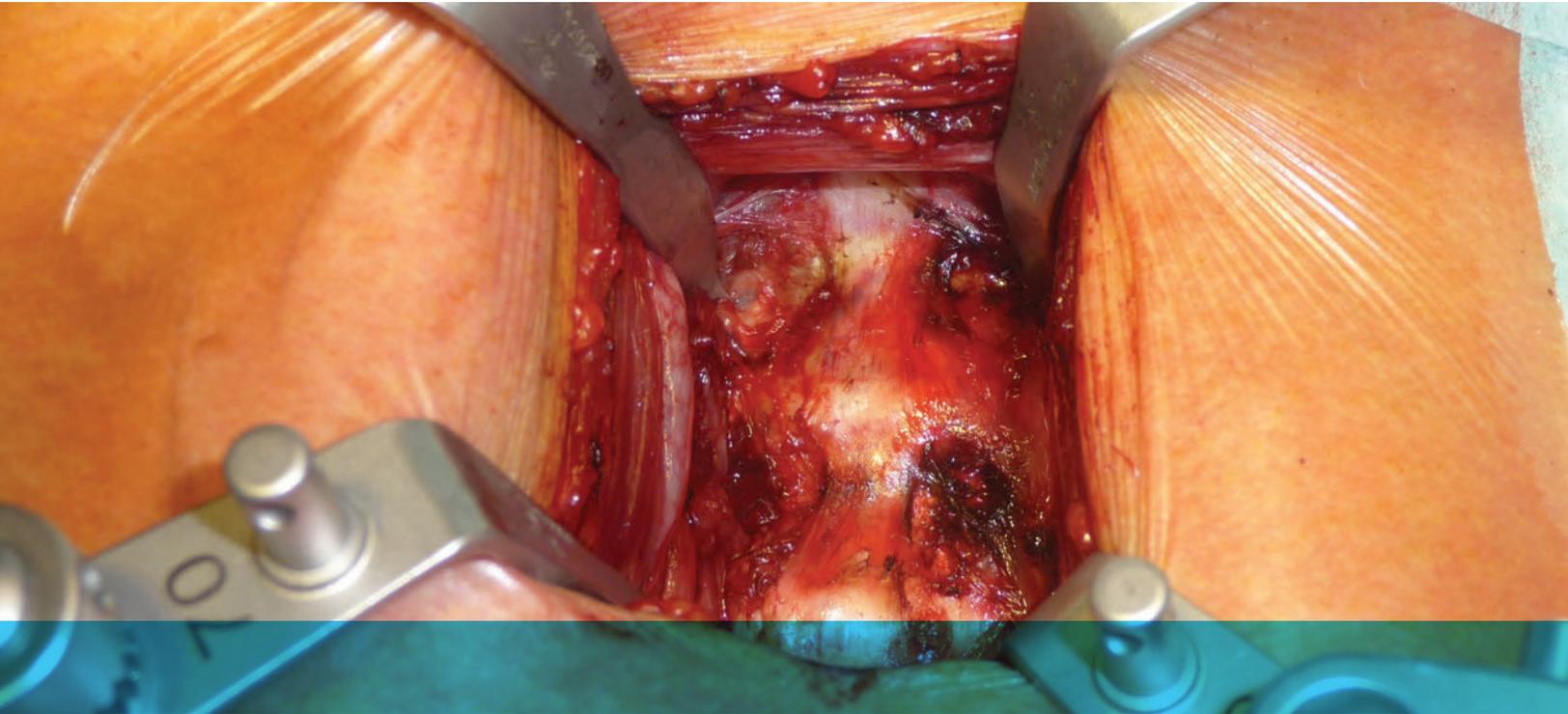


THOMPSON TECHNIQUES:
Central Cervical
Access Surgery

Thompson Retractor 



- CENTRAL CERVICAL ACCESS
Rudolph Bertagnoli, MD

Uncompromised Exposure.



