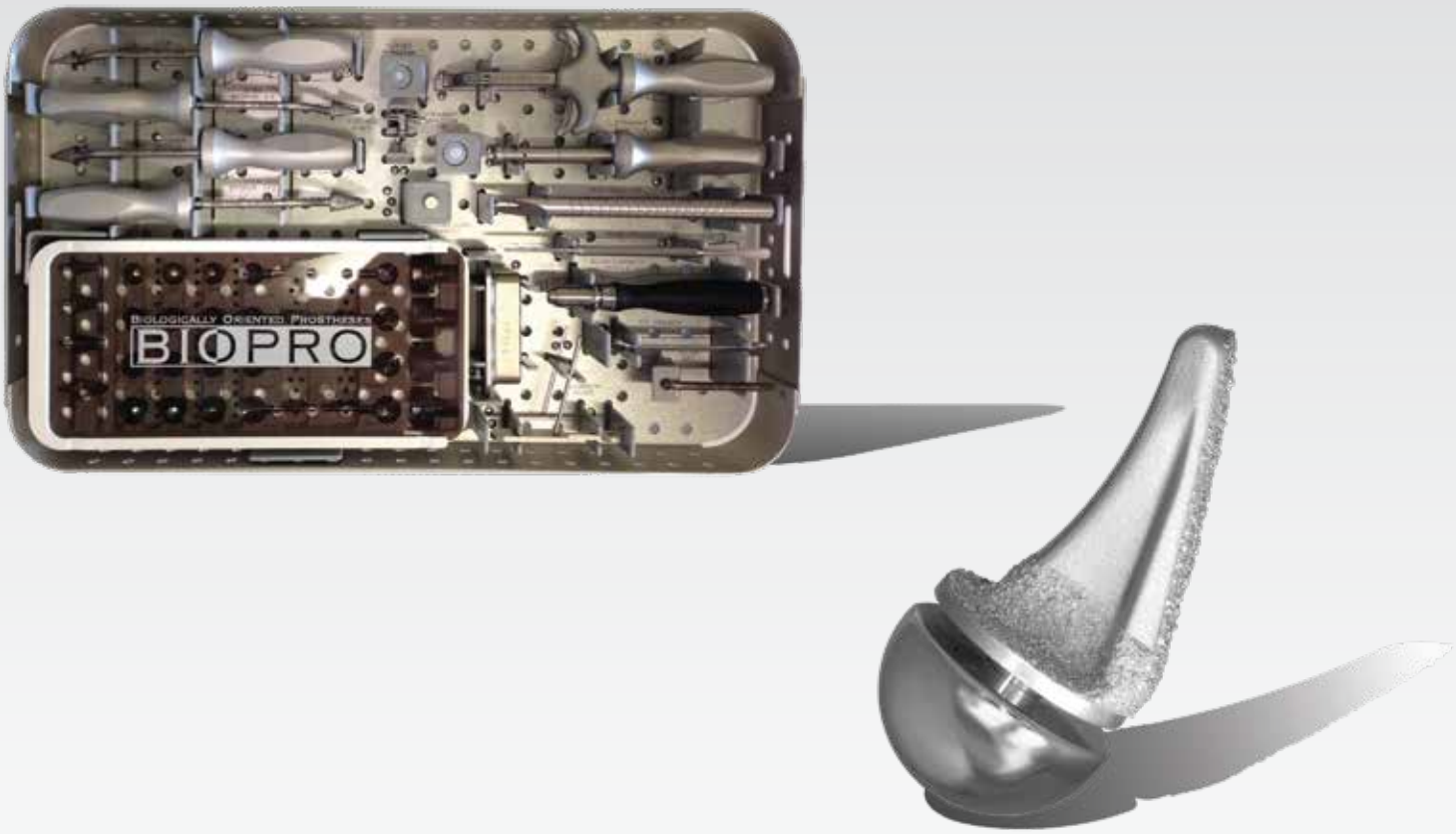
Surgical Technique

Modular Thumb Implant



BIOLOGICALLY ORIENTED PROSTHESES

BIOPRO

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Introduction

Radiographic and clinical arthroses are very common in the thumb carpalmetacarpal (CMC) joint. CMC joint degeneration of the thumb can lead to significant disability of the hand. This condition is frequently misdiagnosed as DeQuervain's disease or Carpal Tunnel Syndrome. Pain localized over the CMC joint of the thumb associated with crepitance ("grind test") and loss of motion of the CMC joint provide clinical clues to this condition. Before considering surgery, one should always attempt conservative treatment as the radiographic changes do not necessarily correlate with this clinical condition.

Stage 2 and 3 degeneration are often unresponsive to conservative methods. Fusion is frequently unacceptable to many patients and soft tissue procedures, especially the simpler Anchovie procedure, have been associated with deteriorating results over time. Interpositional arthroplasty, such as the BioPro® Modular Thumb Implant, has the benefit of maintaining motion and a firm foundation for grip and pinch strength. The modular design of the BioPro® implant minimizes the frequently occurring complications that have hindered other arthroplasties, such as dislocation and material failure, while avoiding invasive soft tissue reconstructions. Dislocation is avoided by placing the implant in varus, plus modularity allows for reproduction of soft tissue tension. The implant, manufactured from cobalt chrome and titanium, offers excellent biocompatibility. Additionally the minimally invasive operation does not require any soft tissue releases and/or sling procedures to maintain functionality.

