

THE S.I.G.N

The Surgery Interest Group Newsletter



Spring 2022 E-Board



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TURNING AN AKLE INTO
A KNEE**

**RECOMMENDATIONS
AND MORE...**



F2021



What an amazing semester we had in F2021! SIG has grown significantly since its first semester in S2020, and none of it would have been possible without the constant support and engagement from our amazing members.

Check out our Instagram page for a recap of F2021 (@aue_sig).

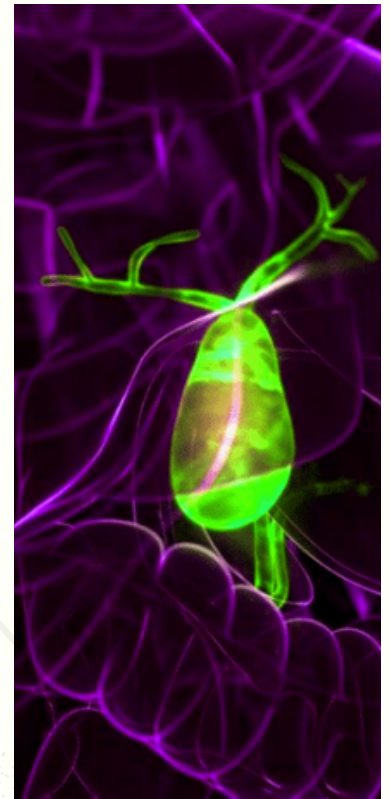
Let's make S2022 even better!

F2021 Acute Abdomen Series: Cholecystitis

by **Manik Nangia** (SIG's Sergeant at Arms)

In the Fall of 2021, The Surgery Interest Group (SIG) inaugurated, "Acute Abdomen Series", which will talk about various illnesses on Acute Abdomen using real world examples through real life scenarios.

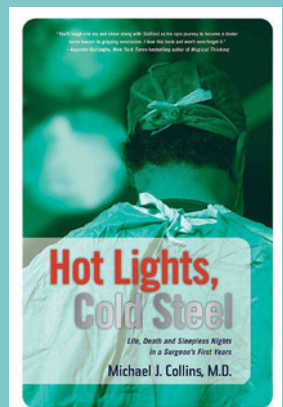
In our inaugural event, SIG collaborated with EMIG and RIG to present a case of **Acute Cholecystitis**. It started with EMIG presenting a case of a patient admitted with acute abdominal pain. Differentials were worked out after taking the patient's history and physical examination. RIG took us through the various imaging studies that can be conducted to reach a diagnosis, SIG was then consulted. SIG took us through the laparoscopic cholecystectomy, explaining the steps from pre op to post op care, mentioning all precautions, contraindications and care. The case was an example of *seamless synchronization* between various fields of medicine help in quick diagnosis and immediate treatment. We have more such talks in our Acute Abdomen Series for Spring 2022.



THIS MONTH'S BOOK RECOMMENDATION

By **Bryan Santiago-Ferrer** (SIG's Co-VP)

Based on the life of Michael J Collins, MD. Orthopedic surgeon trained in the Mayo clinic; this book recounts his time from a junior resident to become an accomplished chief resident. Gives a look into his work, the hardships of his personal life and defeats during his time in training. An eye-opening look at how *not only smarts but perseverance is needed to succeed*. He talks about the humbling experience of going out into the real world after the years of studies and of balancing work with having a family can become a whole new set of challenges, and how the emotions of one end can sometimes bleed into the other. A story of one man's journey to make his dreams a reality and what it takes to make them happen.



SIG's plans for S2022



**ACUTE ABDOMEN SERIES
(FEBRUARY)**

**ANATOMY OF THE OR & ACS
INSIGHT (MARCH)**



**SUTURING WORKSHOP
(MARCH)**

**GUEST SPEAKERS MONTH
(APRIL)**



**BLEEDING CONTROL (B-CON)
TRAINING (MAY)**



SOCIAL EVENTS



BAKE SALE



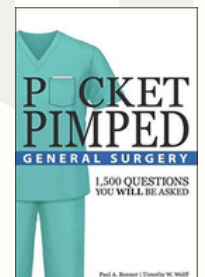
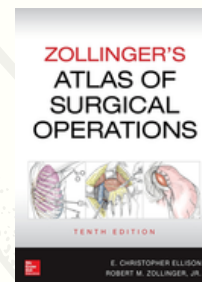
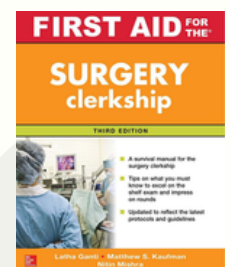
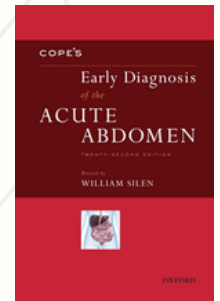
**CLINICAL SCIENCES (CS)
EXPANSION PROJECT**



Helpful Resources

by *Eliether Rivera (SIG's President)*

These resources would be helping when preparing for the Operating Room as a Medical Student.



