



Introduction to the Operating Room: Understanding, identifying and using basic surgical instruments

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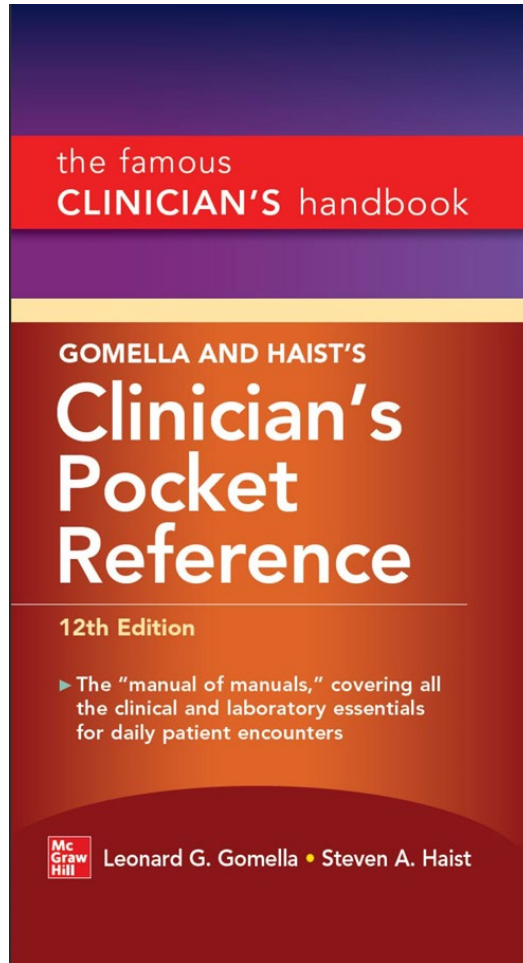
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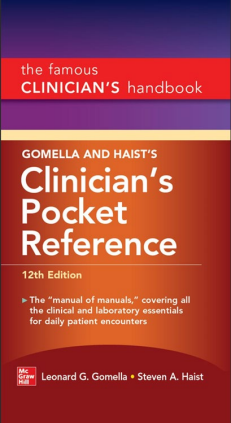
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Introduction to the Operating Room

This slide series reviews commonly used surgical instruments for the medical student, nursing student or other health care provider. It is an On-Line supplement to Chapter 24 *“Introduction to the Operating Room”* in the **Clinician’s Pocket Reference**, 12th Edition (2022). Complete topics covered in this book chapter include:

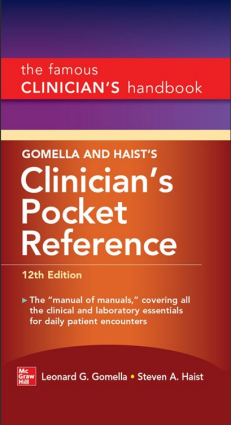


- OR Basics for Students
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Understanding, identifying and using basic surgical instruments

- Thousands of different instruments are used in daily surgical care. This includes many specific instruments used in General Surgery and surgical subspecialties such as OB/GYN, Orthopedics, Neurosurgery, Urology, Plastics and others.
- There are common surgical instruments that are used in almost every surgical specialty and operating room procedure. Based on the procedure being performed, frequently used instruments may be included in what is known as **Minor and Major surgical trays**. The numbers and types of instruments on each of these trays varies by hospital or surgical center, but in general, a larger number of instruments can be found on a major tray.
- This presentation highlights common instruments found in the surgical environment on minor and major trays and provide a few highlights on the use, historic surgeons naming and design of these common instruments. Also useful for operating room trivia challenge: “who’s who’s in surgery!”
- Each institution may have their own unique terms for some instruments. This is most likely when referring to different clamps.



Understanding, identifying and using basic surgical instruments

- Beyond the instruments, there are common operating room set ups.
- The **Surgical or Operating Table** is a table on which a patient lies during a surgical procedure.
- The **Mayo Stand** is a small portable stand with a tray and sterile cover where the most important surgical instruments are kept close at hand. It is designed to be placed over the surgical table. Named for the design developed at the Mayo Clinic in Rochester, Minnesota.
- The **Back Table** is covered with sterile sheets and holds a larger set of instruments that may be needed during the procedure.
- The **Scrub Nurse** is part of the surgical team who maintains the sterile field is responsible for passing the sterile instruments to the surgeon and his/her assistants. The **Circulating Nurse** is not scrubbed in the sterile field and serves as the interface between the sterile and non-sterile environments, passing supplies that may be needed.
- See next slide.

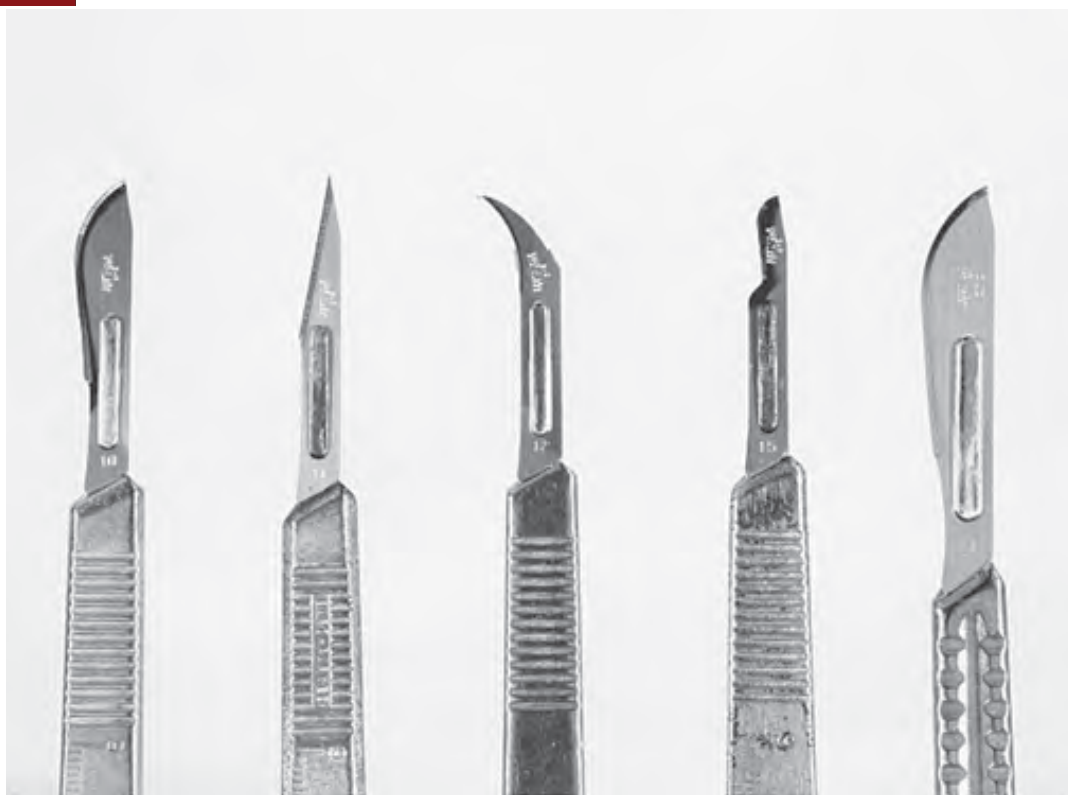
Understanding, identifying and using basic surgical instruments

Typical Open Surgery Set Up

- Three surgeons (sterile).
- Scrub nurse (sterile).
- Circulating nurse green scrubs (not sterile).
- Operating table with patient.
- Mayo stand over operating table.
- Sterile back table with additional instruments and supplies.



Scalpel Blades



#10

#11

#12

#15

#20

These disposable blades are typically connected to reusable knife handles. Commonly used blades are:

- No. 10: standard surgical blade commonly used for skin incisions in adults.
- No. 11: useful for incisions into abscesses or to open the skin for placement of large IV devices.
- No. 12: used to open tubular structures.
- No. 15: widely used for bedside procedures and for more delicate work.
- No. 20: used to make larger incisions.



No. 3, No. 3 Long, No. 7

Scalpel Handles

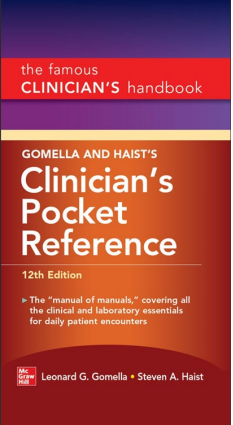
- Used to hold a variety of disposable blades (see previous slide).
- Most scalpel handles used in the operating room are metal and reused after sterilization. Safety handles that can shield the blades are being used more frequently.
- These are some of the more commonly used scalpel handles:
 - No. 3: Commonly used to hold #10 blade.
 - No. 3 Long: Longer handle, typically used with #10 blade.
 - No. 7: Is a thinner handle often used with the #11 or #15 blade; often used to make incisions deeper in the wound.
- You may hear a surgeon ask for the “Bard Parker”. This is an somewhat imprecise general term that refers to a scalpel handle with a blade.
- This is a reference to Charles Russell Bard and Morgan Parker, founders of the Bard-Parker Company. In the early 1900's, they developed the 2-piece scalpel design and a method of cold sterilization that would not dull the blades. This became the standard surgical knife.
- Since the original Bard-Parker scalpel, blades and handles have been identified by numbers, which do not correspond to anything measurable!!

Scissors

Mayo Scissors

- Come in two general varieties, straight (top panel) and curved (bottom panel); 5.5", 6.75" and 9" long.
- Have heavy blades and semi blunt tips for dissecting tissue, cutting heavy materials (drains, dressings etc).
- Straight Mayo scissors are sometimes called "**suture scissors**", and the curved "**dissecting scissors**".
- Cutting suture is a common introductory activity for the new student in the OR and is presented in a later slide.
- Numerous surgical innovations were developed at the Mayo Clinic in Minnesota, some of which carry the eponym of the founding Mayo brothers.