The BioPro® Modular Thumb Implant offers simple instrumentation which assists the surgeon in obtaining reproducible results. This allows the procedure to be performed easily and successfully by a more diverse group of surgeons.

Design Considerations

The BioPro® Modular Thumb Implant is a hemispherical interpositional device fabricated from cobalt chrome with titanium plasma spray on the stem to allow bone in-growth into the metacarpal. It is used to replace the symptomatic joint between the first metacarpal and the trapezium. The varus configuration, medial offest head and modularity of this implant assists the surgeon in attaining satisfactory and reproducible results for this common condition while avoiding implant deterioration and dislocation which has complicated this form of arthroplasty in the past.

Features and Benefits

Modularity

The Modular Thumb Implant is a two-piece design consisting of, a stem, which is implanted in the metacarpal, and a head, which attaches to the stem and articulates in the socket created in the trapezium.

Why is this important? Most other CMC joint implants have been one-piece designs, meaning there may be a compromise between the fit of the trapezium and that of the metacarpal. There are two main benefits of the modular design, implant sizing and joint tensioning.

Implant sizing - Utilizing modular components allows the head to be sized to match the anatomy of the trapezium and the stem to be sized to match the metacarpal, independently of each other. The implant offers 4 stem sizes and 4 head diameters to match metacarpals and trapeziums of varying sizes.

Joint tensioning - Additionally, each head diameter is available in 0, +2mm and +4mm offsets. These offsets allow the implant to extend by 2mm or 4mm in addition to the standard (0 implant). Why is that important? During the surgery, if the implant is too tight within the joint, it means not enough bone has been removed from the base of the metacarpal, or the socket in the trapezium isn't deep enough. That's a fairly simple problem to correct, resect more bone or deepen the socket. But what if the joint is too loose? That means too much bone was removed. With the modular heads, the BioPro implant offers the +2mm and +4mm options to properly tension the joint when the implant is too loose with the 0 head.

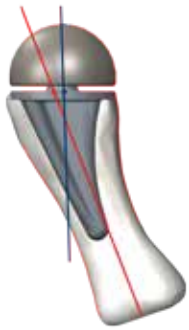
Varus Angle Stem

The collar of the stem, the portion that sits flush against the resected surface of the metacarpal, sits at a 15° angle to the long axis of the stem, the portion of the stem inserted in to the metacarpal. See below:

Why is this important? The 15° varus angle directs the head of the implant into the trapezial socket at an angle, when in a neutral position. This angle allows the head to maintain good contact with the socket during flexion (bending your thumb across your palm) or opposition (touching your thumb to your fifth finger). Implants with no varus angle are prone to dislocation in these instances.

Medial Offset Head

The head of the implant is offset, relative to the true center of the metacarpal. Note the image below, the red line represents the center point of the metacarpal, while the blue line represents the center point of the implant head.



Why is this important? The anatomical CMC joint shares a similar offset, so offsetting the head on the implant anatomically aligns it with the true center of the trapezium.

Titanium Plasma Sprayed Stem

The stem of the Modular Thumb Implant is partially coated in Titanium Plasma Spray. This is the rough coating you see on the underside of the collar and along the back, flat portion of the stem.

Why is this important? - The stem of the implant is inserted into the metacarpal and by design should not move, only the head should articulate within the socket created in the trapezium. The titanium plasma spray on the Modular Thumb Implant stem is a porous coating added to the outside of the cobalt chrome stem. This porous surface allows the bone within the metacarpal to in-grow, creating a strong interface between the metacarpal bone and the implant stem. A common failure mode in other implants on the market has been the stem interface with the metacarpal. In implants that do not offer a porous in-growth surface, the bone has no way to attach to the implant. During motion, the implant can move around inside the metacarpal. Even very small, fine movements can cause pain and lead to bone erosion and implant loosening over time. Unlike pyrocarbon implants and some titanium options on the market, the BioPro Modular Thumb Implant's plasma sprayed stem allows solid boney in-growth, helping prevent pain and loosening.

Ordering Information

The BioPro® Modular Thumb heads and stems are manufactured in cobalt chrome. Stems are titanium plasma sprayed (TPS) for bone in-growth. Upon special request, titanium heads and stems are available for patients with metal sensitivity.