You can find a PDF version of most of them in SIG's Teams Channel under "Files" section

THIS MONTH'S PODCAST RECOMMENDATION

By *Manik Nangia (SIG's Sergeant at arms)*

As a true crime buff, I started this podcast expecting a story about a psychotic doctor, but it ended exceeding my expectations. It was not just about one man but the *entire medical structure*. As the narrator, Laura Beil, quotes in her podcast "It is not one major problem that causes a plane to crash but multiple minor ones." Is it one man that is responsible for the death of 2 people along with permanent injuries to 33 others or is it a collective mistake of the medical structure which did not catch this on time? Why was Dr Duntsch allowed to perform surgeries for 2 years by the hospital administration? Listen to this podcast, as it talks about Dr Duntsch's journey and the shocking tales of his patients who were left permanently disabled.

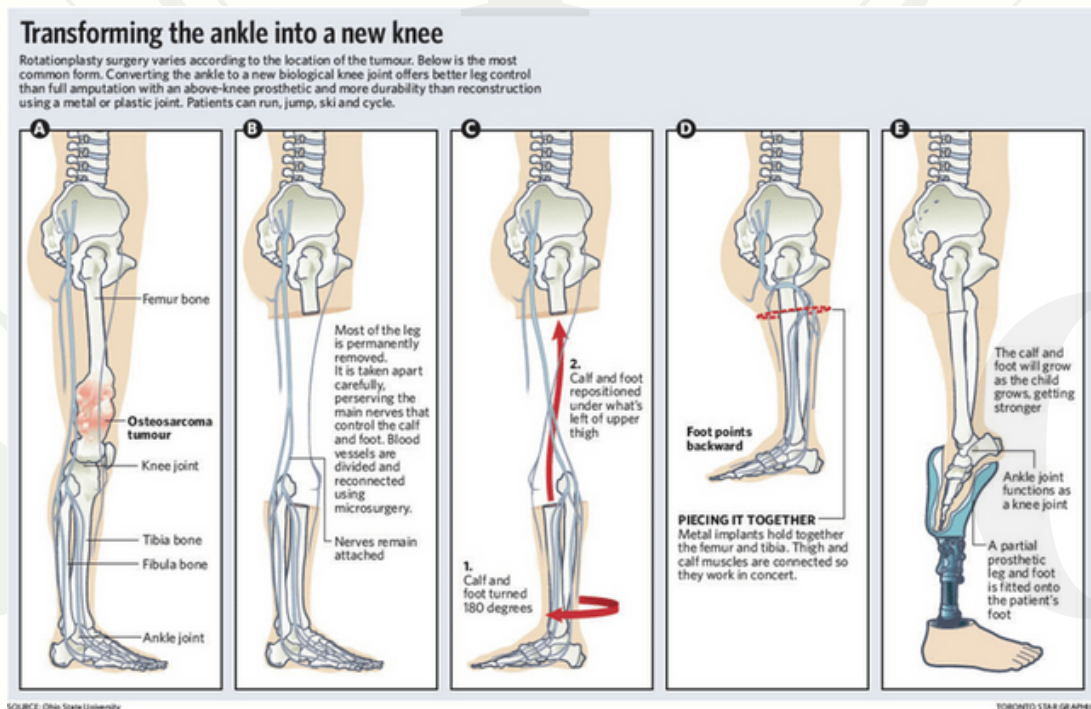


Rotationplasty: Turning an ankle into a knee

by **Bill Bowers** (SIG's Upper Med Advisor)

Van Nes Rotationplasty, a rare and complex procedure, is usually performed by specialized orthopedic oncology surgeons on pediatric patients suffering from either osteosarcoma or Ewing sarcoma of the femur. The problem with these tumors is that they commonly affect the diaphysis and metaphysis of the femur, meaning the surgeon **must** disrupt the knee joint to remove the tumor.

