



# AMASI Newsletter



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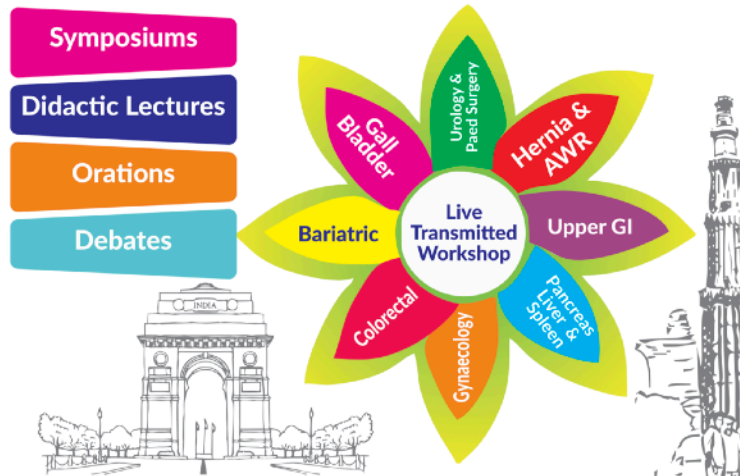


AMASICON  
2020 NEW DELHI

15<sup>th</sup> INTERNATIONAL CONGRESS OF THE

ASSOCIATION OF MINIMAL ACCESS SURGEONS OF INDIA, NEW DELHI

1<sup>st</sup> to 4<sup>th</sup> October 2020 | The Leela Ambience Convention Hotel, New Delhi



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## IN THIS ISSUE

### Gurubhashayam

In this issue, Prof. Ramesh Ardhanari, our Guru with a wicked sense of humour and a wit to match, turns serious and expounds on the virtues of tremendous hard work, dedication and perseverance..

### Guideline Series

This issues carries the guidelines on two topics. The first one on "Laparoscopic knotting and suturing" is prepared by Dr. Kalpesh Jani, MS, DNB, FNB, MNAMS, FACS, FICS, Consultant GI & Laparoscopic Surgeon from Baroda, Gujarat. The second one, on "Principles of Specimen Removal" is presented by Prof. Manash Sahoo, Head of Dept of Surgery, AIIMS, Bhubaneswar.

### Writing a Scientific paper

Carrying the next installment in this series is the article on "Measuring Techniques: Accuracy and Validity" penned by Dr Manu Vats, MBBS, MS, FMAS, Consultant Surgeon.

### Journal Watch

Dr. Kalpesh Jani comments on the systematic review on variables for early diagnosis of clinically relevant post-operative pancreatic fistulae..

### **Plus the regular features like:**

- ◆ Hobby corner
- ◆ Know your Representative
- ◆ MAS Masti
- ◆ Upcoming events update
- ◆ Past Event

# Gurubhasyam

- Prof. Ramesh Ardhanari



## Perseverance and Dedication

Prof. Ramesh Ardhanari,  
Meenakshi Mission Hospital,  
Madurai.

Dr. Shrikant Kurhade, Laparoscopic Surgeon, Pune, has the following to say for his mentor:

There is Japanese proverb - "Better than a thousand days of diligent study is one day with a great teacher" - which aptly sums up Dr. Ramesh Ardhanari. He always makes sure, when we are assisting him in a complex surgery, to explain each of the steps to us. His way of holding instruments and tissue respect is worth watching. During the morning rounds, he would pepper us with thought-provoking questions and also used to explain the data backing each of his surgical decisions. He welcomed being queried by his students and loved to discourse on the science of GI surgery.

His quest for knowledge is insatiable, and he peruses all the major journals, encouraging us to do the same. Dr. Ramesh had a great sense of humor and the ability to crack jokes at any situation, on anyone. Our OPD and OTs were full of laughter most of the time, in spite of heavy work load. Dr. Ramesh Ardhanari, a teacher par excellence, a visionary surgeon, a humane physician, an exemplary leader, a superb orator - who has impacted his students and his patients with his surgical skills, knowledge, and humility.

At a National Conference during the lunch break I had gone to wash my hands. As I walked back, I saw a group of young Post-graduates and surgeons talking. They couldn't see me, but I could hear them. Their lament was that the seniors like me had things so easy while they had to struggle against great odds to do PG and get a job.