Item #	Description	Size
17596	MODULAR THUMB STEM COBALT TPS	7.5MM
17597	MODULAR THUMB STEM COBALT TPS	8.5MM
17598	MODULAR THUMB STEM COBALT TPS	10MM
17599	MODULAR THUMB STEM COBALT TPS	11.5MM
20050	MODULAR THUMB STEM COBALT TPS	7.5MM LONG +4MM
20048	MODULAR THUMB STEM COBALT TPS	8.5MM LONG +4MM
19294	MODULAR THUMB STEM COBALT TPS	10.0MM LONG +4MM
19295	MODULAR THUMB STEM COBALT TPS	11.5MM LONG +4MM
17199	MODULAR THUMB HEAD COBALT	12MM
17238	MODULAR THUMB HEAD COBALT	12MM +2
17500	MODULAR THUMB HEAD COBALT	12MM +4
17005	MODULAR THUMB HEAD COBALT	13MM
17239	MODULAR THUMB HEAD COBALT	13MM +2
17501	MODULAR THUMB HEAD COBALT	13MM +4
17006	MODULAR THUMB HEAD COBALT	14MM
17240	MODULAR THUMB HEAD COBALT	14MM +2
17507	MODULAR THUMB HEAD COBALT	14MM +4
17007	MODULAR THUMB HEAD COBALT	15MM
17241	MODULAR THUMB HEAD COBALT	15MM +2
17508	MODULAR THUMB HEAD COBALT	15MM +4
17600	MODULAR THUMB STEM TITANIUM TPS	7.5MM
17601	MODULAR THUMB STEM TITANIUM TPS	8.5MM
17602	MODULAR THUMB STEM TITANIUM TPS	10MM
17603	MODULAR THUMB STEM TITANIUM TPS	11.5MM
17800	MODULAR THUMB HEAD TITANIUM	12MM
17801	MODULAR THUMB HEAD TITANIUM	12MM +2
20234	MODULAR THUMB HEAD TITANIUM	12MM +4
17798	MODULAR THUMB HEAD TITANIUM	13MM
17799	MODULAR THUMB HEAD TITANIUM	13MM +2
20235	MODULAR THUMB HEAD TITANIUM	13MM +4
17806	MODULAR THUMB HEAD TITANIUM	14MM
17807	MODULAR THUMB HEAD TITANIUM	14MM +2
20236	MODULAR THUMB HEAD TITANIUM	14MM +4
17808	MODULAR THUMB HEAD TITANIUM	15MM
17809	MODULAR THUMB HEAD TITANIUM	15MM +2
20237	MODULAR THUMB HEAD TITANIUM	15MM +4

To schedule a surgery, contact BioPro Customer Service at 810.982.7777 or orders@bioproimplants.com

Modular Thumb Instrument Kit

Item #	Description
19450	STEM BROACH 7.5 MM
19461	STEM BROACH 8.5 MM
19462	STEM BROACH 10.0 MM
19463	STEM BROACH 11.5 MM
19820	QUICK CONNECT IMPACTOR
15259	STRAIGHT IMPACTOR
17340	IMPACTOR TIP (CURVED)
17387	IMPACTOR TIP (STRAIGHT)
19398	CUTTING GUIDE
19832	HEAD REMOVER
19806	HEAD SIZING GUIDE 12MM
19807	HEAD SIZING GUIDE 13MM
19808	HEAD SIZING GUIDE 14MM
19809	HEAD SIZING GUIDE 15MM
17383	BONE SPATULA
17374	ASSEMBLY BLOCK
19125	QUICK CONNECTOR HANDLE
18929	1/4" WRENCH
18921	ALLEN KEY
19802	ALIGNMENT GUIDE
17345	TRIAL STEM 7.5MM
17346	TRIAL STEM 8.5MM
17347	TRIAL STEM 10.0MM
17348	TRIAL STEM 11.5MM
17260	TRIAL HEAD 12MM
17264	TRIAL HEAD 12MM+2
17613	TRIAL HEAD 12MM+4
17261	TRIAL HEAD 13MM
17265	TRIAL HEAD 13MM+2
17614	TRIAL HEAD 13MM+4
17262	TRIAL HEAD 14MM
17266	TRIAL HEAD 14MM+2
17615	TRIAL HEAD 14MM+4
17263	TRIAL HEAD 15MM
17267	TRIAL HEAD 15MM+2
17616	TRIAL HEAD 15MM+4
19532	BURR COARSE 12MM
19533	BURR COARSE 13MM
19534	BURR COARSE 14MM
19535	BURR COARSE 15MM
19758	BURR FINE 12MM
19759	BURR FINE 13MM
19760	BURR FINE 14MM
19761	BURR FINE 15MM
17351	BURR ADAPTER - MICROAIRE
17352	BURR ADAPTER - STRYKER
18817	BURR ADAPTER - MICROCHOICE
18881	BURR ADAPTER - MINI MICROAIRE

Indications

The BioPro® Modular Thumb is intended for implantation in patients suffering from the following conditions:

- Osteoarthritis
- Post-Traumatic arthritis
- Rheumatoid arthritis
- Post fracture deformation or bone loss

Contra-indications

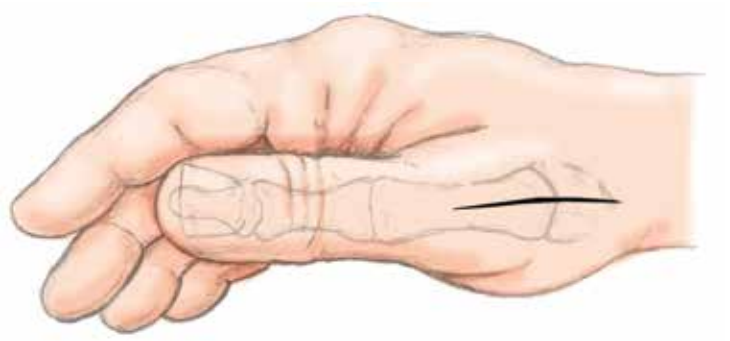
- Pan trapezial arthritis
- Scaphoid trapezial arthritis
- A debilitating general health problem that might pose significant threat to the life of the patient if subjected to a major surgical procedure.
- A previously infected thumb that has not been quiescent for at least six months.
- A local or systemic infection (i.e. osteomylitis)
- Insufficient bone stock to support the prosthesis

Surgery is indicated:

When night pain and functional pain are not significantly relieved by non-operative modalities. When x-ray evidence of arthritic changes are present at the trapeziometacarpal joint only.