Recall that the knee is a *hinge type synovial joint*, that allows for the articular surface of the femur to roll and glide over the tibial surface to allow for flexion and extension of the lower leg.



When surgeons disrupt the knee joint, they commonly perform above the knee amputations (AKA). The problem with AKAs is that though, the procedure was necessary, it will have a lasting and significant clinical impact on the lives of patients. Even the patients that are fortunate with rehabilitation and recovery to progress to a prosthesis with AKAs still have very limited mobility and most are left wheelchair bound. Luckily, the rotationplasty is a specialized cancer treatment best applied in children who are still growing.

During this procedure, the surgeon removes the affected portion of bone, along with the knee joint. The major artery, vein, and nerve leading to the foot are saved. The lower portion of the leg is rotated 180 degrees counterclockwise and then attached to the upper portion of the leg. The ankle is now on the same plane as the former knee, with the foot and toes pointing backward and the heel facing forward. Because of the rotation, the ankle bends in the same direction as the knee.

The surgeon will consider the age of the child and their growth potential. Initially, the surgically modified knee center will be lower than the unaffected knee. As the child grows and bones lengthen, the knee centers will match.

In three to six months, after the bones have healed, the patient can be fitted for a prosthesis. The patient's foot fits inside the socket of the prosthesis and the ankle functions as the knee joint. In time, the patient will develop greater control, function, and mobility. Most patients can walk unassisted and return to their regular activities, including playing sports.

February-March Birthday Shoutouts!

SIG would like to wish you a **Happy Birthday**, and we hope you had a **great time**!

Not pictured:

- Benjamin Preveau
- Nan Han
- Hannah Hill
- Sully Snacz
- Samuel Abitoye
- Kyoojin Cha
- Elvin lebron
- Eliesther Rivera
- Otibhor Imuse
- Sobomate Lawson
- Precious Ozuomba



Kayla Hall



Blezing Zenick



Zamiyah Ben-Israel



Hanna Hill



Loreнна Fernandes



Nan Han

Subspecialty Highlight: Surgical Oncology



by **Meghdeep Sen** (SIG's Secretary)

Surgical oncology is the practice of surgery concerned with diagnosing, staging, and treating cancer. Surgery is performed to remove malignant tumors and nearby tissues. It is a complex discipline, crossing boundaries of organ specialization and including gastric, breast, colorectal, endocrine, melanoma, hepato-pancreato-biliary and pediatric surgery.

Not all cancers can be treated with surgery. Various factors come into play while determining whether a cancer patient is fit for surgical intervention.

How Is Oncologic Surgery Performed?

Oncologic surgery is mainly of two types: **Open Surgery** and **Minimally Invasive Surgery**. Open surgery involves using a large incision to remove malignant tumors. Minimally invasive surgery may involve laparoscopy, cryosurgery, laser surgery, and robotic surgery.

How Do I Become a Surgical Oncologist?

A surgical oncologist is a physician who typically completes General Surgery training (5 years) and then furthers their training by completing a fellowship in Surgical Oncology (1-2 years).

Take a look into March events

by **Sanskriti Attray** (SIG's Administrative Coordinator)

● **ACS: Standing Out During Your Surgery Clerkship**
March 2nd

To access the recording, use the link in our Instagram bio @AUA_SIG

▼ **Anatomy of the OR + ACS Insight**
March 4th (in-person) and March 6th (virtual)

▼ **Nikita Srivalsan**
MS-III Student
IG takeover - FM1/IM1
March 9th

▼ **Suturing Workshop**
March 15th and 16th
(in-person & virtual)

The Ponseti Method for Clubfoot

by **Meghdeep Sen** (SIG's Secretary)

