior radiographs, such dislocations can be suspected when loss of parallelism between CMC joints is found or when an apparent shortening of metacarpals is noticed [9]. Additionally, oblique radiographs of the hand can be useful to demonstrate CMC dislocation [2]. In our case report, oblique X-rays led to the diagnosis. Associated fractures of the hand and the wrist have to be excluded with certainty in order to propose adequate treatment. To do so, a CT scan should be performed [10]. Regularly, carpal fractures are occult on conventional X-rays. Surgical treatment is strictly recommended if an associated fracture is found [10].Mostly, CMC dislocations are treated surgically [1] either by open reduction and internal fixation or by closed reduction and percutaneous pinning. Few cases of closed reduction and conservative treatment with splint immobilisation are reported in literature [2]. In our case, the patient had no other lesion than CMC dislocation on the CT scan and showed an excellent outcome after six weeks of splint immobilisation. A failed treatment would be assessed by relapse of dislocation, residual pain, or limitation in finger movements and diminished strength of the hand [10]. In the case of imprecise alignment or chronic dislocation, frequent complications include posttraumatic arthrosis, median nerve dysfunction, carpal instability, complex regional pain syndrome, and tendon problems. In our patient, none of these were found after follow-up.Some secondary dislocations after treatment by closed reduction and splint immobilisation have been described, occurring within two weeks of the reduction [2]. Therefore, X-rays of the hand are recommended during follow-up. Surgical closed reduction treatment shows good results if undertaken within 10 days of the dislocation [6]. A CMC dislocation diagnosed early could therefore benefit from a conservative closed reduction under procedural sedation with splint immobilisation. Percutaneous reduction could be considered if a recurrence was found at follow-up within the first ten days.After three weeks of evolution without treatment, a surgical reduction is strongly recommended [6].CMC can easily be underdiagnosed if clinical signs are overlooked. We hope that CMC dislocation will no longer be an underestimated lesion in daily practice and that more closed reduction followed by conservative treatment will be practiced successfully. Physicians should consider CMC dislocation in every patient presenting with hand trauma.Competing InterestsThe authors declare that they have no conflict of interests.Copyright © 2016 Hélène Jumeau et al. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. Dislocations of single finger carpometacarpal (CMC) joints are rare but well reported in the literature and often associated with fractures of that or adjacent metacarpals. Similarly dislocations of the thumb CMC joint are also well reported. However simultaneous dislocations of the thumb and all four finger CMC joints has not previously been reported. To read this article in full you will need to make a paymentDOI: 99)00226-0© 1999 Elsevier Science Ltd. Published by Elsevier Inc. All rights reserved.Access this article on ScienceDirect To present our surgical technique and results for the treatment of posttraumatic arthritis of the little finger carpometacarpal (CMC) joint. We performed a retrospective review of 3 patients who underwent our surgical technique. All patients had previously sustained intra-articular fractures of the base of the little finger metacarpal and presented with painful posttraumatic arthritis of the fifth metacarpal–hamate joint. Patients were treated with little finger CMC arthroplasty and extensor carpi ulnaris suspensionplasty. We observed the 3 patients in the office over a mean of 21 months and by telephone for a mean for 51 months postoperatively. They had improvements in wrist motion and grip strength. Finger motion remained stable. Pain and tenderness at the little finger CMC joint were eliminated. Our technique provided satisfactory pain relief and motion preservation for posttraumatic arthritis of the little finger CMC joint. Therapeutic IV. Little finger CMC arthritis arthroplasty suspensionplasty To read this article in full you will need to make a paymentPublished online: July 29, 2014Accepted: June 11, 2014Received: November 21, 2013The authors thank Marie Dean for her illustration.No benefits in any form have been received or will be received related directly or indirectly to the subject of this article.DOI: 	2014 American Society for Surgery of the Hand. Published by Elsevier Inc. All rights reserved.Access this article on ScienceDirect Original Editor - Jona Van den Broeck Top Contributors - Trapeziometacarpal (TMC) arthritis (also known as Rhizarthrosis) is arthritis of the first carpometacarpal (CMC) joint of the thumb. The CMC joint of the thumb, or TMC joint plays a critical role in the normal functioning of the thumb. It is the most important joint connecting the wrist to the metacarpus. Osteoarthritis of the TMC is a severely disabling condition; up to twenty times more common among elderly women than on average.