Basal Joint Arthritis of the Thumb

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Anatomy

- The basal joint of the thumb is also called the CMC joint
- It is located at the base of the thumb
- This joint allows a wide range of motion for the thumb ray
X-ray Anatomy

- The basal joint is important for gripping and pinching activities.
- The joint surfaces are normally covered with a shock-absorbing layer called cartilage that helps lubricate the joint.

Basal joint of the thumb
Basal Joint Arthritis

- In arthritis, the cartilage layer wears out, leaving bone rubbing on bone
- This may be a result of injury to the joint, repeated injuries, chronic wear and tear on the joint, or a combination of these factors
X-ray Appearance

Normal CMC joint xray

Basal joint arthritis
Symptoms

- Aching pain with activity is the major symptom associated with this condition.
- Activities such as grasping a cup or turning a key become difficult.
- Cracking and popping in the joint may be noticed.
Symptoms

- With time, motion is lost in the thumb and the joint becomes swollen and deformed.
Non-surgical Treatment

- A thumb splint can be used to help manage this problem.
- The splint is worn when needed. It does not need to be worn all the time.
- It can be worn for heavy activities, and for periods where pain is flared.
Splints

A custom plastic splint can be made
In therapy
Other splints may be useful
Medications

- Anti-inflammatory medicines may be of benefit
- Non prescription Advil, Motrin, Ibuprofen or Aleve can be used
- Prescription meds are available for those with sensitive stomachs

- These medicines are safer if taken only when needed, for flares of pain or heavy activities
- Side effects most commonly involve the stomach, but many are possible
- These meds should not be taken by people with ulcer disease or on blood thinners
Medications

- Glucosamine with chondroitin sulfate is a common over the counter medicine for arthritis.
- Studies now indicate that this medicine does not repair or rebuild cartilage.
- Most patients, however, experience some pain relief. This may be due to an anti-inflammatory property of this compound.
Modalities

- Applying ice to the base of the thumb right after heavy work or activity can limit pain and inflammation.
- Moist heat applied before work or activity may also be useful.
Voltaren Gel

- This cream is a prescription anti-inflammatory medicine
- It can be directly applied to the CMC joint to provide symptom relief
Occupational Therapy

- Therapy may be beneficial for teaching, including ways to manage activities to minimize pain
- Adaptations can be made to tools, writing instruments, and keys to make them easier to use
- Therapists can make or provide a wide variety of splints for use in this arthritis
- Cortisone can be given with the use of electric current or ultrasound
- Exercises can be done to strengthen surrounding muscles and unload the painful joint. Stretching exercises can prevent contractures
Cortisone

- Cortisone injections are available for temporary relief of significant pain
- They can provide good, but not lasting, pain relief
- The number of injections is limited, since too much cortisone can accelerate joint wear
Other injections

- Other compounds have been utilized for this arthritis – as in knee arthritis.
- These injections have been used for the thumb CMC but are not formally approved.
- Hyaluronic acid can be obtained for injection.
- Usually done in a series of three injections.
- May provide temporary relief of symptoms.
Surgical Treatment

- Surgery is available for persistent pain and limitation when the non-surgical measures just reviewed are not enough.
- There are two basic types of surgery – to replace the joint or fuse the joint.
- **Replacing the joint** provides good motion and pain relief.
- **Fusing the joint** provides good strength and pain relief.
Joint Fusion

- In this procedure, the arthritic joint is removed and the remaining bone joined together as one bone.
- There is no motion from that joint, but motion remains in the other joints of the thumb and wrist.
- The surgery can be done as an outpatient surgery.
- It takes 6 to 8 weeks for the fusion to heal, with a healing rate of 95%.
- This surgery is usually reserved for younger patients requiring significant strength for manual labor.
Joint Fusion

before surgery

after surgery

final fusion
Joint Arthroplasty – two types

Tendon Interposition Arthroplasty

- A portion or all of a wrist flexor tendon adjacent to the thumb is used
- Using this tendon does not affect function of the extremity
- The tendon tissue is used to rebuild a ligament and also cushion the new joint

Hematoma Distraction Arthroplasty

- One bone is removed and the resulting space fills in with blood and fibrous tissue that solidifies
- No tendon tissue is used
- The joint is pinned for 5 weeks
Tendon Interposition Arthroplasty

- The **most common** type of surgery for this condition involves replacing the arthritic joint.
- One bone is removed, and the resulting space is then filled with a portion of tendon taken from the same arm.
- This provides good pain relief, good motion and dexterity.
- Strength takes time to build up.
A bone named the trapezium is removed, and a tendon from the forearm is used to stabilize and fill the joint.
CMC Arthroplasty surgery

- The surgery is done in the hospital under general anesthesia.
- Patients usually spend one night in the hospital after surgery.
- A bulky dressing with splint is worn the first week after surgery.
Surgery

The joint is exposed

A bone called the trapezium is removed
CMC Arthroplasty Surgery

- After one week, a cast is applied.
- At the beginning of the 5th week after surgery, the cast is removed and a splint is made by a therapist.
- Exercises to regain motion are started at this time.
After Surgery

After one week, before cast is applied

After surgery cast
Beginning 5th week after surgery

- Cast is discontinued
- Therapy is started and plastic splint is made for thumb
- Splint is removed for bathing, scar massage, and range of motion exercises.
Result

- This surgery has a high success rate, resulting in good relief of pain.
- Motion is preserved.
- The surgery should be permanent and should not need to be redone.
Hematoma Distraction Arthroplasty

- The bone called the trapezium is removed entirely
- This eliminates bone rubbing on bone
- The joint is pinned for 5 weeks
- Therapy is started after the first 5 weeks, with a plastic thumb splint used on a gradually decreasing basis
Hematoma Distraction
Arthroplasty

- Can be done as outpatient surgery
- Can be done under regional anesthesia
Hematoma Distraction Arthroplasty
Hematoma Distraction

Arthroplasty

Cast applied 10 days after surgery

Splint and exercises started 6th week after surgery
Tendon Interposition compared to Hematoma Distraction

- The tendon interposition is a moderately longer and complex surgery with a longer recovery.
- Designed to rebuild ligament support for the joint and prevent collapse, theoretically providing more strength.
- Studies thus far indicate equal results between these two procedures.
If you have any questions after viewing this presentation, please ask before leaving the office.

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