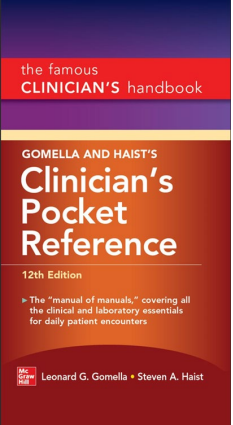


Scissors

Metzenbaum Scissors

- AKA: “Metz”.
- The delicate curved blades are used to cut delicate tissues and should not be used for cutting suture, drains, dressings, or heavily scarred tissue. Use heavier Mayo scissors for this.
- Many sizes from 5.5” to 10”.
- Longer versions are often referred to as “Nelson Scissors”.
- Named after Myron Metzenbaum, MD, an ENT surgeon from Mt. Sinai Hospital in Cleveland, OH.





Scissors

General Purpose OR Scissors

- General use for cutting tissue, suture, drains, dressings.
- This example has two sharp points. Some have one sharp and one blunt tip.
- Typical sizes: 4.5" up to 6.5".



Scissors

Trauma Scissors/Shears

- Also known as **bandage** or **utility scissors**.
- Most often used by EMT's, paramedics and ER staff. Useful for performing very heavy duty cutting such as clothing in a trauma setting.
- Not a standard part of most OR trays.
- Typical sizes 6" or 7.5".
- May have straight or serrated blades.



Scissors

Lister or Bandage Scissors

- Also known as **bandage** or **utility scissors**.
- Often used by EMT's, paramedics and ER staff. Useful for cutting circumferential dressings and bandages.
- Not a standard part of most OR trays but a commonly used medical instrument.
- Many sizes available from 3.5" to 8"; typical size is 6".

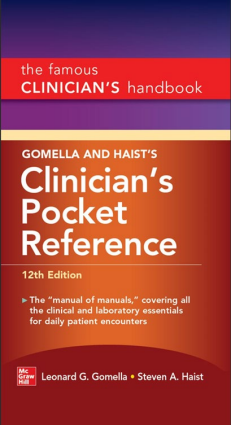


Scissors

Iris Scissors



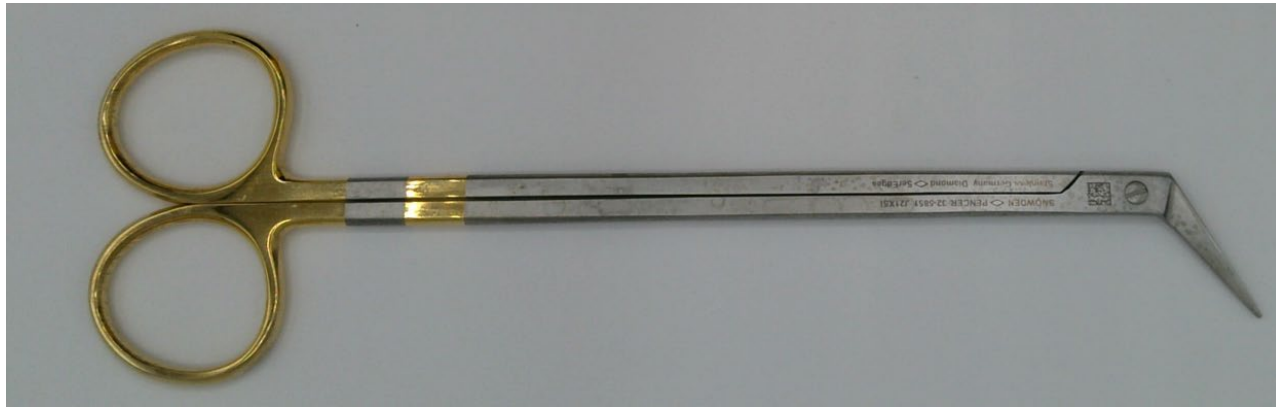
- Can have straight or curved blades with very sharp points. Originally developed for ophthalmic surgical procedures.
- Iris scissors are very small (3.5"-4.5") and designed for precision surgery and cutting very fine sutures.

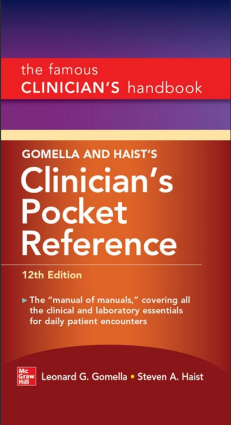


Scissors

Potts-Smith Scissors

- AKA: **“Potts Scissors”** or **“Potts-Demartel Scissors”**.
- Fine sharp scissors used for creating incisions in structures such as blood vessels in vascular surgery or the ureter in urologic surgery.
- Blade angles can vary: 25,45,60 degrees.
- Sizes from 6.5” to 9”; 7.5” and 45 degree most common.
- Named after Dr. Willis J. Potts (1895 - 1968) an American pediatric surgeon in Chicago with a focus on the surgical treatment of heart problems in children.





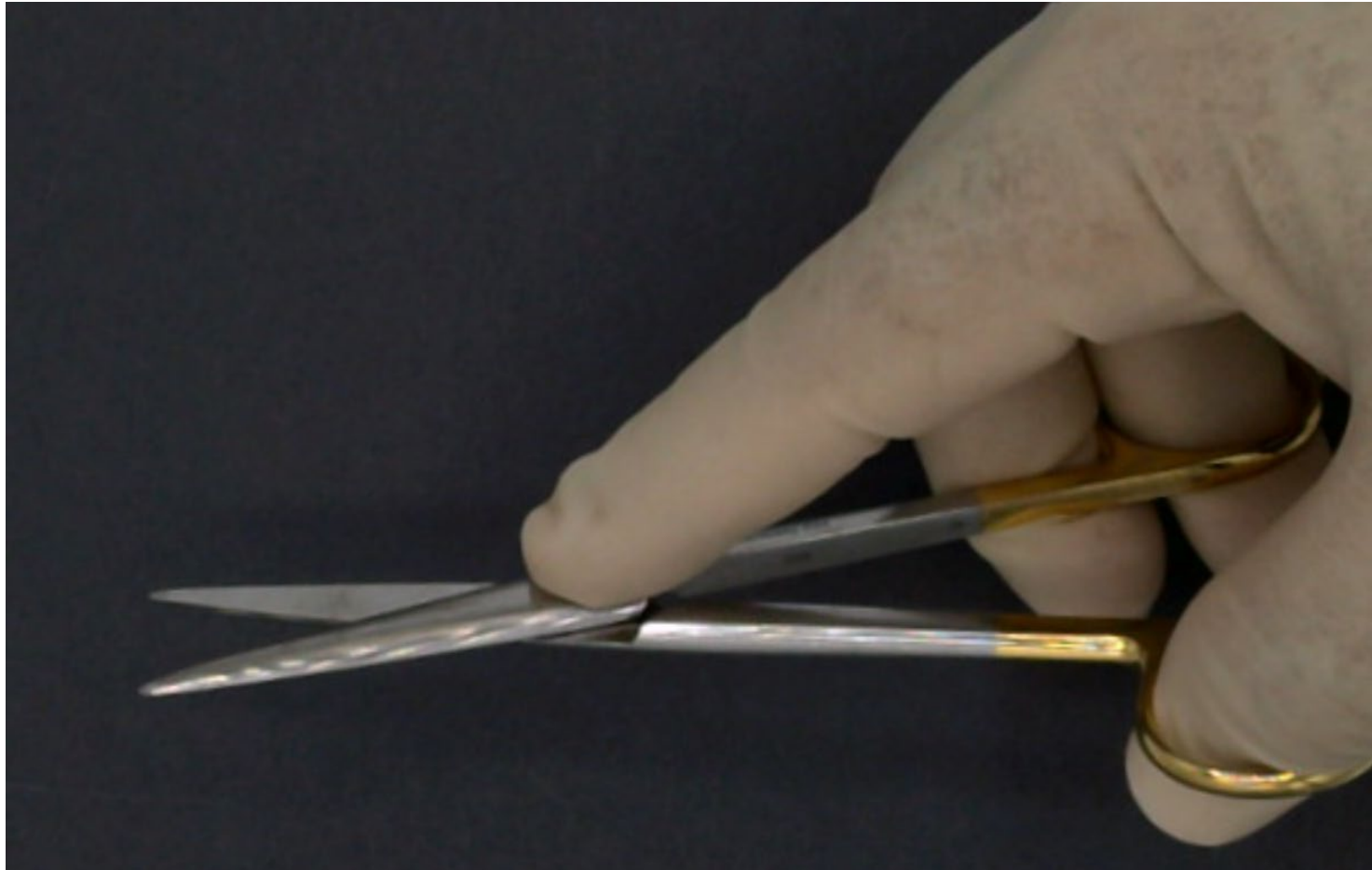
Scissors

Suture Cutting Basics

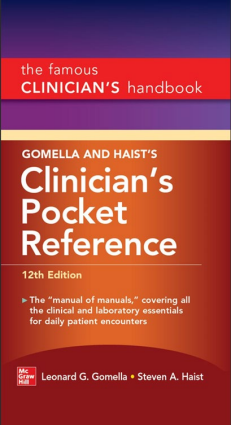
Medical students nursing students and other trainees are often asked to assist in surgery. In addition to introductory basic tasks such as retractor holding and suctioning, one of the most challenging tasks for those new to the operating room is being asked to cut sutures.

1. Most scissors are designed to be used by a right-handed individual.
2. Use the proper suture scissor given to you, usually by the scrub nurse. Typically Mayo scissors are used as “suture scissors”. Using other scissors such as Metzenbaum scissors, Iris or Potts scissors, in most settings, should not be used as they can become dull.
3. Hold the scissor using proper technique to maximize control (see next slide).
3. Make sure there is adequate tension on the suture.
4. Use more of the tips of the scissors. Use the lower blade of the scissor to slide down to the knot. If you use more than the tips of the suture scissors you may past point and cut/injure structures beyond the knot.
5. As you prepare to cut the suture, rotate the scissor slightly to a more vertical position (30-45 degrees) to avoid cutting the knot and to leave a short tail.
6. It is a good idea to ask the surgeon for advice on how long the tails should be after the suture is cut. This can vary based on suture type, location and surgeon preference. For skin sutures, leave at least a 3 mm tail to make it easier for suture removal later.
7. Ideally, practice on a suture training device or similar model beforehand.