As I walked away and lay in bed that night, I looked back on my life. I then decided that I should write of my experience and that it would probably mirror what most of my friends have been through and to put a perspective on it.

I spent my school years in a town called Sindri (known for the first public sector factory in India) where my father worked as an engineer. The salaries in those days were very meagre and my father's take home pay was 700 to 800 rupees a month.

The only formal education available was that the Society of Jesus had established a School – De Nobli School a few kilometres away and gave quality education. In the 70's this school in the middle of Bihar would send 3 – 4 candidates each year to the IITS and 3 – 4 candidates to Medical Colleges.

I do not wish to be immodest but I was an outstanding student by any standard. We prepared for the ISC examination and in the school preparation test, I got the highest marks ever awarded in the school. I was expected to be an All India topper and bring laurels.

The ISC exam came followed by the results in March. I had been expected to get 95% marks but I had done miserably. My aggregate was just 70%. I had always wanted to be a doctor and a surgeon and in Biology, I got 63 %.



That night I got shellacked by my father. The earlier performances, awards and accolades were forgotten. I was labelled a wastrel who treated studying casually. I had wasted my time on everything from games to books to just loitering. He told me that I had made my bed and I should do whatever course I got, but he would not pay for paid courses.

At that time, most of India had moved to 4 ½ + 1 year medical course. Tamil Nadu (I was a native) still had 5 ½ + 1 (1 year of physics / Chemistry / Biology / English). I needed to get a premedical seat to attempt the 4 ½ years course next year, but the poor marks I had in the school exam did not get me on to any decent college. Fortunately my Principal Fr.Hendry, and teacher Fr.Montevill, gave me a wonderful recommendation letter and sent me to their friend at Wilson College in Bombay. The admissions were over by then but they proposed to let me on if someone gave up a seat.

I also tried my luck for the entrance exams to Vellore and JIPMER. I did not have much hopes. Vellore had 60 seats of which 43 were sponsored. The remaining 17 were equally divided between men and women. In the 70's, getting admission as an open candidate at CMC Vellore was considered the acme of excellence, even above IIT. I did not have much hope for JIPMER as their calculation was 75 % entrance and 25% school marks (PCB). My poor student's marks would drag me out of contention.

The Tamil Nadu Medical Admission Board had no system. They did not have entrance exam or even look at school marks. They had a kind of an interview and seats were given to those with importance or those who could buy it. I was also unfortunately a Brahmin and they would hold it against me and deny me a seat.

In June 1975, after 6 months of misery, I finally had some good news. I was selected to CMC Vellore for interview. After 3 days of interviews, I was granted admission to the prestigious CMC Vellore. I had a week to pay the fees and join. My home town was Salem, and my father and I went there. There he told me that looking at the fees and hostel fees, he could not afford to put me in CMC. I was stunned and in literal shock. My mother, who was in Sindri, came to know of this and called her younger sister, my aunt, and told

her everything. My aunt immediately rang my father and said that if he had money shortage, she would help out but a seat at CMC could not be lost.

I had 6 ½ wonderful years in CMC. At the far end of my internship, I had some unpleasantness. I was in Surgery posting and wanted to pursue Surgery. It was a tradition that all interns were by turn given an appendicectomy, herniorrhaphy and hydrocelectomy.

As the posting went on, all my colleagues got their chances and I awaited mine. At last, I was next in line, but on the morning of theatre my name was not on the list and another had got a second chance. I thought it might be a mistake and asked the Jr. Consultant if they had forgotten me. He said that the professor had been informed but had ignored me. To this day I don't know what happened. I had worked very hard and I had even done extension duties for sick interns. It left a bitter taste in my mouth.

After internship came the CMC PG Entrance Test. There were six seats in Surgery. Usually 3-4 are sponsored and 2-3 are open. In our batch they decided to keep only one open seat. I came first in the entrance exam but my friend, the Best Outgoing Student, had applied for surgery and he would get it.

I left CMC to try in other places. Tamil Nadu still held interview system and I was rejected. I was fortunate that my classmate lived in Delhi and offered to host me for the AIIMS and PGI entrance. I got a surgery seat at PGI but with a caveat. There would be 12 seats in 1st year but only 6 would get in to the second year.

At my AIIMS entrance exam, I learnt that institute graduates had reservation and getting seats in subjects was tough. Surgery had only 3 seats in July session and one would have to rank 1st to make it.