RUDOLPH BERTAGNOLI, MD

Prof. Bertagnoli is a leader in the global research and development for the treatment of spinal disorders. Heavily involved in the innovation and development of spine products, he holds over twenty years of experience with spinal implant systems ranging from partial to total disc replacement, interspinous devices, and posterior dynamic systems.

As a world renowned spine expert, he contributes regularly to scientific data and lectures to congresses worldwide to promote new treatments for spinal disorders. He has been published in leading medical journals worldwide and has trained over 3,000 surgeons in new motion sparing technologies.

In addition, Dr. Bertagnoli is the founder, CMO, and CEO of ProSpine, the first European Centre for Spine Arthroplasty and Associated Non-Fusion Technologies, which has five facilities across Germany. He is also a founder and former president of the Spine Arthroplasty Society (SAS), the president of Spine Evolution Nucleus Europe (SEN), a member of the North American Spine Society (NASS), a faculty member of IMAST, and a past German representative of ISMISS and the European Spine Society.

Introduction

The anterior approach to the cervical spine is reliant on the ability to obtain and maintain true “central” exposure. Central Cervical Access (CCA) is key during implant/hardware installation to allow better instrument access and visualization. Utilizing the Bone Levers in the CCA, exposure can be achieved quickly and safely. Bone Levers work with the anatomy and become “attached” to the vertebra without compromising nerves or the vertebral artery and allow a gentle muscle retraction. Exposure is assisted with a unique silicone sleeve that surrounds the Bone Levers and acts as a protective barrier and keeps the surrounding tissue lubricated.

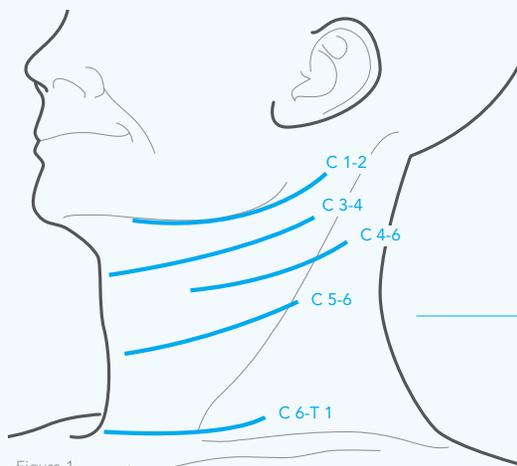


Figure 1

Make a standard transverse or longitudinal incision, in a natural skin crease at the affected level.

POSITIONING OF PATIENT

Place the patient in the supine position with the head in neutral or slight extension. If no rail space is available superior to the level of the operation, use the recommended rail extender p/n 5844.

INCISION

The approach surgeon stands on the left and the assistant on the right. The level of the transverse incision in the craniocaudal plane depends on the level of the spine to be approached. A lateral x-ray of the spine is essential to determine the proper placement of this incision.

The CCA Approach

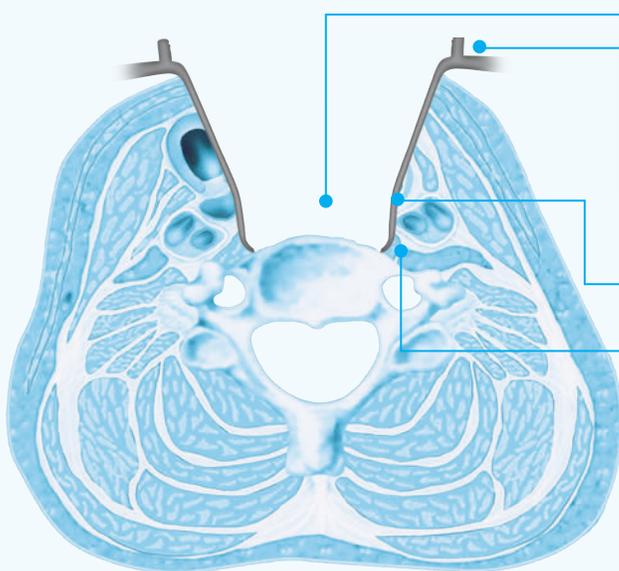
Make a standard transverse or longitudinal incision in a natural skin crease at the affected level. Enter the platysma along the axis of its fibers, perpendicular to the incision and carry sharp dissection down to the anterior border of the sternocleidomastoid muscle, which should be mobilized laterally.