Suture Cutting Basics



The proper technique for cutting suture starts with holding the scissor properly. Place the thumb and ring finger in the scissor rings and use the index finger index to support and stabilize the scissor. The index finger is placed near the screw head allowing for maximum control.



Retractors

Army Navy Retractor



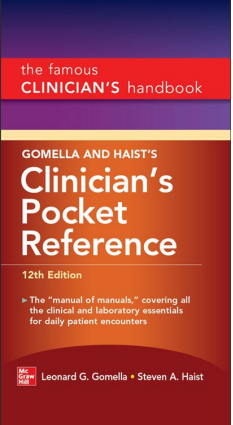
- This retractor is handheld with broad blades, ideal for getting into and exposing large muscles, and is often used in orthopedic and general surgery.
- The double ended feature allows for one side (the longer side, often called the “Navy side”) to be inserted deeper into the wound.
- Often used in pairs on opposite sides of the wound to improve exposure.
- One version of the name is that the Army and Navy had their own medical units; each named the instrument after their own branch. Another source states the longer side is the “Navy side” because “the Navy goes deep”.

Retractors

Weitlaner Retractor

- Self-retaining retractor with variable numbers of prongs, either sharp or dull. Commonly used in hernia repair, plastics, bone/joint procedures.
- Useful with smaller incisions and superficial soft tissue dissection.
- Named after Austrian surgeon Dr. Franz Weitlaner, the Weitlaner is properly pronounced "Vight-lahn-er", although usually mispronounced as "Wheatlander."
- There are other very similar appearing self retaining retractors with some differences. The **Weitlander Retractor** arms are straight, the **Beckman Retractor** (next slide) has hinged arms and the **Cerebellar Retractor** has fixed angled arms.





Retractors

Beckman Retractor

- Self-retaining retractor with variable numbers of prongs, either sharp or dull. Commonly used in hernia repair, plastics, bone/joint procedures.
- Useful with smaller incisions and superficial soft tissue dissection.
- **Beckman Retractor** has hinged arms.
- Similar appearing self retaining retractors are the **Weitlander retractor** (arms are straight), the and the **Cerebellar Retractor** (fixed angled arms).



Retractors

Richardson Retractor



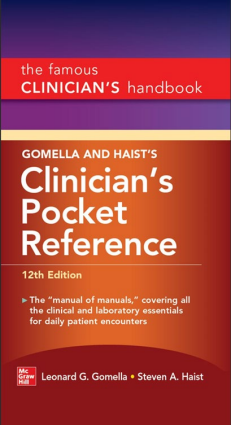
- Handheld device used for the retraction of wound edges in open surgical procedures. Can have a solid grip (shown) or a hollow grip handle. There is a curve on the blade tip.
- Three sizes are usually available on most trays: small, medium and large, about 9" in length. Larger retractors are used for larger incisions that are longer, or deeper.
- Similar in appearance to the **Kelly Retractor**, but the blades of the Kelly are larger and the handle slightly longer.
- Named after Dr. Maurice Howe Richardson former professor of surgery at Harvard and Chief of Surgery at Massachusetts General Hospital.

Retractors

Rake Retractor

- Handheld, claw like retractor used to hold soft tissue, or separate the edges of a superficial wound.
- Can have sharp or blunt teeth and from 2 to 6 teeth.
- Similar "rake" retractors are known as the **Volkman**, or **Murphy** retractors based on the handle design that may also have side finger grips.
- The **Ollier** and **Israel retractors** are similar but more heavy duty, typically used in orthopedic surgery.



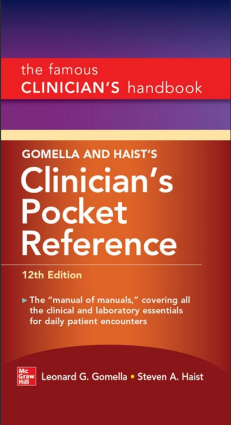


Retractors

Senn Retractor

- Handheld, double ended retractor usually used in pairs. One end is typically L shaped, and the other has three bent prongs. The pronged ends come in sharp and dull tips.
- Useful for retraction of superficial wounds.
- Named after Dr. Nicolas Senn, originally from Switzerland and later Professor at the University of Illinois.





Retractors

Skin Hook retractor

- Also known as a **Joseph Skin Hook**, this handheld retractor contains two sharp prongs at the end of a straight rod that contains a handle for improved grip. Single hook versions are also available.
- The skin hook is commonly used where delicate areas of skin need to be retracted.
- Using a sharp point to puncture the skin for retraction is less traumatic than using a forceps that might crush the skin.



Retractors

Vein Retractor

- Also known as a **Cushing vein retractor**, this handheld retractor is used for exposing and retracting blood vessels or other tissues.
- Dr. Harvey Cushing was an American neurosurgeon (1869-1939) whose name is commonly associated with his most famous discovery, Cushing's disease. In 1912 he discovered a syndrome caused by a specific pituitary tumor.

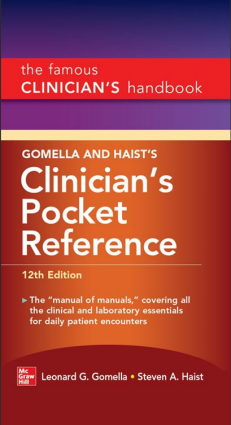


Retractors

Harrington Retractor

- Also known as a “**sweetheart retractor**”, this handheld retractor is used for deep exposure in the abdomen.
- The heart shaped blade tip is specifically designed to reduce trauma when retracting the liver and other organs.





Retractors

Deaver Retractor

- Handheld retractor, used to retract and improve exposure when operating in the abdomen or chest.
- Small, medium and large sizes are usually available.
- Developed by Dr. John Blair Deaver (1855-1931) who practiced at various hospitals in and around Philadelphia. Best remembered for his approach to appendectomy (incision in the right lower quadrant with retraction of the rectus muscle) and describing the Deaver Retractor in JAMA in 1928.

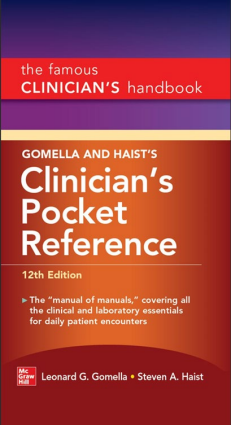


Retractors

Malleable Retractor

- Handheld retractor, sometimes referred to as a “**ribbon retractor**”.
- Used to retract and improve exposure typically when operating in the abdomen.
- Straight when in the surgical tray, it is designed to be bent into the desired shape. Comes in various widths, typically 1” to 3”.





Retractors

Gelpi Retractor

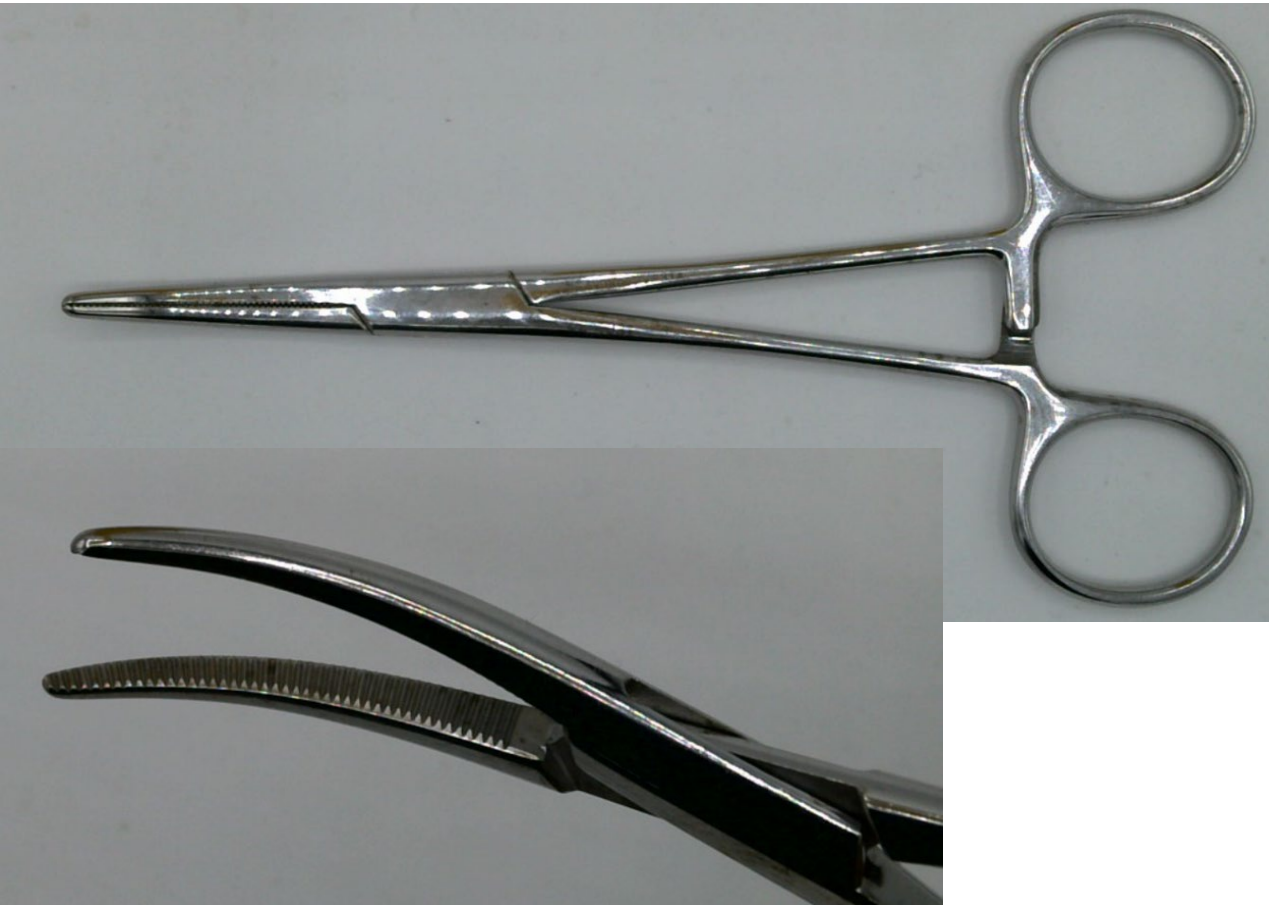
- Also called the “**Gelpi perineal retractor**”.
- Self retaining retractor with very sharp single tips.
- Typically used for superficial wound exposure with sharp tines holding back the skin.
- Many sizes from 3.5” up to 10”.