However a week later I got the intimation that I was selected for Surgery at AIIMS. I joined and spent 5 ½ wonderful years there.

After finishing I returned to Tamil Nadu. I joined PSGIMS in Coimbatore and my plan was that, while I worked in the college, I would practice on the side and develop my practice. In my time at AIIMS, the RCS of Edinburgh had started an exchange program and had as the first program asked the prof of AIIMS to



recommend 2 people. Prof. I. K. Dhawan, called two of us to inform that he was recommending us. I learnt that I would need to clear TOEFL and fly to UK for the job. I asked my father the Rs. 50000/- that I needed for this and was flatly turned down. I had to let that opportunity pass.

I wanted to go abroad and I thought I would save money from practice. In Coimbatore, I visited many hospitals and many nursing homes and asked for attachment. All would be polite and say that will get back but they never did.

One morning, in the OPD in PSGIMS, I was talking to my colleagues as there were no patients. I mentioned that I was not getting an attachment and was frustrated. All the other people sitting there quietly

changed the topic and did not discuss this further. A surgeon friend, by the name of Dr.Premkumar, who was settled at PSGIMS, told me, “Let us go for lunch.”

Instead of the canteen we went to a nearby restaurant. As we ate, he enlightened me. Practice in Tamil Nadu depended entirely on religious and caste lines. He himself was Brahmin and said Brahmins cannot get into the other community hospitals. As I was not student at Coimbatore Medical College, I did not have the classmates circle for friends, who would refer me patients.

He said there were two ways about it. One, I could start a nursing home or two, I could acquire higher degree. I did not have money to even go to England, so, where was the choice of building a nursing home. I decided to try FRCS and prepared to go for it. Arranging the funds was herculean. My salary was barely enough to get by.

One afternoon after lunch there was a great deal of action in the OPD. All were filling forms. I asked what forms there were. The PG/SS had been called for and people were applying. One of the GDMO’s was going to get a form and I gave him money to get me one.

After the form came I went through the seats. I saw that M.Ch. (GE) was there. I decided to apply for it. The exam was in Chennai, and I saw a large crowd. Some were talking together casually and I asked if GE was a popular course. I was informed that for the 2 seats, there were roughly 120 to 130 applicants.



I wrote the exam and 3 months passed when I saw the results in the paper. The roll number matched and I knew I had an M.Ch. seat. I joined MCh., and after 2 tough years. I had my degree and great friendships - Surendran, Palanivelu, Chandramohan, Rathnasamy.

I was looking around for jobs once again. I met only resistant till Surendran introduced me to Dr. N. Sethuraman from Madurai, who was on the verge of starting a hospital.

Dr. Sethuraman took my address and, a year later, wrote to me offering me a job.

I joined Meenakshi Mission Hospital in 1990 April. I got down to work and started to join IMA, seeking out other opportunities and introduced myself to surgeons as well as practitioners. Initially there was great resistance. Senior practitioners would say what is SGE – we also do GJ and procedures. The key was not to insult or ruffle them but to be polite.

Meanwhile the endoscopy equipment arrived at MMHRC. I had never done any endoscopy in my life. I bought Peter Cottons’ book and read OGD and started doing it. In about 3 months I was able do a full OGD, sclerotherapy and banding.

Next was to read and do colonoscopy. This was more difficult, but in about 6 months I had learnt it enough to complete in over 90% cases.

There was no time or money to go for ERCP training. So once again, I read and started doing ERCP. It was slow but I started to extract stones and placed stents. In late 1991-early 1992, I went to Delhi, for a joint RCS-ASI meeting. In a corner of the room, there was a VCP running and was displaying a video of a new technology – laparoscopic cholecystectomy. I spent an entire day in that room and something told me that this was the future.



I came to Madurai and told my Chairman that this new technology would change surgery and if we got in early, we would do well.

He said that there were no funds. At that time, almost all laparoscopic instruments and equipment in India were of Storz or Aesculap. I met Mr.Ramanathan of Stryker who was trying to get a break in India. I offered him a deal. We would do delayed payment and we would work on Stryker instruments.

He agreed and brought demo equipment. I had only seen a lap chole, that too in a workshop, but we posted a case and completed it in 2 ½ hours. The patient did well. The rest is, as they say, history. We became one of the foremost institutes of laparoscopy in India and added many firsts to our record.

I have rambled long but coming back to opening comment that got me going, “Our seniors had it easy”. No, we did not have it easy. Not just me, all my colleagues’ who now occupy the chairs had their own problems.