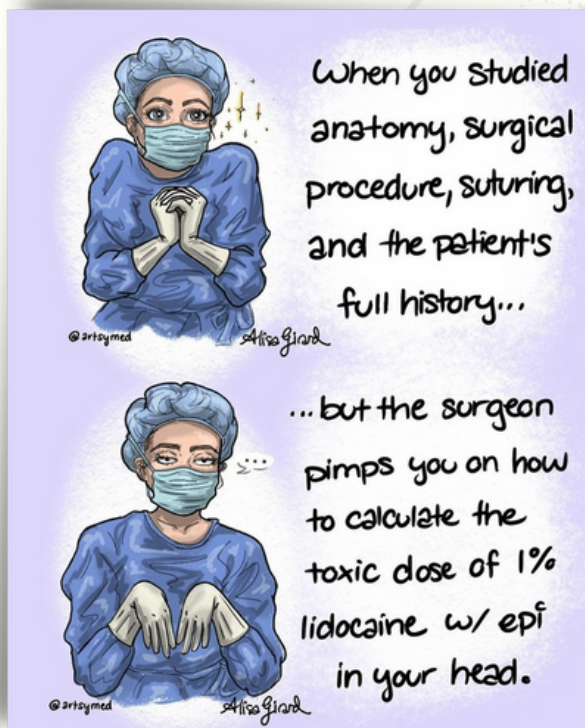
Ignacio V. Ponseti, in the 1940s, developed a comprehensive technique for treating clubfoot, one of the *most common congenital foot deformities*. It was quickly adopted worldwide and is now the most popular method for treating clubfoot. The concept behind the technique was that the tissues and ligaments of a newborn's foot would deliver to manipulation and weekly casting of the feet.



The treatment phase involved correcting the cavus by supination, aligning the mid-foot bones by abduction while applying counter-pressure on the head of the talus. Surgical intervention was principally used to correct the equinus. The remaining deformity was treated by percutaneous lengthening of the Achilles tendon or by the percutaneous release of the plantar fascia.

Post-operative management involved usual care and placement of the foot in an orthostatic device for three months and then only during the night until five years of age. While recurrences have been reported, early identification allows for immediate intervention and best overall results.

Surgical Humor



Tool Highlight: Spencer Wells Forceps

by **Meghdeep Sen** (SIG's Secretary)

Invented by Sir Thomas Spencer Wells In 1879, the ratchet hemostatic forceps known as the "Spencer Wells Forceps" are among the most common surgical tools used in the OR today. The purpose of the invention was to eliminate the gap between the handles of the forceps to prevent arteries and tissues from being entangled.

In modern days it is used during surgery to compress an artery, seal small blood vessels, or keep the artery out of the way.

ACS Fellow Performs First Successful Pig-to-Human Heart Transplant

by *Sanskriti Attray (SIG's Administrative Coordinator)*



Cardiac surgeon Bartley P. Griffith, MD, FACS, at the University of Maryland Medical Center, Baltimore, brought about a revolution in the history of medicine, by successfully performing the first successful pig to-human heart transplant. This breakthrough in the field of **xenotransplantation** represents a lot of zealous potential for the future possibilities of medicine.

E57 year old Dave Bennett, agreed to be the first human, making history which has now certainly advanced the course of medicine; in the hopes of going back home to Lucky his beloved dog, in his Maryland Duplex. The commonalities between the pig and human organs have been known for some time, and the gene editing was needed to prevent rejection, prevent blood coagulation in the heart, and keep the pig heart from growing too large to be usable for transplant. The surgery took about **nine hours** with doctors replacing the patient's heart with one from a 1-year-old, 240-pound pig gene-edited who was bred specifically for this purpose. Conducting this operation with materialisation of the new technique demanded substantial effort by the surgical team, researchers, the University of Maryland Medical Center, and medical leaders.

"This is nothing short of a miracle," said his son David two days post the life-extending surgery. "That's what my dad needed, and that's what I feel like he got."

"It's been restorative to my soul to see people come together to save just one life. They understand the implication." -Dr. Griffith concluded.

Whether it signifies a miracle of life, or the zeal of advancements in medicine, it is a remarkable breakthrough which has the capacity to save more lives beyond its own comprehension.





Surgical History: Trepanation

by Bryan Santiago-Ferrer (SIG's Co-VP)

When I first learned about trepanation a few years back, I was very interested in both history and surgery and in my search down the rabbit hole I found the ancient practice of taking removing a piece of the skull to *“let evil spirits out”*, relieve pain, pressure, any other head injury that could come to mind. The origins of the practice are unclear- the earliest skull evidence we have are from over 8000 years ago- before Stonehenge was even a single pebble atop Salisbury Plains. It wasn't only an obscure practice from one part of the world either- it was performed in China, Portugal, Peru, England, and Italy to name a few.

The most surprising thing is, **it seemed to work**, or at least that most of the people who got this “neurosurgery” done survived long enough for the bone to heal! I can't even begin to describe what the tools used by those ancient Mesopotamians looked like but by the 1600 the Italians had begun using a metal tool with three prongs they dubbed “tre fines” which is Latin for three ends, and this helped in making cleaner and more uniform holes to augment the survival rates even further.