Clamps

Crile Hemostatic Clamp

- One of the most commonly used instruments, it is often referred to simply as a **“hemostat”** or **“snap”**.
- Used to clamp and occlude blood vessels and clamp tissue.
- The jaws can be straight or curved and are fully serrated. Length is typically 5.5” to 9”.
- Dr. George Washington Crile (1864-1943) was an Ohio surgeon, in addition to his clamp, was the first to demonstrate that rapid fluid resuscitation was the best initial treatment for shock. Also founder of the American College of Surgeons and the Cleveland Clinic.



Clamps

Pean Clamp



- Used short term to clamp and occlude blood vessels. Can also be used to clamp tissue.
- The jaws can be straight or curved and are fully serrated. Length is typically 5.5" to 9".
- It is longer and thicker than other similar appearing clamps such as the **Crile** and **Mosquito clamps**.
- Named after Dr. Jules-Émile Péan, one of the great French surgeons of the 19th century.

Clamps

Kelly Clamp

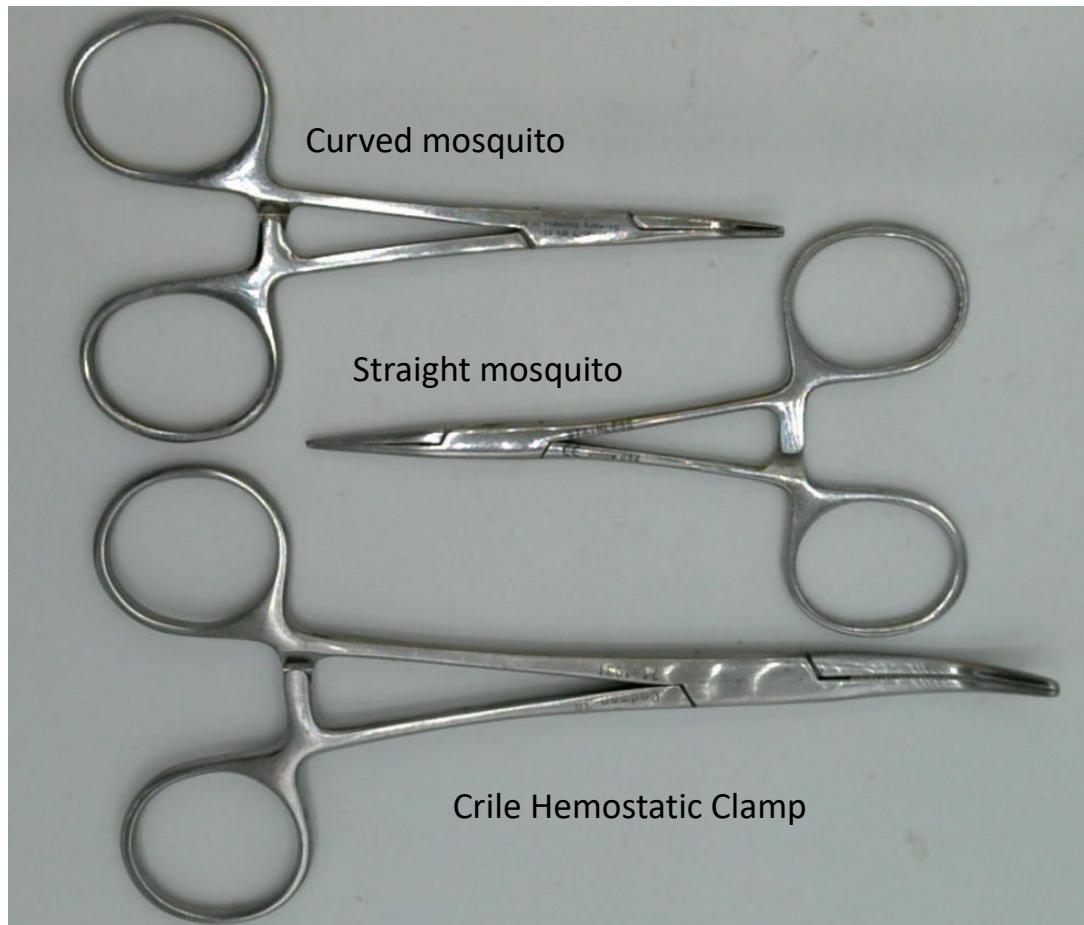


- A hemostatic clamp used for clamping and occluding larger blood vessels, grasping tissue.
- Blades are heavier than some other hemostatic clamps.
- Resembles the **Pean clamp**, but the serrations on the Kelly are only part way up the jaws.
- Sizes usually 5.5" or 7".
- In honor of Dr. Howard Kelly (1858-1943), who began his early career at Episcopal Hospital in Philadelphia and was recruited to become the first professor of Gynecology at Hopkins. He established the discipline of gynecology as a specialty.

Clamps

Mosquito Clamp

- Also referred to as a **“Halstead mosquito clamp”** or **“Halstead forceps”**.
- Used to clamp and occlude smaller blood vessels and delicate tissues and hold the end of sutures.
- The jaws can be straight or curved and are fully serrated. Length is 5”.
- Image compares the mosquito with the commonly used Crile hemostat.
- **“Hartman Mosquito forceps”** are finer, lighter and shorter.
- Dr. William Stewart Halsted (1852-1922) was first Professor of Surgery at Johns Hopkins. In addition to the mosquito clamp, perhaps his greatest contribution to the field of surgery was the development of an organized system for surgical training, which has evolved into the modern Graduate Medical Education residency programs.



Clamps

Towel Clamp



- Used primarily to secure towels and drapes to the operative field. Also used to secure suction tubing, electrocautery and camera cords. There are several types of towel clamps with different tips.
- The commonly used **Backhaus Towel Clamp** (shown here) is 5 ½" long and has perforating tips. These tips pierce the drapes and should be considered contaminated and not removed until the end of the case.
- Other "perforating" towel clamps include the **Roeder** and **Jones Towel Clamps**.
- Non- perforating towel clamps include the **Edna** and **Peers Towel Clamps**.

Clamps

Allis Clamp

- Used for grasping, holding and lifting tissues, commonly used in bowel surgery.
- Variable number of teeth.
- Straight or angled arms.
- Lengths from 6"-10".
- Named after Dr. Oscar H. Allis (1836-1921), Jefferson Medical College graduate and who practiced in Philadelphia. While renowned for his expertise in fractures, he developed this clamp for intestinal surgery.



Clamps

Babcock Clamp

- Sometimes referred to a “**Babcock Intestinal Forceps**”
- Used to grasp more delicate tissues such as bowel, fallopian tube, etc.
- Considered less traumatic than the Allis clamp.
- Tips considered atraumatic; locking jaws.
- Lengths from 6”-9”.
- From Dr. Babcock at Temple Medical College in Philadelphia, who developed the clamp for colon and rectal surgery.



Clamps

Kocher Clamp

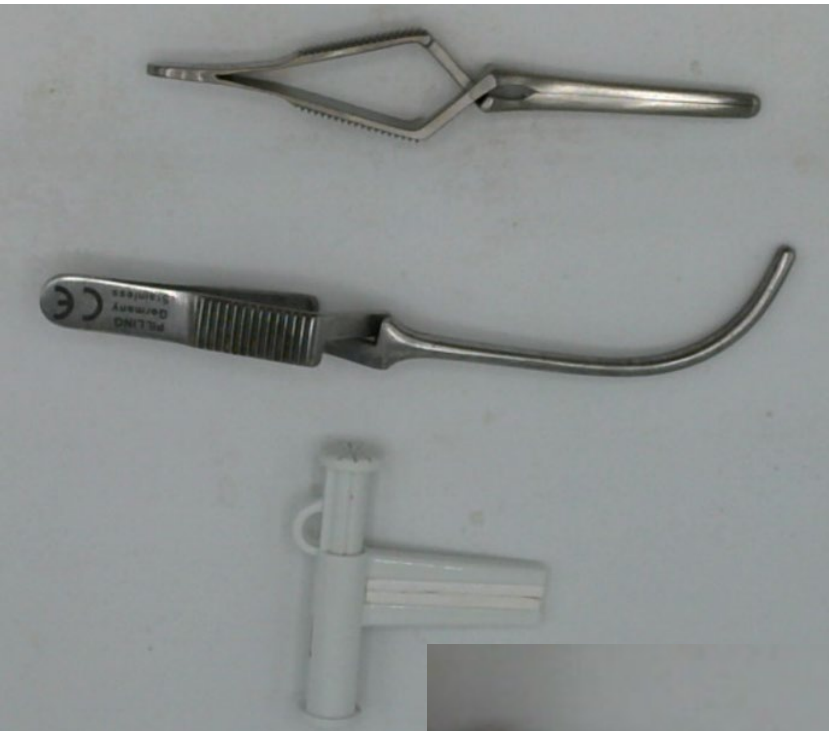
- Sometimes referred to a **“Rochester-Ochsner”** or **“Oschner clamp”**.
- Used to grasp heavier or tough tissue such as fascia.
- Toothed end, serrated with locking jaws.
- Sizes from 5.5” up to 10”.
- Named after its inventor Dr. Emil Theodor Kocher (1841-1917), professor of surgery at the University of Bern, Switzerland. He awarded the Nobel Prize in recognition for his contributions relating to the pathophysiology and surgery of the thyroid gland.

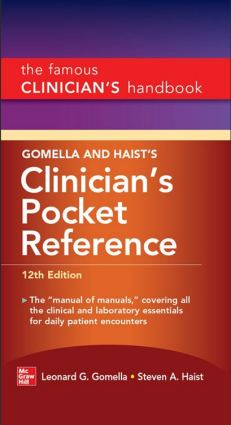


Clamps

Bulldog Clamp

- Sometimes called “**Fogarty spring clips**” or “**Finger Fogarty**”
- Used to temporarily compress a blood vessel.
- Straight, curved and single use disposable types.
- Invented by Dr. Thomas J. Fogarty, American surgeon and medical device inventor, best known for the invention of the embolectomy catheter that revolutionized the treatment of blood clots.