Success does not come easy. Many times you seem to hit on wall but pick yourself up and keep going. The difficulties I faced have made me try to make it easier for younger colleagues. I do not intend to make my failures and lack of opportunity my legacy but will leave a group of well-trained GI Surgeons to carry on the torch.

If I achieve that, I will go to my grave a happy man.



# Guideline Series

The Process of Guidelines and Position Statement Formation under AMASI was envisioned in four phases:

**Phase I:** An expert reviews available evidence on each topic and suggests guidelines/position statement.

**Phase II:** The suggested guidelines/position statements are presented before a panel of experts who then critically evaluate them and suggest any amendments, if needed.

**Phase III:** The amended guidelines/position statements are presented before the members of AMASI through the newsletter and comments are invited, based on available evidence in published literature.

**Phase IV:** Once all the comments are analysed critically in light of the evidence submitted, any changes, if required are made and the final guidelines/position statements are released.

What follows is the phase 3 in the Guidelines and Position Statement Process of AMASI.

The AMASI members are requested to carefully go through them and if required, any changes can be suggest along with the evidence supporting such changes. Your suggestions along with the relevant references can be emailed to [amasiguideines@gmail.com](mailto:amasiguideines@gmail.com)

## PRINCIPLES OF SPECIMEN REMOVAL



Dr. Manash Ranjan Sahoo

Prof. & HOD Surgery, AIIMS, Bhubaneswar

### Introduction

When a specimen is to be removed during laparoscopic surgery, consideration must be given to the fact that one of the major advantages of laparoscopic surgery – small incision – is not lost for removal and preservation of specimen larger than port sites.

The ease with a specimen can be removed can be gauged not only form its size but also its physical characteristics (hollow vs solid). Moreover, special consideration must be given to the fact whether the condition is malignant and/or infected.

### **Strategies for Specimen Removal:**

Best method for specimen removal depends upon

- Size
- Location
  - Nature of specimen
  - Need for intact specimen for pathological evaluation

Small specimens can be removed from 10mm or larger port by toothed grasper, if needed, by placing in a non-permeable bag. e.g., appendix, omentum, hernia sac, thin-walled gallbladders.



In cases of larger specimen, certain maneuvers can be executed to facilitate their removal, which are enumerated as follows:

**(i) Reduce size of specimen:**

- The contents of hollow structures like gallbladder or ovarian cysts can be aspirated and the size of the specimen reduced to that they can be easily removed through the 10 mm ports.
- Solid structure like lymph nodes, fibromyomas can be cut or slivered so that they can be easily removed through the 10 mm ports.

**(ii) Exchange with larger cannula:**

- If the specimen is so large that it cannot be brought out through the largest port, one of the port can be exchanged for a larger port to enable the specimen to be extracted. e.g. inflamed appendix, thick-walled gallbladder, gastric sleeve.

**(iii) Exteriorize portions of the specimen and then evacuate contents:**

- If the contents of the specimen are such that they cannot be aspirated from within through a needle, e.g. gallbladder with thick bile, bowel with intestinal content, a part of the specimen is exteriorised through the largest port, opened under protective cover and suction cannula inserted within to evacuate the contents, thus collapsing the specimen.

**(iv) Enlarge the incision at a port site:**

- As a last resort, one of the port sites, usually the umbilical, is enlarged under visual control to remove large specimens, e.g., colon, spleen.

- Rarely, a combination of requirement of a larger incision and patient's desire for it to be beneath the clothes line will require placement of a pfannensteil incision for removal of the specimen.

**Other routes for specimen removal:**

**1. Transanal route:**

- During laparoscopic low anterior colon resections & abdomino-perineal resections (APR).
- Preferred when lower limit of transection is near or below the pelvic brim and the specimen is not too bulky.
- Specimen removed in bag.

**2. Transvaginal route:**

- Intact removal of larger specimens through an incision in the posterior vaginal fornix- posterior colpotomy or culdotomy.
- Ovarian masses or the uterus during LAVH & occasionally for other solid organs.

**Retrival Bags:**

Removing the specimen in retrieval bag minimizes the risk of contamination & specimen loss. This method is indicated in cases of suspected or proven malignancy, infected organ, leaking or friable specimen.