Now I already told you when this operation began but I have yet to tell you when the last was performed, that is because we still perform a form of trepanation through a procedure called a craniectomy. Currently, it is mainly used to relieve pressure that is built up through a subdural hematoma or any excessive rise in pressure that can't be easily resolved. An incision is made near the area of most pressure, or of clinical significance, with an electro cautery knife, the scalp is then retracted to allow for visibility of the cranium after which the surgeon will use a small hand drill to slowly eat away at the bone. At all moments an attending will be flushing the area with saline and suctioning off the excess to allow for more visibility of the work area. The work is slow and meticulous seeing as the thickness of the bone may vary and it is imperative not to cause any damage to the dura or the structures deep to it. At this point the surgeon would slowly open the dura and tent it open allowing any fluids that may be compressing on the brain or for ease of entry to any invasive procedures. After the procedure is done the dura would be sutured together and a titanium mesh is placed on the hole, and it would be screwed in.

While the reasoning may be different from that of the earlier iterations of this procedure. There can be no doubt that it has withstood the test of times and is clearly deserving of the title of “first successful surgery”.

Surgical Subspecialty: Neurosurgery

by **Sanskriti Attray (SIG's Administrative Coordinator)**



Does neurosurgery seem like brain surgery only, to you?
Oh, but it's so much more.

Control and coordination of body activities are maneuvered by the nervous system, a highly sophisticated, and elegantly-complex system. The nervous system comprises of the Central Nervous System- Brain & Spinal cord, and the Peripheral Nervous System.

The specialty of neurosurgery is concerned with the diagnosis and treatment of patients with injuries to and disorders of the brain, spinal cord, and spinal column, as well as peripheral nerves within the body.

Distinct specialties of neurosurgery include Pediatric neurosurgery, Neuro-Oncology, Spinal Neurosurgery, Psychiatric Neurosurgery, Neurovascular surgery & so much more. Surgical and non-surgical care may be offered by a neurosurgeon depending on the type of injury or disease.

Who is a Neurosurgeon?

Well, they are not just Brain surgeons. They are medically trained professionals who offer treatment for a wide array of conditions and in the diagnosis of all neurological disease.

Most common neurosurgical procedures include:

Craniotomy

Surgical removal of a part of skull to expose the brain

Cervical Discectomy

Surgical removal of damaged disc to relieve pressure from spinal nerve root

Laminectomy

Surgical removal of lamina (roof of spinal cord)

Lumbar Puncture

Collection of cerebrospinal fluid via needle insertion

How do I become a Neurosurgeon?

2-4 Years : Pre-Med/Undergraduate Studies

4 Years : Medical School

5-7 Years : Fellowship Training

Certification

American Board of Neurological Surgery (ABNS)

**LET US KNOW WHAT
OTHER
SUBSPECIALTIES
YOU WOULD LIKE
TO SEE!**



FEBRUARY

BLACK HISTORY MONTH

By Bryan Santiago-Ferrer (SIG's Co-VP)



Rebecca Lee Crumpler, MD

(1831-1895)

First black woman in the USA to receive an MD degree from New England Female Medical College of Boston. Was also the only black graduate at the time, after the civil war, moved to Richmond, VA where she helped formerly enslaved people in the Freedmen's Bureau.



Regina Marcia Benjamin, MD, MBA

(2009 – 2013)

Best known as the 18th surgeon general, during which she served as the first chair of the National Prevention Council which was responsible for creating the National Prevention Strategy, which outlined plans to improve health in the US. She is the founder and CEO of BayouClinic which provides care and social services to the small Gulf Coast town of Bayou La Batre, LA.



James McCune Smith, MD

(1813-1865)

First black American to receive a medical degree from the University of Glasgow Medical School, due to racist practice couldn't get into an American school. Became the first black physician to be published in US medical journals and used his writings to debunk racist notions of African Americans in scientific literature.

Charles Richard Drew, MD

(1904-1950)

Known as the father of blood banking, pioneered blood preservation techniques that helped establish the first large scale blood banks, including his hand in leading the first blood bank for the American Red Cross. Created the first mobile blood donation station which are still in use today. Was also appointed Chairman of the surgery department and chief of surgery at Howard University Hospital in Washington, DC.



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(LINK ON IG BIO)

IF YOU HAVE ANY QUESTIONS OR CONCERNS, REACH OUT TO US!



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