Clamps

Collar Clamp

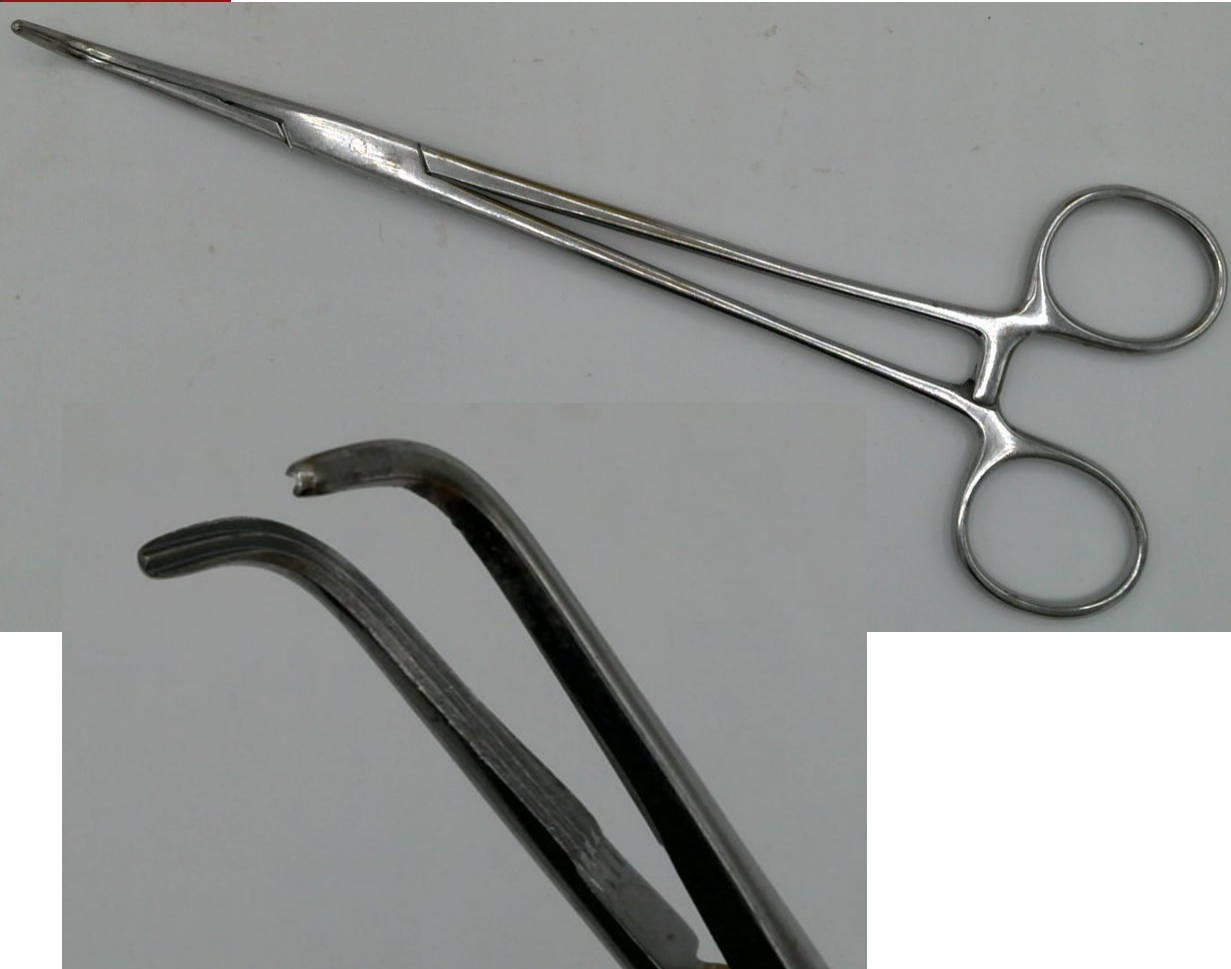
- Also called “**Collar forceps**”
- Clamping or occluding tissue; commonly used to pass suture around a blood vessel
- Has more of a true “right angle” tip than the traditional “**right angle clamp**” or “**Mixer**” that have a more gentle curved tip.

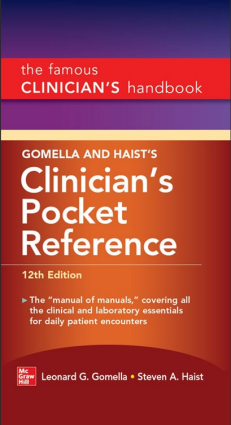


Clamps

Mixer Clamp

- Also called "**Right Angle Clamp**"
- For clamping or occluding tissue also used to pass suture around a blood vessel.
- While called a "right angle clamp" the tip has more of a gentle curve.
- The "**Coller Clamp**" is similar but has more of a true right-angle tip.
- Many sizes 5.5" to 12"; fine to heavy tips; locking jaws.
- Named after Dr. William J. Mixer (1880-1958), first chief of Neurosurgery at Massachusetts General Hospital.





Clamps

Satinsky Clamp

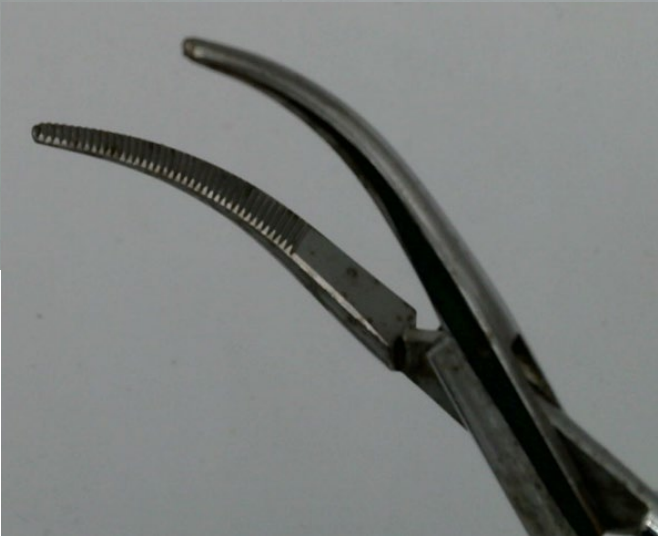
- Also called “**Satinsky Vena Cava Clamp**”.
- Used for clamping and occluding larger blood vessels.
- Design allows partial clamping of vessel to allow some blood flow.
- Atraumatic jaws. Typical size overall 9”-10”; jaw length can vary.
- Designed by Dr. Victor Satinsky (1912-1997), a cardiothoracic and vascular surgeon who spent most of his career in Philadelphia at the now closed Hahnemann Hospital.



Clamps

Schmidt Hemostatic Clamp

- Also called **“Adson Tonsil Clamp”**, **“Schmidt-Sawtell Tonsil Forceps”**, **“Tonsil Snap”**
- Used for dissecting and clamping tissue. Historically developed for use in tonsil surgery.
- 7” long, with serrations halfway up jaws.



Forceps

Adson Tissue Forceps

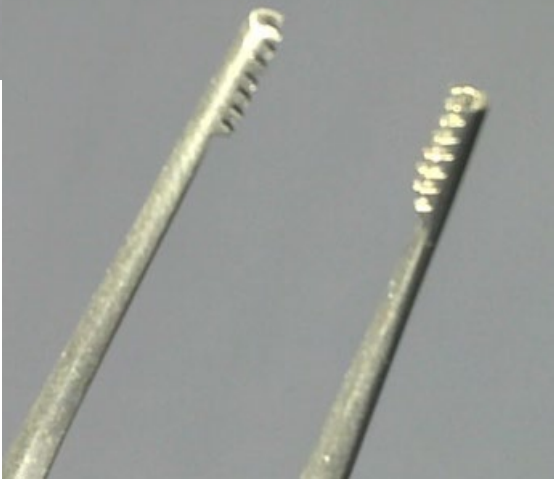
- Sometimes referred to as **“rat-tooth forceps”**
- Commonly used to grasp skin edges during closure
- Standard size 4.25”
- Named after Dr. Alfred Washington Adson (1887-1951), American surgeon and military officer, a pioneer in the field of neurosurgery and first Neurosurgery Chair at the Mayo Clinic.

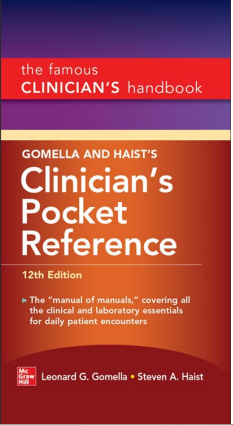


Forceps

Brown-Adson Forceps

- Sometimes referred to as “**Adson-Brown forceps**”.
- Commonly used to grasp delicate tissues.
- Tip has 7 X7 serrated teeth, making it distinct from the **Adson Tissue** (“rat tooth”) forceps.