Commercially manufactured bags are available but are fairly costly. These bags made of polyurethane or of nylon with polyurethane coating. A much more cost-effective practice is to use sterile gloves, glove fingers, condoms, sterilized plastic bag.

Specimen is placed in the bag and can then be removed

- Directly through the 10-12 mm port,

- After enlarging the port site,
- After reducing the size of the specimen by fragmentation (e.g, spleen, kidney)
- After removing contents separately (gallstones)

While removing such specimen after placing them in a bag, the surgeon should resist temptation to pull hard so as to avoid puncturing or tearing of bag, with subsequent spillage of contents.

### **Fragmentation/Morcellation of specimen:**

Fragmentation or morcellation of the specimen is done when removing large solid specimens that are not required to be removed intact to preserve the gross architecture of the organ for pathology e.g. spleen removed for ITP or the kidney removed for benign parenchymal disease.

For this, the specimen is placed in a nonporous retrieval bag, the edges of the bag are exteriorised through one of the ports and the specimen is broken up using forceps, clamp, suction catheter or tissue morcellator.

### **Complications of specimen retrieval:**

1. Internal specimen loss.
2. Specimen rupture.
3. Wound infection- avoid direct pull through abdominal wall.
4. Tumor implantation port site- can be prevented by use of specimen bags
5. Visceral Injury – avoided by visual laparoscopic control
6. Incisional hernia - incidence can be reduced by regularly closing the fascia
7. of such port sites using non-absorbable sutures.

### **Recommendations:**

1. Specimen Removed in bag decreases chances of wound infection & tumor implantation. (LEVEL III) (GRADE B).
2. Use of plastic bags for retrieval of abdominal specimens is feasible, safe, and economical. (Level II) (Grade B).
3. The homemade specimen retrieval bag is cost-effective and useful for the retrieval of intact specimen. It is also easy to make and safe to use. (Level III) (Grade B)
4. A Transvaginal approach for specimen removal after laparoscopic resection offers the advantage of less postoperative pain than transumbilical retrieval. (Level III) (Grade B).
5. Removal of the appendix was done through the port by 79%, using a retrieval bag by 18%, whereas in 3% it was removed directly through laparotomy. (Level III) (Grade B)
6. Pfannenstiel incision has less morbidity, pain score, and hospital stay compared with Expanded Port Site Incision for intact specimen extraction after transperitoneal laparoscopic surgery. (Level II) (Grade B)
7. Choice of specimen retrieval through epigastric or umbilical port depends upon surgeon's personal choice as no port has clear cut advantage over the other. (LEVEL III), (Grade B)
8. Retrieval of gallbladder through epigastric port as compared to umbilical port after laparoscopic cholecystectomy.
9. Use of endobag or trans-trocar can be used in patients with BMI < 25 (LEVEL III) (Grade B) AND use of endobag in patients with BMI <25 (LEVEL III) (Grade B).
10. Use of endobag is not warranted in elective inguinal hernia repair, as the tissue is sterile. (LEVEL III) (Grade C).

11. Removal through one of the port is recommended. (LEVEL III) (Grade C).
12. Removal through scrotum should be reserved for very large omentum. (LEVEL III) (Grade C).

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## MAS Masti

Dr. Jobi Abraham

**Honey.. I am not in the operation theater.. Right now I am dealing**

**with all the**

**CORONA CASES of our area.. and**

**I am quarantined here for the next 14 days...**



## ENDOLOOPS & KNOTTING



DR. KALPESH JANI MS, DNB, FNB, MNAMS, FICS, FACS (USA)

Consultant GI & Laparoscopic Surgeon

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### Introduction

Tissue approximation and ligation are basic skills set required for any surgeon. However, in laparoscopic surgery, they are considered as advanced surgery. The possible reasons for this are difficulty in hand-eye coordination, loss of three-dimensional vision, divergence of visual and operating fields, use of long instruments and restricted movements of instruments through fixed entry points into the peritoneal cavity. However, even basic laparoscopic surgeries would entail suturing in specific situations and frequently require some form of knot application over a pedicle, organ or vessel. While devices are available to perform these functions like stapling devices and clip applicators, they are costly and not available universally. For a country like ours, it is essential that a surgeon, even while restricting himself to basic laparoscopic skill, acquire necessary training to be able to apply endoloops and use intracorporeal suturing where required.