Incise the middle layer of the middle cervical fascia follow with blunt finger dissection medial to the carotid sheath and down to the deep cervical fascia.



Next, dissect the prevertebral deep fascia and expose the anterior longitudinal ligament and the longus colli muscle. Confirm the proper location with lateral fluoroscopy and placement of the bone levers. In order to minimize soft tissue trauma, confirm the proper location of the segment(s) before electrocautery.

Mobilize the longus colli muscles subperiostally along the venous plexus that runs on their medial border, taking care to avoid the cervical sympathetic turn in the anterolateral portion of the muscles for visualization of the lateral unciniate joint aspect.



ACHIEVE EXCELLENT EXPOSURE

- The CCA Retractor is designed to expose the anterior surface of the cervical spine. After dissection, the carotid artery is gently retracted laterally with the carotid sheath. Medially, the trachea and esophagus may be gently retracted away and the anterior surface of the spine can be palpated.

OBTAIN PRECISE, STABLE RETRACTION

- Since the CCA blades are independently adjustable, special attention to retraction of the delicate anatomy is easy to accomplish. Each blade may be placed precisely where retraction is needed using a quick and easy manipulator handle.
- The CCA Blades should be properly placed above the bodies of the longus colli muscles and away from the tracheoesophageal groove.
- Pointed blade tips engage the spine for stable retraction that will not rise up. Blades may be locked to independent handles and retracted back in any direction and secured to eliminate swivel.

MAINTAIN LOW PROFILE, UNCOMPROMISED EXPOSURE

- As the blades retract, the hinged handles allow the blade to angle and float with the movement of the spine during the operation. Blades require little to no repositioning to maintain phenomenal exposure throughout the procedure.

Table Mounted Frame Set Up



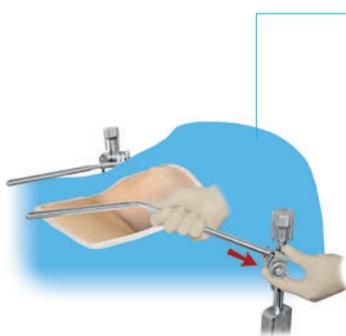
- 1 Position the open rail clamp jaw over the sterile drapes superior to the level of operation and the C-Arm.

If additional rail space is needed, rail extenders are available by contacting Thompson at 1-800-227-7543.



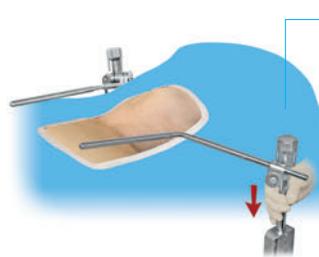
- 2 Turn the knob at the top of the rail clamp to secure.

- 3 Repeat steps 1 and 2 on opposite side of the table



- 4 Insert the angled arms into the open cam joint on both rail clamps parallel to the axis of the neck, 10-12cm from the midline.

NOTE: To facilitate downward lateral retraction, the arm on the surgeon's side should be approximately 5cm lower than its counterpart.