Forceps

Dressing Forceps

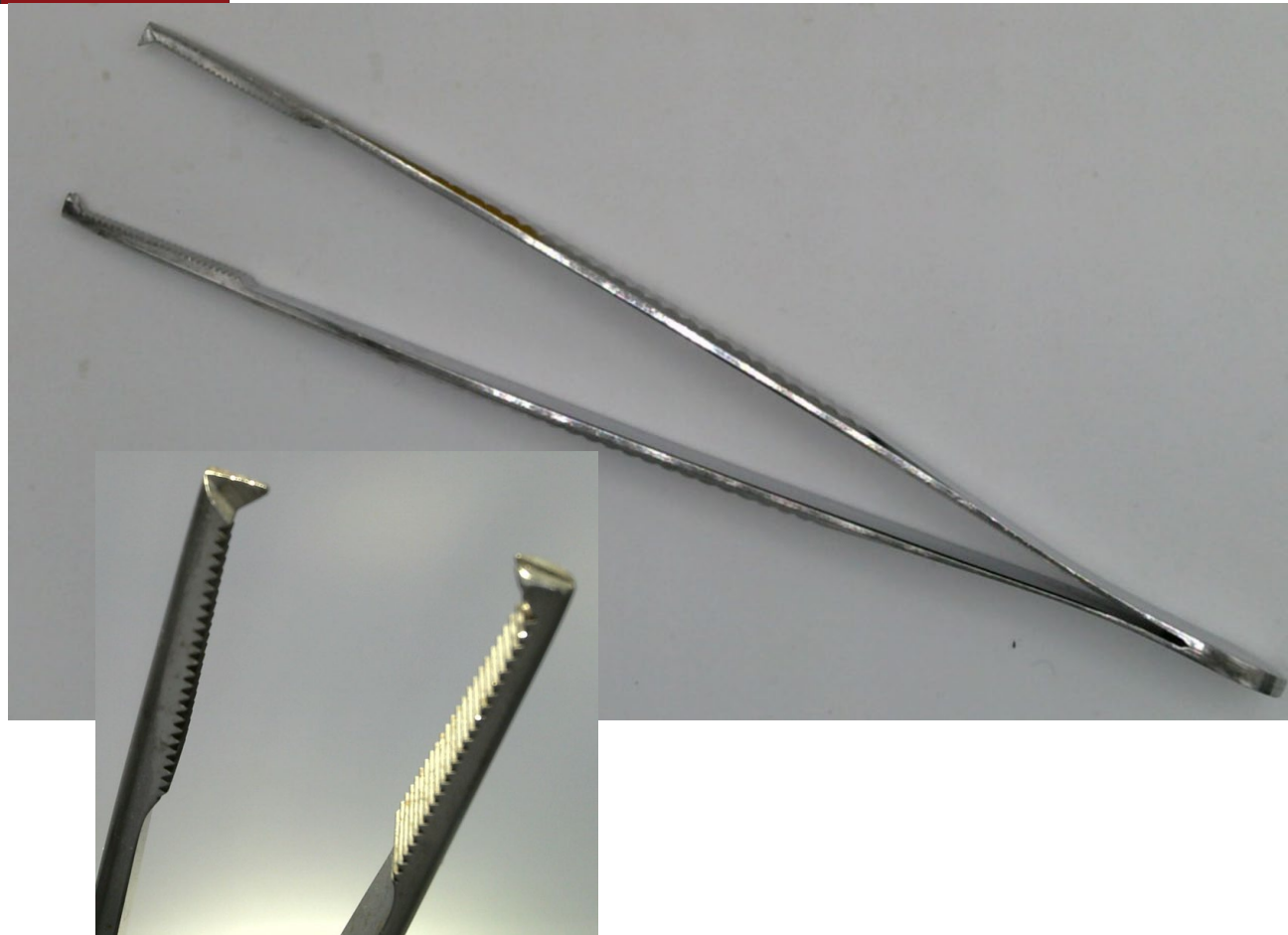
- Sometimes referred to as “**Smooth forceps**”
- Used to apply various dressings or to hold tissue.
- Tips are atraumatic.
- Lengths: 6”, 8”, 10”



Forceps

Bonney Forceps

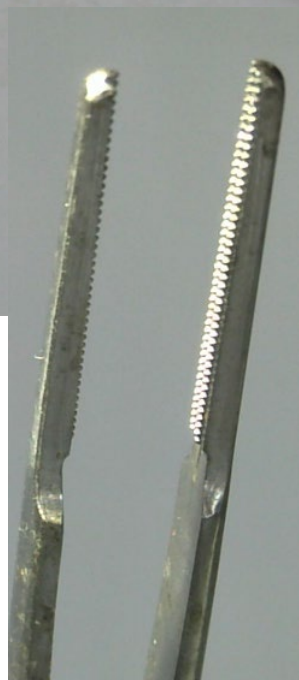
- Sometimes referred to as “**Bonney Tissue Forceps**”, “**Victor Bonney Forceps**” or “**Cowan forceps**”
- Used to grasp heavy tissues.
- Commonly used in OB/GYN procedures; tip has variable number of teeth
- Length 6” to 9”; 7” most common.
- Dr. Victor Bonney was a gynecologist from London who was a leader in radical hysterectomy for cervical cancer and fertility preserving uterine myomectomy.



Forceps

DeBakey Forceps

- Also called “**DeBakey vascular forceps**”.
- Many surgeons use the generic term “**pickup**” when referring to the DeBakey forceps.
- Grasping and holding tissues; typically more delicate tissues.
- Tips have atraumatic serrations.
- Multiple sizes from 6” up to 12”.
- After Dr. Michael DeBakey (1908-2008) a surgeon at Baylor. He first recognized the connection between smoking and lung cancer, developed the carotid endarterectomy and the DeBakey procedure for aortic dissection (a procedure he underwent himself at age 97).

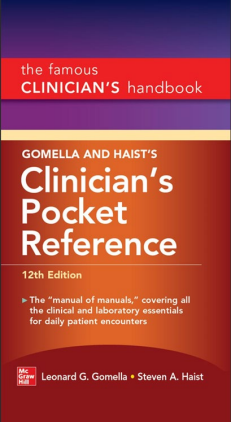


Forceps

Russian Forceps

- Also called simply "**Russians**".
- Grasping tissues, debriding tissues, used during wound closure. Holds thick tissues "softly".
- Tips are rounded and have serrations; considered atraumatic.
- Multiple sizes from 6" up to 12"





Forceps

Singley Tissue Forceps

- Also called **“Singley-Tuttle Forceps”**.
- Often referred to as **“ring forceps”**, but design is slightly different than true **“ring tumor forceps”**
- Tips are serrated and fenestrated.
- Used for grasping tissues, holding sponges.
- Common size is 9”.



Forceps

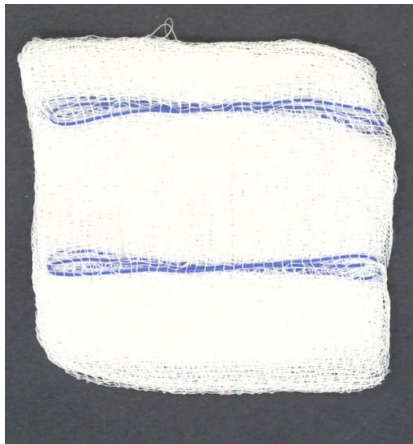
Sponge Holding Forceps

- Also called "**Foerster Sponge Forceps**" or more commonly simply "**Sponge Stick**".
- Holding and grasping tissue or holding 4x4 sponges also called "raytec" sponges (x-ray detectable).
- Jaws can be smooth or serrated with straight or curves arms.
- Typical sizes 7" or 9.5"
- See also "**Sponge on a stick**"



Forceps

“Sponge on a stick”



- Tool prepared by the scrub nurse, used to absorb fluids or retract tissue.
- **Sponge Holding Forceps** loaded with 4x4 sponges also called “raytec” sponges. The name comes from one of the companies that manufacturers surgical sponges with an x-ray detectible element.
- Sponges used in open surgery today are all x-ray detectable. Some have advanced RFID or other tracking system to avoid retrained/lost sponges.
- See also “**Sponge Holding Forceps**”

Forceps

Tenaculum

- Primarily used for grasping and holding the cervix and applying uterine traction during gynecologic surgery.
- Various styles with sharp tips are available with single and double hook versions shown.
- **“Barrett”**, **“Braun”**, and **“Schroeder”** are different types of tenaculums.



Forceps

Lahey Gall Duct Forceps

- Atraumatic locking curved instrument.
- Useful for reaching hard to reach areas to dissect or clamp vessels.
- Credited to Dr. Frank H. Lahey (1880-1953), US surgeon, and founder of the Lahey Clinic in Massachusetts.



Forceps

Lahey Grasping Forceps

- AKA: “Lahey Goiter Grasping Forceps”, “Lahey Thyroid Tenaculum”
- Perforating, ratcheting, locking forceps use for dissection of tough or more fibrous tissue; holding/retracting organs to be removed.
- 6” long with three interlocking sharp tips.
- Credited to Dr. Frank H. Lahey (1880-1953) US surgeon, and founder of the Lahey Clinic.



Needle Holders

Halsey Needle Holder

- One of many designs often simply called "**Needle Driver**"
- Locking needle holder is used to hold smaller delicate needles.
- Tungsten carbide insert with diamond etching to hold needle without rotating.
- Many different sizes of needle drivers are available. Halsey is a smaller needle driver with a standard 5" length.

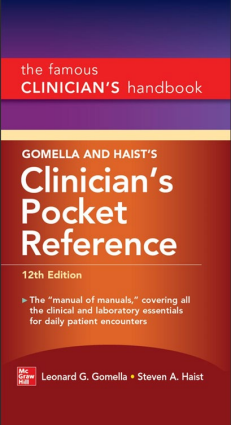


Needle Holders

Crile Wood Needle Holder

- One of many designs often simply called "**Needle Driver**"
- This design holds small or medium sized needles.
- Many lengths: 5.5", 6", 7", 8", 9"
- Heavier needle drivers are available such as the "**Mayo-Hegar needle holder**" for larger suture needles (5" to 12" lengths).





Needle Holders

Heaney Needle Holder

- “Heaney needle holder”; “curved needle holder”.
- One of many “**Needle Driver**” styles.
- Slightly heavier curved jaws than other needle drivers.
- Commonly used in OB-GYN, useful for suturing around curved structures.
- 8.5” long is usual length.

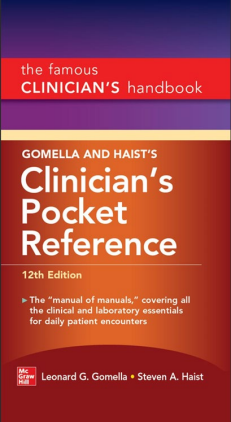


Needle Holders

Castroviejo Needle Holder

- Instrument used for holding fine suture needles, commonly used in microsurgery.
- 5.5" with unique locking handle.
- Various straight, curved or serrated tips.
- Credited to Dr. Ramón Castroviejo Briones (1904–1987) was born in Spain and became a well known American eye surgeon remembered for achievements in corneal transplantation.