Surgical Technique

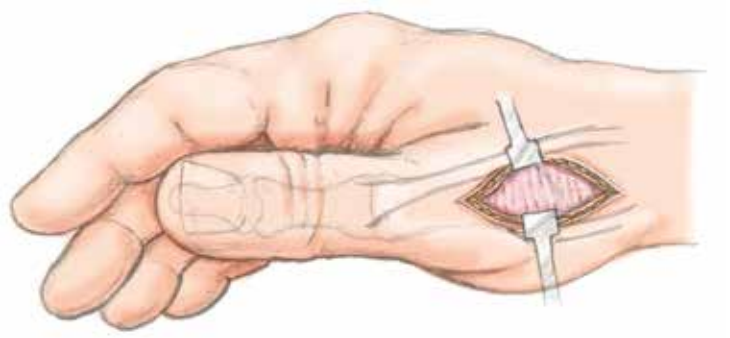
Fig. 1



Step One - Incision:

The first carpalmetacarpal joint is exposed through a 3cm longitudinal incision begun at the base of the first metacarpal extending proximally toward the first dorsal compartment (Fig 1). The incision is equidistant to either side of the joint line. The superficial sensory branches of the radial nerve are identified and protected from surgical trauma.

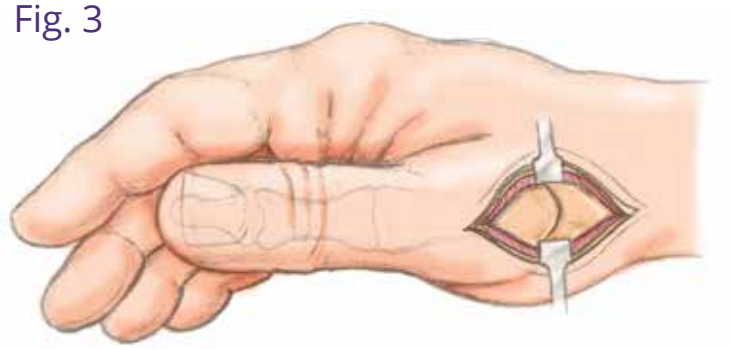
Fig. 2



Step Two - Deep Exposure:

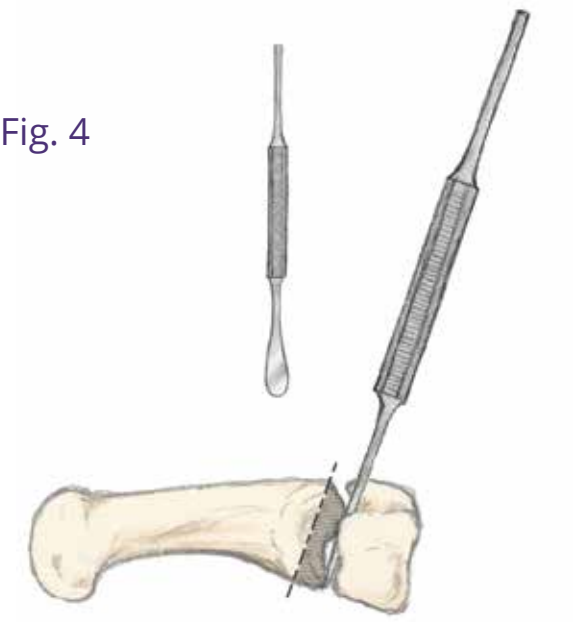
The thumb is moved to identify the CMC joint. The interval between the abductor pollicis longus (APL) and extensor pollicis brevis (EPB) is developed to expose the dorsal radial capsule of the CMC joint (Fig 2).

Fig. 3



The capsule is incised longitudinally and the dissection is carried both medial and lateral on the first metacarpal in a subperiosteal fashion to gain good visualization of the proximal metacarpal and CMC joint (Fig 3). The capsule is preserved for future closure and implant stability. A horseshoe shaped capsular incision can be used to offer better exposure as well as better closure options.

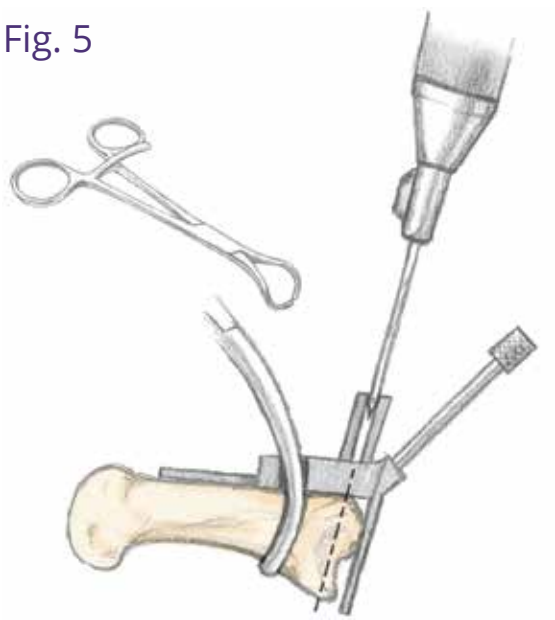
Fig. 4



Step Three - Metacarpal Resection:

The subperiosteally exposed base of the metacarpal is then resected parallel to the varus positioned articular surface (15 degrees) in the sagittal plane. Two options are available for metacarpal resection. The BioPro® bone spatula can be placed into the joint to assist the surgeon in visualizing the angle (Fig 4).