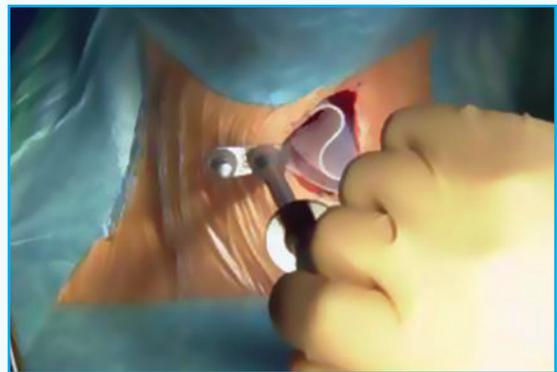
- 5 Lock the angled arm in place by closing the cam joint and grasping the rail clamp for leverage.

Blade Placement

- 9 Using an assistant, attach a bone lever, to be used on the inferior contralateral side of the incision, to the manipulator handle. Carefully expose the area using a hand held Langenbeck type retractor (A) inside the silicone sleeve and retract the trachea, thyroid, and esophagus before inserting the first bonelever (B).



A

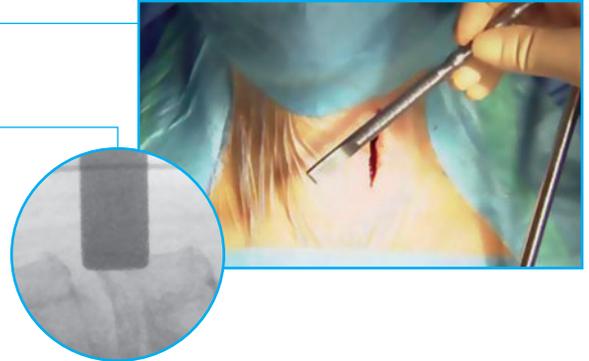


B

Blade and Silicone Preparation

- 6 Insert the depth gauge into the incision to select the bone level and silicone sleeve length.
- 7 The depth gauge should be "docked" onto the antero-lateral aspect of the cervical vertebral body at the level of the surgery to get an accurate depth measurement.

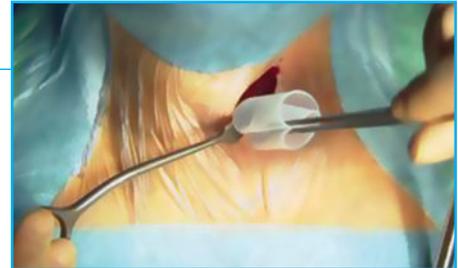
If necessary, trim the silicone sleeve to the selected bone level length.



Silicone Insertion

- 8 Fold up the silicone, and insert into the incision. Once in place, open the silicone so that it generally forms a circular shape.

NOTE: Silicone is available for single level and two level surgeries. The silicone is also single use only, but can be repeatedly sterilized by steam.

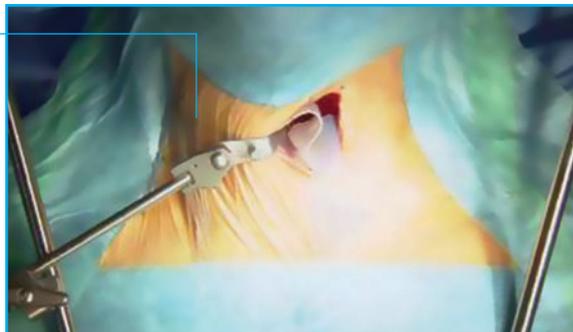


- 10 Using the manipulator handle, place the tip of the bone lever in the upper third and the lower third of the corresponding vertebra. Note that the axial placement of the first bone lever is at the anterolateral aspect of the vertebra between the 9 o'clock and 11 o'clock position. Corresponding bone levers go between the 1 o'clock and 3 o'clock position. Apply a small tap to the manipulator handle to secure the tip of the blade into the bone. Note that the distal tip of the blade shall not penetrate more than 50% into the bone.