The surgeon has to deal with all the problems of laparoscopic surgery detailed above and still apply a secure knot. The knots can be applied intracorporeally if the surgeon is skilled enough. Extra-corporeal knots have been designed and used for laparoscopic surgery which require minimum extra skill or expertise. They are simple to form and easy to apply. The selection of the knot and suture material is important and depends on the situation in which it is to be applied.

A length of suture material used for creating a loop or a knot consists of three parts:

1. **The tail:** This is the end of the suture material. This is the part that goes through the throws formed to create the knot.
2. **The standing part:** This is the long end of the suture material. In intracorporeal knotting, it is used to create the throws through which the tail passes through to create the knot. In extracorporeal knotting, the tail end is thrown around it in a pre-fixed configuration to create the loops.
3. **The bight:** This is the part of the suture material between the tail and the standing part. Once the knot is formed, it forms the noose in which the structure to be ligated is ensnared.
4. **Throws:** These are the loops created in the standing part or by turning the tail around the standing part in a pre-fixed manner which define the type of knot. The tail is finally brought out of the throws to create the knot.

Fig. 1a

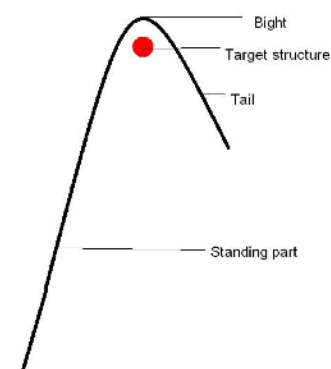
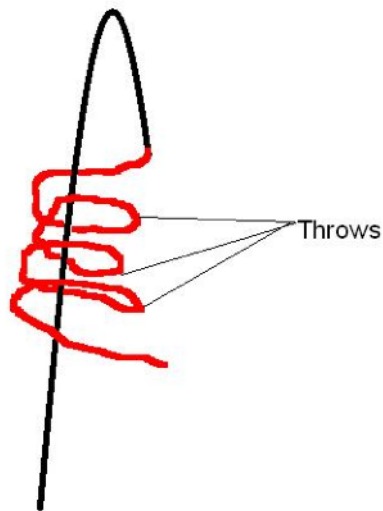


Fig. 1b



### Stages of knotting:

- A. Configuring the knot: The suture material is prepared for creating the knot by adjusting adequate lengths of the tail, the bight and the standing part.
- B. Shaping the knot: the knot is created by turning the tail around the standing part or creating throws in the standing part with an instrument and bringing the tail out of it.
- C. Securing the knot: the knot is tightened onto itself by removing all slack in the throws forming the knot and is cinched down onto the target structure.

### Common knots used in forming complex knots of endoloops and intracorporeal knotting: (Fig 2 a-d)

- i. **Half-knot:** The tail end comes over the bight and the standing part comes under the bight or vice versa.
- ii. **Surgical knot:** Two simultaneous half knots or double half knots. A set of two simultaneous half knots followed by a square knot is also known as a surgeon's knot.
- iii. **Square knot or reef knot:** Two opposite half knots. If, in the first half knot, the tail comes under the bight, in the second half knot, it comes over the bight.

- iv. **Granny knot:** Two identical half knots. In surgery, granny knots are avoided usually as they are less secure than the square knot.