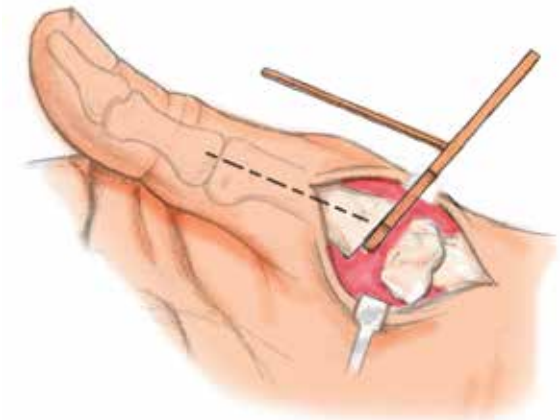
Fig. 5



At this point, 5-6 mm (the wide end of the bone spatula is 6mm) of the proximal metacarpal is then removed parallel to the angle of the bone spatula with an oscillating saw. If this resection is carried out correctly, equal portions of both condyles are seen in the resected segment of bone.

Alternately, a cutting guide is available to perform the resection as well. When using the cutting guide, the tail should sit subcutaneous, parallel to the metacarpal. The guide can be clamped down using a towel clamp or simply held in place (Fig 5). The cutting slots are spaced 3mm and 5mm respectively.

Fig. 6



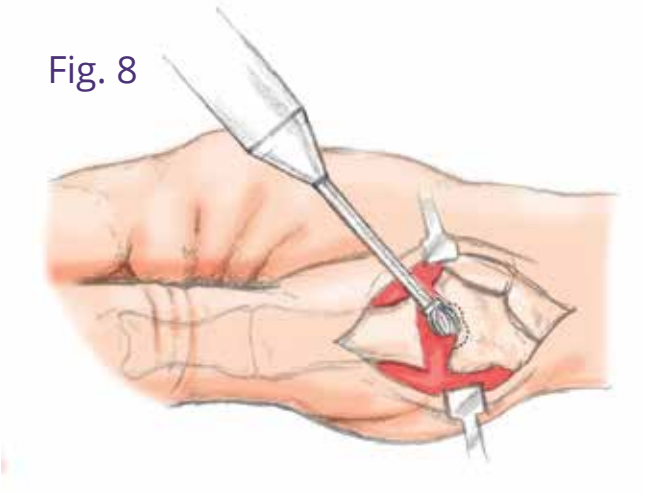
The angle of metacarpal resection should now be verified with the alignment guide. Place the base of this guide flush on the resected surface of the metacarpal, with the pin distal. The pin should be parallel to the metacarpal (Fig 6). If it is not, adjust the angle of the cut.

Fig. 7

Step Four - Modeling the Joint Socket:

The degenerated CMC joint is often radially and laterally subluxed with impinging osteophytes developed on the ulnar and medial aspect. If this has occurred, capsular dissection must be carried out on the ulnar aspect and any impinging osteophytes must be removed adjacent to the second metacarpal to allow relocation of the CMC joint (Fig 7).

Fig. 8



Note: Rotary burrs are not included in the Modular Thumb Implant instrument kit. Sterile burrs are provided with implant inventory, or the hospital may utilize their own stock of burrs.

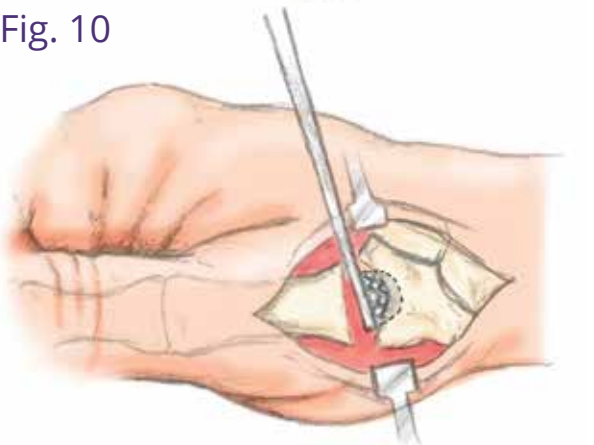
Utilizing a medium size rotary burr (5-7 mm) (Fig 8) a medialized concentric concavity is fashioned into the articulating surface of the trapezium. Care is taken to preserve the radial border of the trapezium. Enlarge the recess in the trapezium to approximately 10-12 mm in diameter with the rotary burr (Fig 8).

Fig. 9

This can be done in a circular fashion, beginning in the center of the trapezium, or by establishing the center point and burring on each side of it to create a 4-leaf clover pattern (Fig 9). When using a 6mm burr, this clover shape will help approximate a 12mm diameter socket.

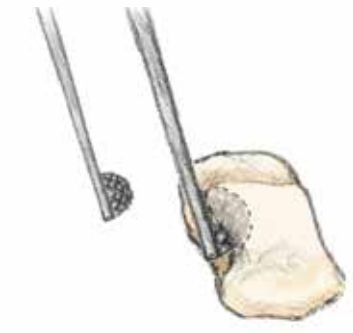
Note: Socket depth should be approximately 1/3 to 1/2 half the diameter of the finished concavity.