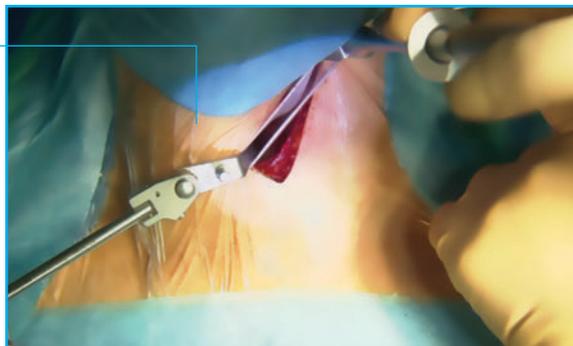


Blade Attachment

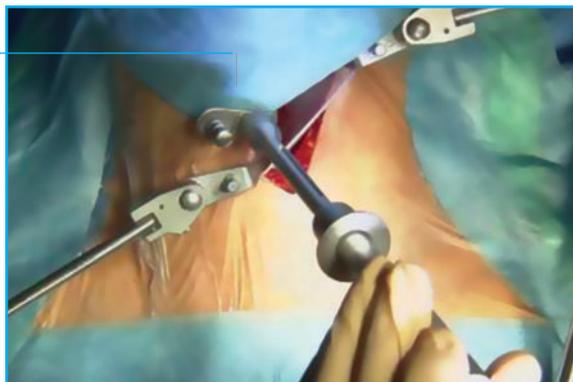
- 11 Attach the blade to the frame using the S-Lock hinged handle. S-Lock handles allow for precise retractor positioning. In the swivel position, the blade "floats" and aligns on the tissue. The locked position eliminates unwanted movement or rotation to ensure stable retraction in any plane. Attach the clip-clip joint to the frame and attach the S-Lock handle to the joint. Tighten down by rotating the joint knob clockwise.



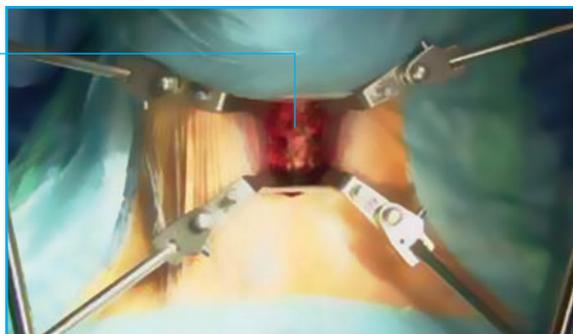
- 12 Expose the area on the opposite side of the spine with a held retractor. Insert bone lever into the incision and place tip in the lateral aspect of the patients left side superior to the affected level(s). Attach an S-Lock handle to bone lever and frame.



- 13 Repeat the same process as above for the third and fourth blades.



- 14 With all four bone levers in place, one can observe Uncompromised "Central Cervical Access" to the surgical site.