Sponge Dissector

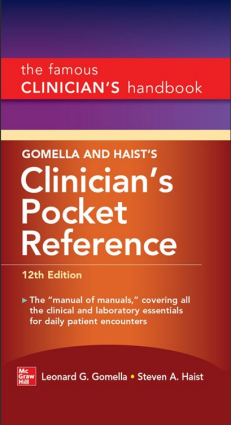


- Also called “**Kittner**” (more properly named the “**Küttner dissector**”) or “**Peanut**”
- Tool prepared by the scrub nurse
- A small compact x-ray detectable sponge is loaded on the end of a clamp (Kelly or Crile)
- Used to dissect soft tissue planes using “blunt dissection”.
- Dr. Küttner was a German Oral and Maxillofacial Surgeon.

Laparotomy Sponges

- AKA: “Lap”, “Lap tape”, “Lap pad”, “Mic pad”.
- Large absorptive sponge used in surgical procedures to control bleeding, absorb fluid, or protect organs or structures from abrasions, drying, or contamination.
- Sponges used in open surgery today are all x-ray detectable. Some have advanced RFID or other tracking system to avoid retrained/lost sponges.
- 12” by 12” is a typical lap size with attached string.



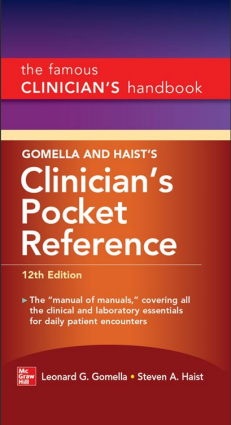


Suction Devices

Yankauer Suction

- Also called “**Tonsil suction**”.
- A commonly used type of suction device used to clear fluid and blood.
- Connected by tubing to a suction canister. Vacuum suction is always “on”.
- Available in disposable (shown) and reusable metallic versions.
- The Yankauer suction tip was invented around 1907, by Dr. Sidney Yankauer (1872-1932) in the surgery department at Mount Sinai Hospital in New York. He was an ENT surgeon and the first director of laryngology there. Originally designed to help clear the surgical field during a tonsillectomy, it used today in many surgical procedures as well in other health care settings to clear oropharyngeal secretions.

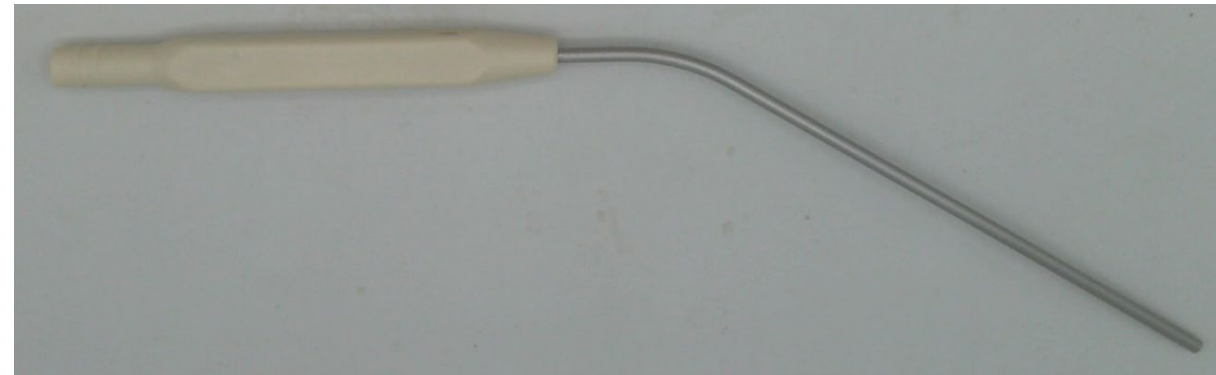


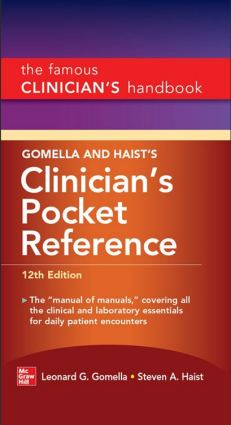


Suction Devices

Frazier Suction

- AKA: “ENT Suction”, “Nasal suction”, “Neuro suction”
- Thin instrument for suctioning small amounts of fluid from confined surgical areas (nasal cavity, lumbar and cervical regions, etc).
- A thumb hole in the handle allows control (on/off) of the suction.
- Connected by tubing to a suction canister.
- Available in disposable (shown) and reusable versions.





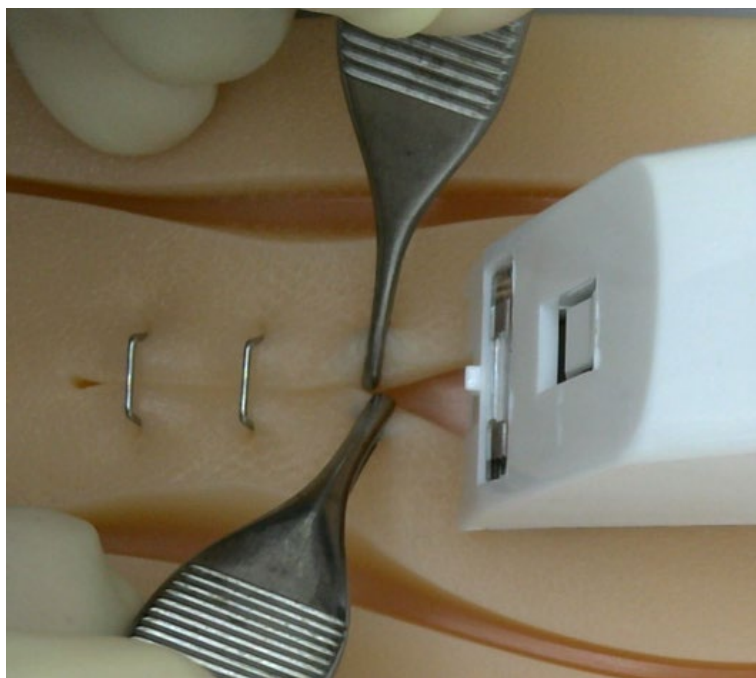
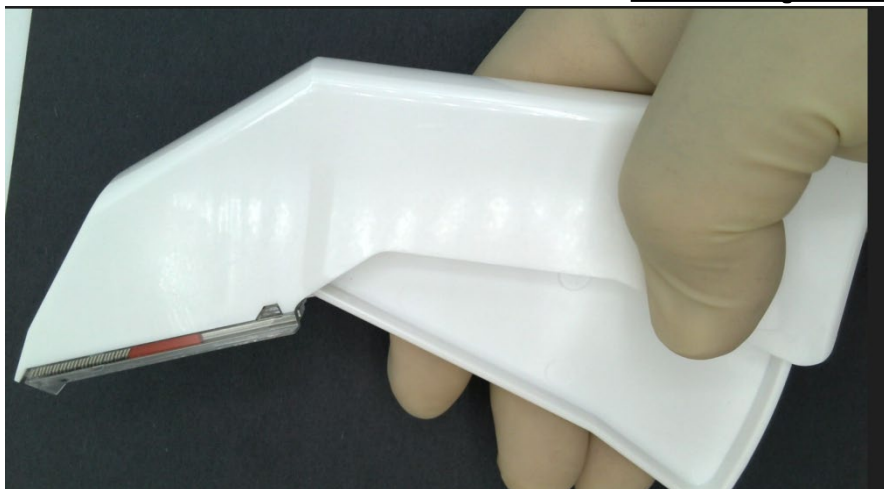
Suction Devices

Poole Suction

- Also called “**Abdominal suction**”.
- Used for suctioning larger volumes of fluid and blood usually from the abdomen.
- Multiple holes to prevent clogging.
- Connected by tubing to a suction canister that collects the fluid.
- Top illustration is the complete “Poole Suction” device. The outer sheath can be removed to use the inner cannula to suction smaller areas (lower illustration).



Stapling Devices



Skin Stapler

- Used to close clean linear skin incisions with removable metallic staples. Can decrease the time needed to suture a wound closed.
- Studies suggest the titanium metal staples are less reactive than sutures and may help incisions heal faster with a better long term appearance.
- Single patient use device, with regular or wide width staples.

Skin Stapling Technique

- Best for clean linear incisions or lacerations. Avoid use on face, neck, hands and feet.
- Skin edges are everted using two Adson forceps usually by an assistant. When working alone, evert the skin edges with the thumb and forefinger. The stapler tends to invert wound edges and this might result in a less appealing scar.
- Place the stapler in the center of the incision and gently squeeze the trigger to place the staple
- Place staples 0.5 to 1 cm apart.
- Removed using a single use staple removal device (next slide).

Stapling Devices

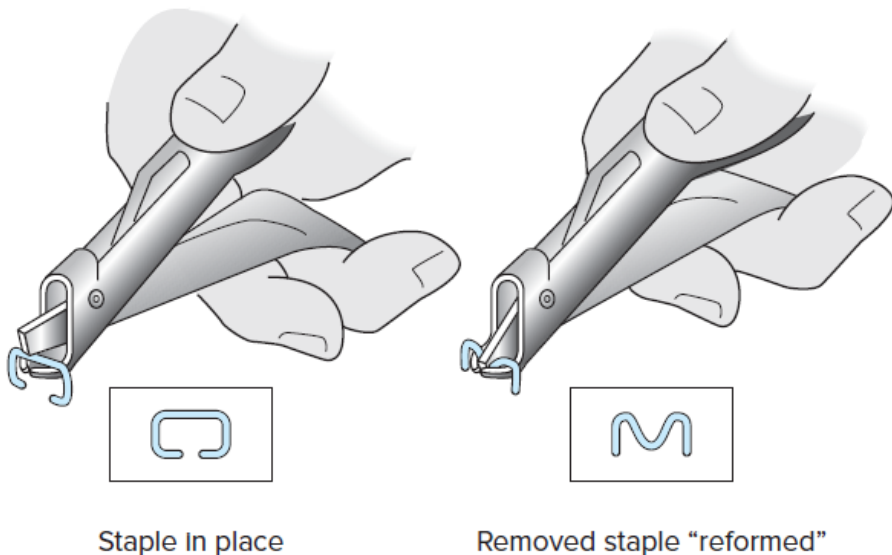


Surgical Staple Removal

- Removed using a single use staple removal device.
- Most routine wound closure staples can be removed after 7-10 days on the scalp, trunk and upper extremities; lower extremities 8-10 days. (Check for surgeon preference.)