[1] Carpometacarpal Joint of the hand Ligaments of the TMC Joint and their functions Literature has identified the main ligaments of the TMC Joint as the following ones: [2] [3] [4] The dorsoradial ligaments (DRL) The superficial anterior oblique ligament (AOL) The deep anterior oblique ligament (AOL) The intermetacarpal ligament (IML) The ulnar collateral ligament The posterior obique ligament Table 1. The Functions of the ligaments adapted from [2] Ligament Function Dorsoradial Shortest and thickest ligament. Primary stabilizers against dorsal translation of the joint Anterior oblique Superficial Stabilization against volar joint subluxation Anterior oblique Deep It is also known as beak ligament. It acts as a pivot primary joint stabilizer against dorsal translation Posterior oblique Stabilization of rotation Intermetacarpal Stabilization during radiovolar translation Ulnar collateral Helps to stabilize against the volar joint subluxation Although there is a controversy about the primary stabilizers of the TMC Joint, several studies concluded the DRL to be the primary stabilizers [5] [3] [6] Stages of CMC[edit | edit source] The CMC stages are usually classified according to the Eaton-Litter Classification which is obtained through radiological procedures or arthroscopy [2]. It's a staging protocol with four different stages based on synovitis, joint space, and the laxity of the capsule [7]. Here are the four stages of Eaton-Litter Classification [8]: Stage I: Synovitis Phase Articular contours are normal Possible widening of TMC joint that suggests joint effusion or ligament laxity No osteophyte formation Stage II: Significant Capsular Laxity Narrowing of CMC joint Small osteophyte formation at the ulnar side of the distal trapezial articular surface No or 1/3rd CMC joint subluxation Stage III: Significant Joint Destruction Further joint space narrowing with cystic changes and sclerotic bone Prominent osteophytes at the ulnar border of distal trapezium Moderate subluxation radially and dorsally at the base of the first metacarpal Mild arthrosis of the scaphotrapezial joint Stage IV: Pantrapezial Arthritis Major subluxation of the joint Narrowing of the joint space as in stage 3 Cystic and sclerotic subchondral bone changes Significant erosion and destruction of scaphotrapezial joint Etiology[edit | edit source] Causes of TMC arthritis are: Excessive repetitive use of the CMC joint of the thumb Subluxation Lesion of the ligaments or a fracture. Laxity of the CMC joint can be hereditary, increased risk for ligament injuries, a primary stimulus in the development of arthritis. Also causes hyperextension, which is another primary stimulus for the development of arthritis.[9] Weakness of the cross links of the fingers (ligament oblique anterior). These ligaments are the most important stabilizers of the fingers. [10] Using thumb in occupation, For example, Work-related thumb pain in physiotherapists is a prevalent problem among physiotherapists who administer manual techniques. Factors that appear to be associated with thumb pain include CMC mobility and thumb strength[11]. Signs and Symptoms[edit | edit source] The first signs of arthritis in the thumb are pain, tenderness, and stiffness at the base of your thumb. This occurs with gripping, pinching, or clasping something between the thumb and index fingers or when a mild force, such as when you twist a key in a lock or turn a door handle. An ache after activity can also be a feature. Decreased strength and range of motion, For example, opening jars or doing up buttons may become difficult. Appearance. The joint may become swollen or develop a bony bump. The joint may appear squarish and enlarged.[12] Diagnosis[edit | edit source] Medical and family history Noticeable lumps or swelling on the first CMC joint Thumb CMC grind test Plain radiographs showing degenerative changes (bone spurs, thinning of cartilage, loss of joint space) in affected joints are usually diagnostic.[13] Differential Diagnosis[edit | edit source] The differential diagnosis of Rhizarthrosis includes: [2] Treatment[edit | edit source] Conservative measures are the first options for CMC arthritis and can ameliorate symptoms in most cases. These include Behaviour modification[edit | edit source] For example, try to avoid: clenching your hands when carrying things; repetitive movements that involve pinching or twisting Physiotherapy[edit | edit source] Techniques include range-of-motion and stretching exercises to improve thumb motion. [14] Advance to include strength exercise for the intrinsic and extrinsic muscles of the thumb and muscles of the fingers. [15] Dexterity and fine motor exercises for the hand and thumb. [16] Application of therapeutic heat or cold Application of electrotherapeutic techniques, For example, Therapeutic Ultrasound, TENS. Ultrasound has been found to have the ability to evoke a broad range of therapeutically beneficial such as improved pain and functional outcomes, positive cartilage healing properties, and positive phonophoresis for hyaluronan. [17] Acupuncture. May work in pain relief for some people.