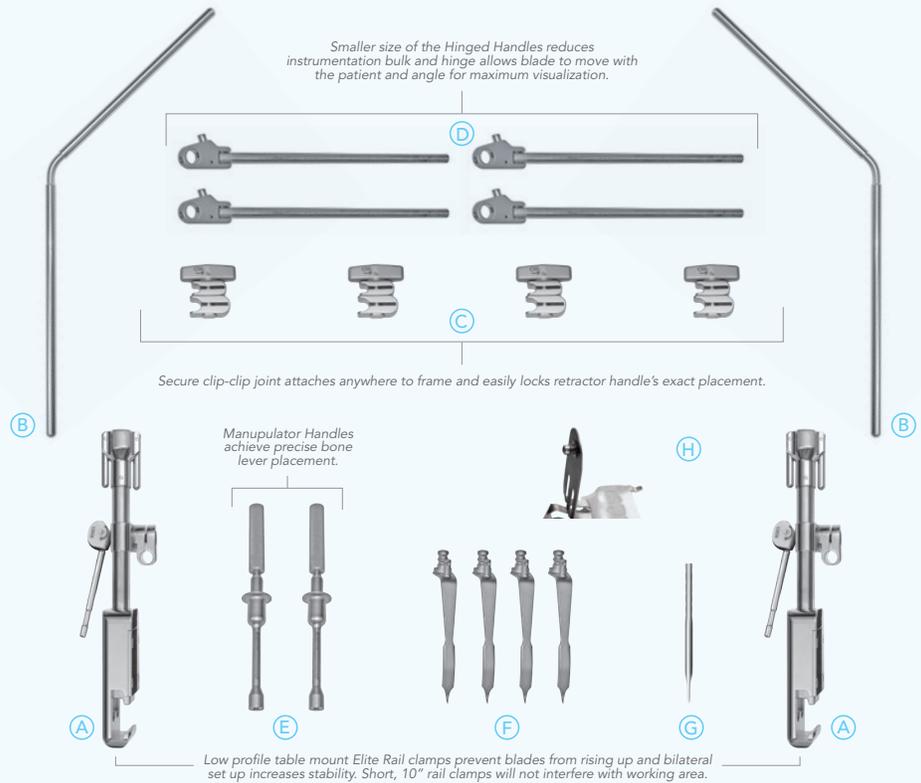
CCA Retractor Frame and Blades

FRAME:

Low profile and stable, the CCA Retractor frame provides safe, independent retraction of handles and blades. The dual rail clamps may be positioned at the patient's head to avoid interference with the C-Arm and the lateral arms may be adjusted to accommodate all patient sizes.

BLADES:

Simple and low profile, the CCA blades were designed to engage the vertebra using a tapered, bone lever shaped distal end. Strong and narrow, the blades are easily manipulated and driven into the vertebra for exact placement. The blades are incorporated with patent pending S-Lock™ technology which allows them to lock to retractor handles and secure in any orientation for consistent retraction. Hinged handles retract the blades back while angling them for uncompromised, low profile exposure.



CENTRAL CERVICAL ACCESS RETRACTOR

QTY.	ITEM DESCRIPTION	PART #
	Central Cervical Access Retractor	80056
(A) 2	Elite II Rail Clamp with one 3/8" Cam Joint 10"	41902S
(B) 2	Angled Arm 17" (7" x 10") 3/8"	44117
(C) 4	Clip-Clip Joint 3/8" x 1/4"	42123
(D) 4	S-Lock Hinged Handle 8"	SL45003LH
(E) 2	Manipulator Handle	42128AC
(F) 4	Bone Lever 14mm x 40mm	SL46982AC
	Bone Lever 14mm x 50mm	SL46983AC
	Bone Lever 14mm x 60mm	SL46984AC
	Bone Lever 14mm x 70mm	SL46985AC
	Bone Lever 14mm x 80mm	SL46986AC
(G) 1	CCA Depth Gauge	46521
(H) 2	Silicone Sleeve - Large	64049
1	Instrument Case - CCA	50000CCA

CCA RETRACTOR EXPANSION KIT

QTY.	ITEM DESCRIPTION	PART #
	CCA Retractor Expansion Kit	80057
(C) 4	Clip-Clip Joint 3/8" x 1/4"	42123
(D) 4	S-Lock Hinged Handle 8"	SL45003LH
(F) 4	Bone Lever 14mm x 40mm	SL46982AC
	Bone Lever 14mm x 50mm	SL46983AC
	Bone Lever 14mm x 60mm	SL46984AC
	Bone Lever 14mm x 70mm	SL46985AC
	Bone Lever 14mm x 80mm	SL46986AC
1	Instrument Case - CCA Blades	50000CCAB

ACCESSORIES

ITEM DESCRIPTION	PART #
(H) Silicone Sleeve - Large (Single Use)	64049
Silicone Sleeve - Small (Single Use)	64047
Rail Extender 15" (2 required for CCA use)	5844

To use the CCA Frame with our standard anterior cervical blades, or to use the CCA's Bone Levers with the Spine Frame, please contact your account manager.

 **Thompson**
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* Free trial valid for U.S. customers only. International customers please call for more information.

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Other patents pending.

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