Fig. 10



Gradually enlarge the socket with the hemispherical burrs, either in the manual hand piece or using the provided power burr adapters in an oscillating saw (Fig 10). Progressively increase the size of the socket with larger burrs until the largest socket possible has been created, while again taking care to preserve the radial rim of the trapezium (Fig 11). Both coarse and fine burrs are provided in the instrument set. The fine burrs can be used to polish the socket, creating a smoother articulating surface.

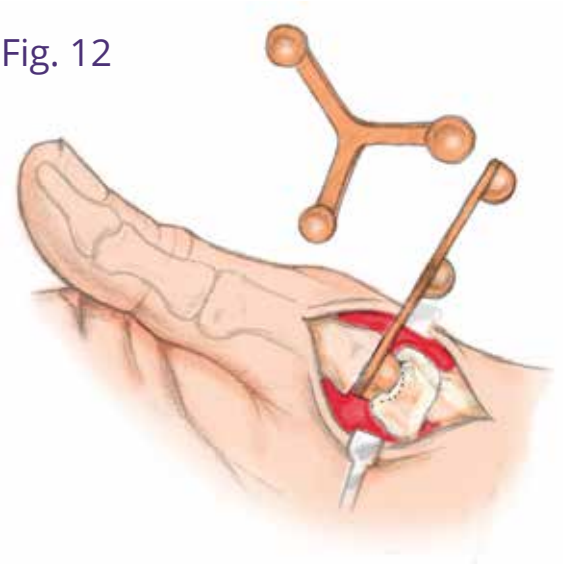
Fig. 11



Care must be taken to avoid damaging the proximal metacarpal bone. The depth of the socket need only be sufficient to provide a stable, non-dislocating articulation when evaluated with the trial head component in position, even when positioning the thumb in severe adduction.

Important Note: Burr for the largest head possible, as this will allow the head to ride on the maximum surface area within the trapezium, distributing forces over a greater area. For example, a 12mm head has a surface area of 226mm^2 compared to a 14mm's surface area of 307mm^2, a 36% increase in surface area. Please note, larger head sizes are strongly encouraged.

Fig. 12

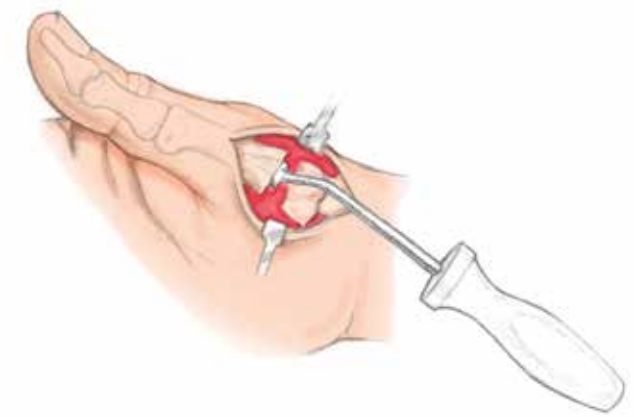


Step Five - Trial Sizing:

The BioPro® head sizing guides allow 0, 2mm, and 4mm neck length trial heads to be applied and compared. (Fig 12) This combination sizer and joint tensioning instrument allows the surgeon to assess stability and freedom of motion as well as examining the angle of the metacarpal resection. If the thumb cannot be brought to the full range of abduction without undue force, the joint has been under spaced and must be corrected by resecting an additional appropriate amount of bone from the metacarpal or by deepening the socket if it was initially made a bit shallow. If the joint is too lax a 2mm or 4mm neck length is used for trial.

Note: Often times a head diameter 1mm larger than what was burred for can be utilized.

Fig. 13



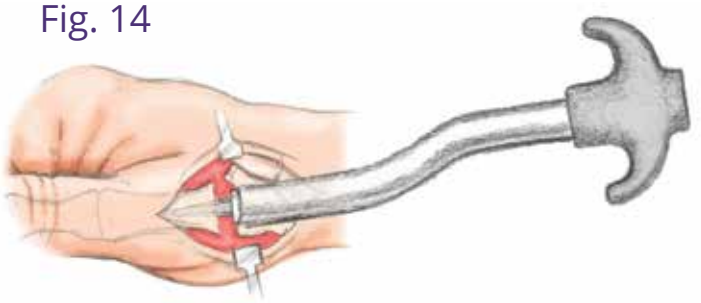
Step Six - Preparation of the Intramedullary Canal:

Access to the longitudinal axis of the metacarpal is facilitated by concurrently adducting and flexing the thumb. If necessary, additional axial exposure to the medullary canal is obtained by retracting the proximal end of the metacarpal outwardly with a Homan retractor placed on the ulnar aspect of the metacarpal. Avoid damage to the trapezium by lifting rather than levering against the bone. With the one-piece stem broach positioned in anatomical varus in the saggital plane it is inserted into the medullary canal without removing cancellous bone stock (Fig 13).

The size of the stem broach is increased progressively until the periprosthetic cancellous bone has been fully compressed to provide an optimally tight medullary interference fit.