Procedure

- Make sure proper healing has taken place and there is no sign of infection. Cleanse the wound.
- Place the lower part of the staple remover under the middle of the staple.
- Squeeze the staple remover; the staple will become "reformed" and should easily pull out.
- Sometimes it is advisable to reinforce the suture line with seri-strip bandages.



Staple In place

Removed staple "reformed"

Stapling Devices

GIA Stapler

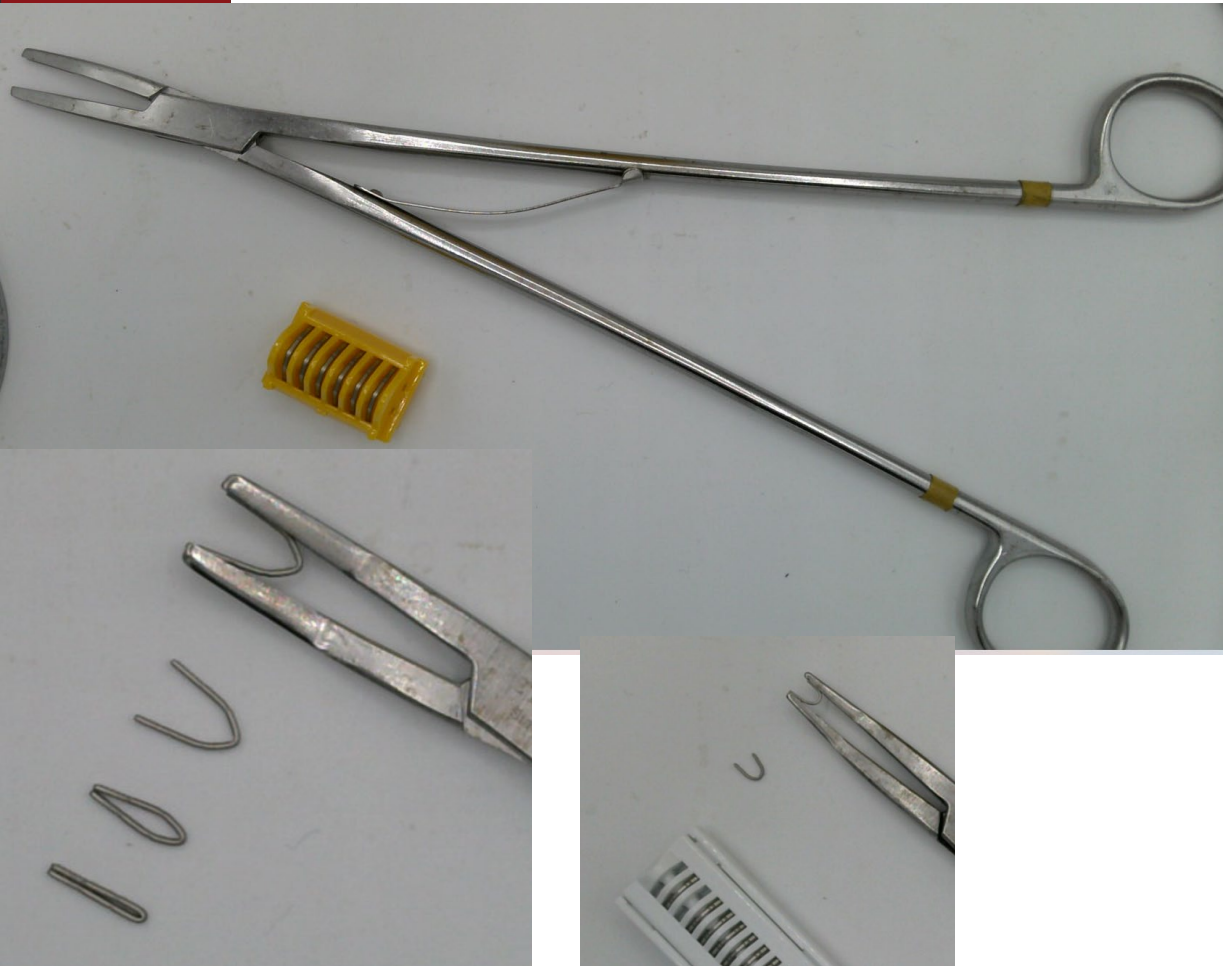


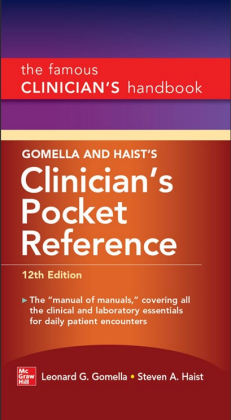
- Also called a “**Linear cutter**”, or “**Endo-GIA**” (“**Endovascular Gastro-Intestinal Anastomosis**”) most commonly used in bowel surgery.
- Compresses and places two rows of opposing staples while cutting the tissue between the rows.
- A faster way to divide and join bowel segments and easier to master in comparison to hand suturing.
- Disposable cartridges allow multiple firings and single patient use. Varying stapler lengths from 60 mm to 100 mm in length.
- (Top) One brand of linear cutter with additional staple cartridge.
- (Bottom) The two arms are disconnected and positioned around the segment of bowel. The arms are reconnected and the stapling and cutting activated by manually pushing the knob towards the tip of the device.

Clip Appliers

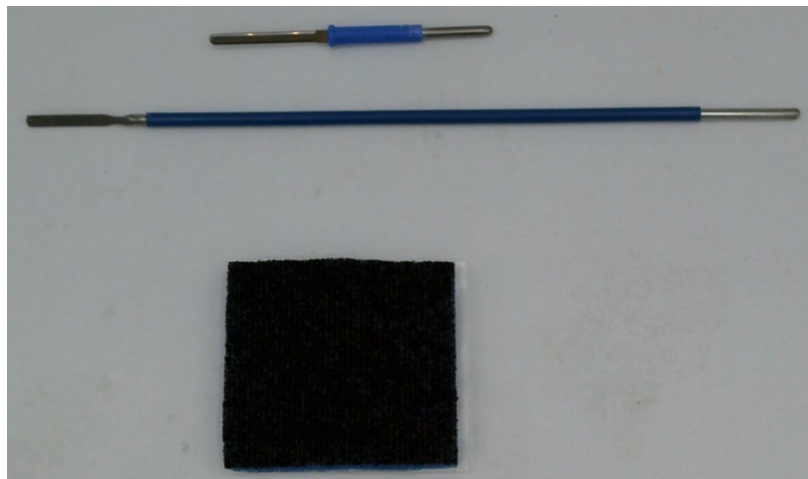
Ligaclip applier

- AKA: **"Clip applier"**, **"Ligaclip stapler"** (LIGACLIP is a registered trademark of Ethicon).
- Allows clipping of small vessels or ducts with malleable metal clips.
- Do not apply pressure/squeeze the handles before the clip is in position or it will fall out of the jaws.
- Several sizes available from small to large.
- Reusable device with large clip cartridge (yellow) and medium clips (white). Medium clips are used with a different clip applier.
- Single patient use automated devices with preloaded clips also available.

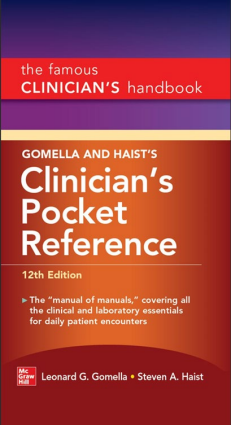




Electrosurgery



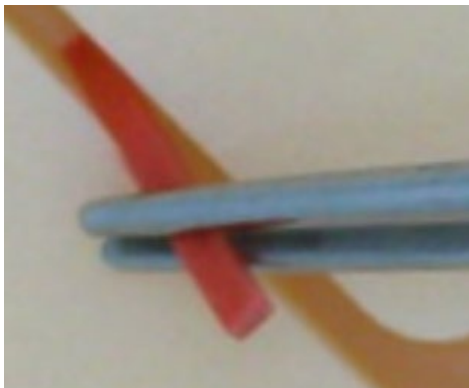
- Commonly called simply the “**Bovie**” after it’s inventor William T. Bovie, PhD. (not a physician)
- Also called “**Button Switch Pencil**”, “**Electrosurgical Pencil**”, “**cautery**”.
- Used to cut tissue (yellow button on handpiece) or cauterize bleeding (blue button) in smaller blood vessels.
- This so called “monopolar” electrosurgery handpiece is connected to a generator off the surgical field. Patient must be “grounded” (called a “Bovie pad”) outside of the surgical field (i.e., typically placed on the thigh) and connected to the generator to complete the circuit. Audible signal when activated.
- Because of its versatility and effectiveness, monopolar electrosurgery is the most commonly used in surgery.
- Also shown are examples of different accessory tips and a “cautery tip polisher” or “Bovie scraper” to clean the tip during an operation.

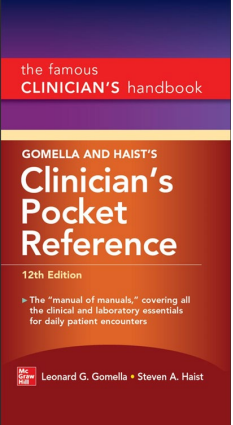


Electrosurgery

Bipolar Cautery

- AKA: **“Gerald Bipolar Forceps”**.
- Cauterize smaller blood vessels.
- Connected to electrosurgical unit with bipolar cautery cord. Foot pedal controlled.
- Current passing in the patient is restricted to just the tissue between the arms of the forceps electrode tips. In contrast to the monopolar electrosurgical (Bovie) where the current must flow through the patient.
- With better control over the area being treated, the bipolar it also helps prevent damage to other tissues.
- Limited ability to cut and coagulate large bleeding areas. Better suited for procedures where tissues can be easily grabbed on both sides by the forceps electrode.
- Delicate tips, 5.75” long.





Understanding, identifying and using basic surgical instruments

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