[18] Clinical trials have provided evidence that a combination of joint mobilization, neural mobilization, and exercise helps with CMC joint pain.[19] Splinting, designed to help reduce pain, prevent deformity, or prevent deformity from getting worse. To wear at night, during flare-ups, and when doing heavy work with hand.[16] Pain relief[edit | edit source] Options include Topical medications, such as capsaicin or diclofenac, which are applied to the skin over the joint Over-the-counter pain relievers, such as acetaminophen, ibuprofen or naproxen sodium Prescription pain relievers, such as celecoxib (Celebrex) or tramadol (Conzip, Ultram) Injections. Corticosteroid injections can offer temporary pain relief and reduce inflammation.[13] Surgery[edit | edit source] If the diagnosis of ‘rhizarthrosis’ is determined too late, none of the above treatments will be helpful. Because of severe pain and movement restriction, surgery could be inevitable. The following options are usually offered for surgery: [20] Arthroscopy: resecting a part of the trapezium bone Arthrodesis to fuse the first metacarpal bone and the trapezium bone Arthroplasty to reconstruct the joint by the use of a prosthesis such as Swanson’s trapezium implant arthroplasty [21] or the Artelon spacer. [22] Other treatment techniques may also include: [23] Denervation of the TMC joint Reconstruction of the volar beak ligament Suture button suspensionplasty [24] Complications[edit | edit source] Complications that may arise after surgery include:[8] Common complications[edit | edit source] Swelling Bruising Incision tenderness Joint Stiffness Mild metacarpal subsidence 2. Uncommon Complications[edit | edit source] References[edit | edit source] ↑ Wikipedia. CMC joint. Available from: (last accessed 13.4.2019) ↑ 2.0 2.1 2.2 2.3 Bilge O, Karalezli N. Current review of trapeziometacarpal osteoarthritis (rhizarthrosis). World Journal of Rheumatology. 2015 Jul 12; 5(2):90-5. ↑ 3.0 3.1 Lin JD, Karl JW, Strauch RJ. Trapeziometacarpal joint stability: the evolving importance of the dorsal ligaments. Clinical Orthopaedics and Related Research®. 2014 Apr 1; 472(4):1138-45. ↑ Imaeda T, An KN, Cooney III WP, Linscheid R. Anatomy of trapeziometacarpal ligaments. The Journal of hand surgery. 1993 Mar 1; 18(2):226-31. ↑ Anatomical considerations of the thumb carpometacarpal joint ligaments, based on a case report of isolated joint dislocation. Available from: (Accessed 24 October 2020) ↑ Mayo clinic. Causes remedies for thumb arthritis. Available from: . (last accessed 13.4.2019) ↑ Trapeziometacarpal osteoarthritis. Available from: (Accessed, 18 October 2020) ↑ 8.0 8.1 Thumb CMC Joint Arthroplasty. Available from: (Accessed 15 October 2020) ↑ Wolf JM, Schreier S, Tomsick S, Williams A, Petersen B. Radiographic laxity of the trapeziometacarpal joint is correlated with generalized joint hypermobility. The Journal of hand surgery. 2011 Jul 1;36(7):1165-9. Available from: 11)00353-4/abstract (last accessed 14.4.2019) ↑ A. Gondim Teixeira, Pedro & Omoumi, Patrick & J Trudell, Debra & Ward, Samuel & Blum, Alain & L Resnick, Donald. (2010). High-resolution ultrasound evaluation of the trapeziometacarpal joint with emphasis on the anterior oblique ligament (beak ligament). Skeletal radiology. 40. 897-904. 10.1007/s00256-010-1068-0. Available from: ↑ Snodgrass SJ, Riyett DA, Chiarelli P, Bates AM, Rowe LJ. Factors related to thumb pain in physiotherapists. Australian Journal of Physiotherapy. 2003 Jan 1;49(4):243-50. Available from: (last accessed 10.4.2020) ↑ Healthline. Basal joint arthritis. Available from: (last accessed 14.4.2019) ↑ 13.0 13.1 Mayo clinic. Thumb arthritis. Available from: (last accessed 14.4.2019) ↑ Healing hands rehab. CMC arthritis. Available from: (last accessed 14.4.2019) ↑ LB hand therapy. Thumb stability exercises. Available from: ↑ 16.0 16.1 Central physiotherapy. Arthritis of the thumb. Available from: 282/article.html (last accessed 14.4.2019) ↑ Srbely JZ. Ultrasound in the management of osteoarthritis: part I: a review of the current literature. The Journal of the Canadian Chiropractic Association. 2008 Mar;52(1):30. Available from: (last accessed 15.4.2019) ↑ Arthritis Foundation. Acupuncture and osteoarthritis. Available from: (last accessed 15.4.2019) ↑ Jospt. The Effectiveness of a Manual Therapy and Exercise Protocol in Patients With Thumb Carpometacarpal Osteoarthritis: A Randomized Controlled Trial. Available from: (last accessed 14.4.2019) ↑ Rhizarthrosis. Available from: (Accessed 19 October 2020) ↑ Ruettermann M. Changing surgical treatments of thumb carpometacarpal osteoarthritis. Journal of Hand Surgery (European Volume). 2020 Jun; 45(5):533-5. ↑ Gillis J, Calder K, Williams J. Review of thumb carpometacarpal arthritis classification, treatment and outcomes. Canadian Journal of Plastic Surgery. 2011 Dec; 19(4):134-8. ↑ Rhizarthrosis. Available from: (Accessed 19 October 2020) ↑ Dartmouth-Hitchcock. Basal joint arthritis. Available from: (last accessed 15.4.2019)