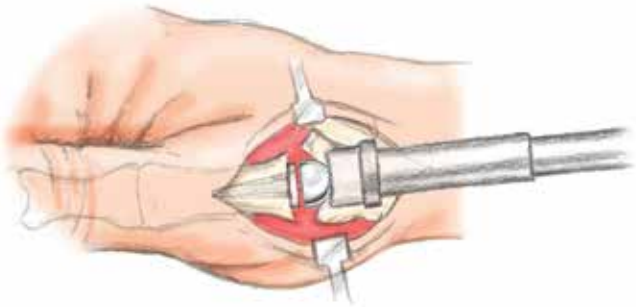
Note: A mallet can be used to aid in impacting the broaches, but care should be taken to not damage the metacarpal by forcing in an oversized broach. Four stem sizes are available. With the appropriately sized broach fully seated, the resected surface of the metacarpal should parallel the surface of the stem collar. If the stem collar does not sit flush on the resected surface of the metacarpal adjust the insertion angle of the stem broach or the resection angle of the metacarpal.

Fig. 14



Once the desired stem broach size is achieved, the one piece broach should be exchanged for the corresponding size trial stem. Using the Quick Connect Impactor, insert the trial stem and impact flush with the bone surface (Fig 14).

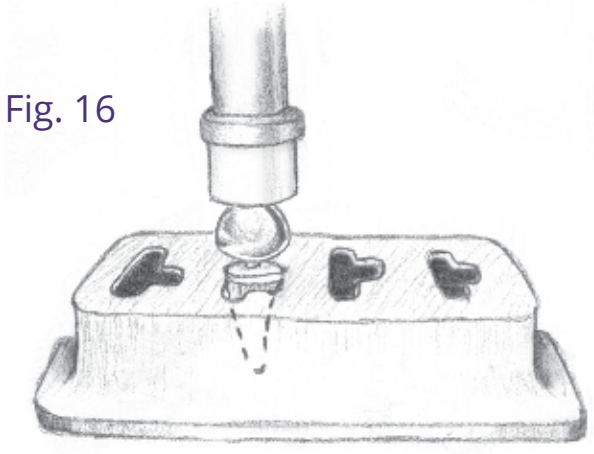
Fig. 15



Step Seven - Trial Testing the Articulation:

The trial head matching the head sizing guide used in Step Five is now applied to the seated trial stem. Be sure to utilize the trial head matching both the diameter and offset (0, +2, or +4) that provided the best combination of stability and motion (Fig 15). Once the fully assembled trial component has been inserted into the joint, assess range of motion and joint stability. After the desired status of articulation has been assured (i.e., relative to stability, range of motion, etc.) the trial component is exchanged for the implantable prosthesis.

Fig. 16



Assemble the head and stem and place in the impaction block (Fig 16). Impact the head onto the stem using the impactor handle fitted with the impactor tip. Insert the assembly into the metacarpal and impact into the metacarpal until the colar of the prosthesis is flush with the resected surface of the metacarpal. Again, stability and range of motion should be observed before wound closure.

Step Eight - Wound Closure and After Care:

The longitudinal contiguous capsule is closed tightly with 4-0 braided suture. Following the completion of the skin closure the thumb is immobilized in a position of abduction at the carpalmetacarpal joint and slight flexion at the metacarpalphalangeal joint for 4-6 weeks. A removable thumb spica is then worn for three to four weeks. Hand therapy may be required to regain motion and strength. Unrestricted activity is allowed 8-12 weeks post-op.

Note: If patient compliance is a potential concern, a non-removable cast is recommended for 4-6 weeks post-operatively.

Post-operative Protocol

Utilizing the BioPro® Modular Thumb Implant

The following protocol was developed as a guide to assist the hand therapist in treating patients who have undergone surgery for joint arthroplasty using the BioPro® trapeziometacarpal implant. Patients undergoing this procedure have primarily been afflicted with CMC osteoarthritis at Eaton stages two and three.

Post-operative care involves close communication between the hand therapist and surgeon in the planning of staged therapy and rehabilitation. Most importantly, the surgeon must decide how long the patient will remain in the immobilization stage for adequate biological fixation to occur. This will vary dependent upon the quality of the patient's bone. Other factors which may influence the progression rate of this protocol (delaying the advancement of therapy) include revision surgery, surgical complications such as fracture, diabetes and smoking.

In most instances, six weeks of immobilization in a thumb spica cast is recommended, with therapy initiated at Stage 2. In patients with excellent bone quality and a very stable implant confirmed by the surgeon, therapy is begun at Stage 1.

Stage 1: Immobilization (first 3 weeks post-operative)
Day 3-5 post-operative: Remove dressings and fabricate a forearm based, static palmar (volar) thumb spica splint, with the wrist in neutral radial/ ulnar deviation and in 10-15 degrees of extension. The thumb is positioned midway between palmar and radial abduction with the metacarpophalangeal (MP) joint in 30 degrees of flexion and the interphalangeal (IP) joint free. The splint is worn full time during the day and at night, removed only for therapist assisted range of motion in the clinic.

Day 7-21: Perform supervised, gentle, therapist assisted mobilization to the uninvolved joints in the therapy clinic only, consisting of wrist active assisted range of motion (AAROM) into extension/flexion and radial/ulnar deviation. AAROM is also performed by the therapist to the thumb MP and IP joints while fully supporting the carpometacarpal (CMC) joint of the thumb in abduction. The static splint is worn full time during the day and at night outside of the therapy clinic sessions. The splint is monitored closely to provide proper positioning, alignment, protection and immobilization at the CMC joint. Scar mobilization is initiated to minimize adhesions. Desensitization techniques are recommended to reduce hypersensitivity along the surgical site.

Home instructions include arm and hand elevation to prevent/reduce swelling. Home exercises are permitted within the splint, to include active range of motion (AROM) of the fingers and thumb (IP joint only), 10-15 repetitions, 4-6 times per day. Passive range of motion (PROM), key/lateral pinching, thumb adduction and shearing pressures to the CMC joint of the thumb are avoided at all times.

Stage 2: Mobilization (weeks 4 through 7 post-operative)
Weeks 4-5: Consult with surgeon to determine if patient exhibits adequate stability or biological fixation of the implant for mobilization stage. If additional immobilization is warranted, continue stage one for an additional 1-2 weeks, for up to 6 weeks if indicated.

If patient is cleared to begin mobilization, perform supervised, gentle, therapist assisted mobilization out of the splint, consisting of active assisted thumb palmar abduction from the relaxed position, 10-15 repetitions. In this exercise, the thumb is actively abducted perpendicular to the palm using the abductor pollicis brevis muscle. Next, perform active assisted thumb radial abduction, 10-15 repetitions. In this exercise, the thumb is actively abducted radially using the abductor pollicis longus. The patient is permitted to move the thumb in an arc from resting palmar abduction to a position of radial extension. Gentle active and active assisted wrist range of motion exercises are performed, 10-15 repetitions each. The lateral pinch position with flexion and adduction of the thumb metacarpal is avoided.

Continue to monitor splint for proper fit, alignment and positioning. With a reliable and responsible patient who demonstrates accuracy with these exercises in the therapy clinic, the therapist may initiate the exercises described above, to be performed outside of the therapy clinic, four to six times per day, 10-15 repetitions each. The splint is removed only for these exercises and bathing. Splinting is continued between exercise periods and at night.

Weeks 6-7: Modify forearm based splint into a hand based splint with surgeon approval, to be worn at all times except bathing and exercise. Opposition to each fingertip is begun out of the splint. Complete flexion across the palm to the fifth metacarpal crease should not be attempted until the thumb can oppose each fingertip with ease, and can be gradually mobilized down to the base of the small finger. Light grasp and prehension activities are permitted at home within the splint. Resistive gripping and pinching are avoided.

Stage 3: Strengthening (weeks 8 through 12 post-operative)
Weeks 8-9: Light strengthening exercises to the wrist and forearm are initiated. Light strengthening exercises to the thumb are begun, emphasizing palmar abduction, radial abduction and extension using rubberband resistance to the abductor pollicis brevis, abductor pollicis longus and extensor pollicis longus. Light resistance therapy putty exercises for grasp and opposition strengthening are begun. Light resistive 3-point pinching and opposition activities are begun out of the splint in the therapy clinic. Light functional self-care activities are initiated out of the splint at home. The patient is cautioned to avoid activities that require strong grasp and pinch.

Weeks 10-12: Grasp and pinch strengthening are progressed using therapy putty within pain free tolerance. As the strength of the thenar area increases, splint wear is gradually reduced until it is worn only for protection during heavy activities. By the end of the third month, the splint is eventually discontinued, at which time the patient is allowed more aggressive functional use for daily activities. Progressive, unrestricted use of the thumb usually occurs four to six months post surgery. Strength continues to improve for two years from the date of surgery.

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Study: A Promising Thumb Basal Joint Hemiarthroplasty for Treatment of Trapeziometacarpal Osteoarthritis

A study was performed by James W. Pritchett MD and Louis S. Habryl DO to determine if the BioPro® Modular Thumb implant results in pain relief, functional improvement, preserves the appearance of the thumb, assess the prosthetic reconstruction during follow up, assess complicatons that occur with the use of this prosthesis and to determine the survivorship of this prosthesis.

Methods

159 basal joint hemiarthroplasties (138 patients) were performed to treat osteoarthritis of trapeziometacarpal joint.
Mean age: 63 years
Gender: 78% women, all had Eaton-Littler Stage II or III changes
Seven patients (seven thumbs) were lost to follow-up and seven patients (nine thumbs) died, leaving 124 patients (143 thumbs) for review.
Minimum follow-up was 35 months

Results

At latest follow-up, pain relief occurred in 135 thumbs, function improved in 138 thumbs, 139 thumbs were excellent or good in overall assessment, and 142 thumbs had good or excellent cosmetic appearance. The mean tip pinch improved from 4.9 kg preoperatively to 6.44 kg postoperatively. Mean postoperative Buck-Gramcko score was 49 (excellent); overall Kaplan-Meier analysis with revision as the end point showed 94% implant survivorship at a mean followup of 72.1 months. [1]

Two of the patients involved in the study had a BioPro® Modular Thumb implant in one hand and an LRTI in the other hand and the patients preferred the implant over the LRTI.

Conclusions

The results were superior to those of other implants and the performing surgeons support the continued use of the BioPro® Modular Thumb implant.

References

Pritchett, J. & Habryl, L (12 April 2012) *A Promising Thumb Basal Joint Hemiarthroplasty for Treatment of Trapeziometacarpal Osteoarthritis,* DOI 10.1007/s11999-012-2367-7

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