Fig. 2a

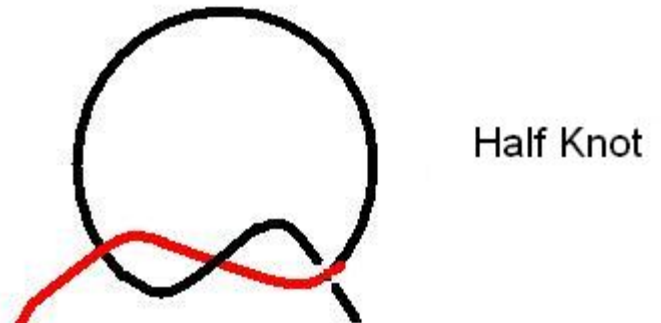


Fig. 2b : Surgical Knot

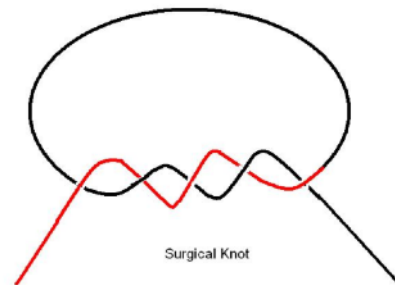


Fig. 2c

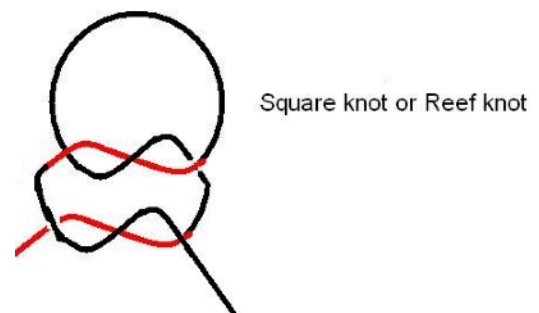
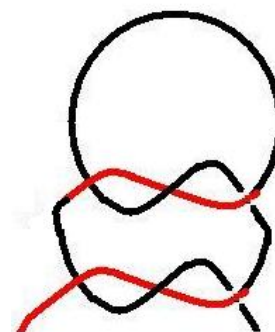


Fig. 2d



The granny knot

**Reverse Slipping:**

When a knot is tightened or cinched down onto its target structure, it is said to have been secured. However, if it slips in the opposite direction, the knot will loosen and it will have failed its purpose. This phenomenon of loosening of the extracorporeal knot is known as reverse slipping. Reverse slipping occurs either due to inappropriate selection of suture material or inappropriate selection of the type of knot.

**Characteristics of an ideal knot:**

1. The knot should be safe and should not reverse slip. Many knots can be easily designed by individual surgeons. However, the simpler the design the more likely is the knot to be insecure and reverse slip, thus failing its functions. Usually, a balance has to be struck between design and security of the knot.
2. It should not be too complicated or time-consuming to form. The knot should be such that it can be easily learnt by the nursing staff so that the surgeon does not have to spend his time in forming the knot but rather the nurse attending the surgery should be able to form the knot and keep it ready for the surgeon to deploy.
3. It should be easy to apply. If the knot is too small, it passes through the aperture of the knot pusher instrument when an attempt is made to cinch it. If it is too bulky and large, there may be difficulty in negotiating it through the trocar as well as in cinching it.
4. It should be easy to secure or cinch. The knot should easily slide down the standing part and cinch around the target tissue. If the knot does not cinch easily, by applying excessive force to the knot pusher, the surgeon is likely to tighten the knot on the standing part itself or fray the suture material.
5. It should be of such design that it can be used for all suture materials. Typically, knots that are more complex require smoother (monofilament) suture material to ensure that they can be cinched while simpler knots

require more friction producing suture material (natural suture material like catgut or polyfilament suture material) to prevent reverse slippage. An ideal balance needs to be struck.

6. After applying the knot, it should retain sufficient strength, i.e., not become loose.

**Instruments and Suture Materials****Instruments:**

Various types of knot pushers are designed. However, for general applicability, it should be readily available and cost-effective. Pre-formed loops in plastic hollow tubular knot-pusher are available commercially. Once such a loop is used, the hollow tubular knot-pusher can be sterilized and re-used. The suture material is passed through the hollow tube and a knot is formed at the other end. However, passing the suture material through the narrow passage of the tubular knot-pusher is a tedious affair. Also one can only use stiffer suture material like polypropylene and chromic catgut to pass it through, that too of 1-0 gauge. Softer material like silk or polyglactin 910 cannot be negotiated through the tube. Moreover, there would be concerns about complete sterilization of the instrument. Under such circumstances, it is better to use one of the commercially available knot-pushers. The advantage is that since they are of stainless steel, they can be easily autoclaved and re-used. Also it is easier to pass the suture material through a short tubular business end and it can be used with all types and sizes of suture material. However, while selecting the suture material, one should take care that it is of such material and size that the knot formed outside the knot-pusher is of larger size than the aperture in the business end of the knot-pusher. Otherwise, if the suture material used is too soft and too thin, on trying to cinch down the knot, the knot slips through the aperture of the knot-pusher in toto and fails its function. Some other knot-pushers have a design incorporating a circular blade which can

be pushed down to cut the standing part once the knot has been cinched.

Since the external diameter of the knot pusher is generally 3 mm, a 5 to 3 mm sleeve reducer will be required while using the knot pusher through a 5 mm trocar and an additional 10 to 5 mm reducer is required if used through a 10 mm trocar.

Photographs of plastic tubular knot pusher and a stainless steel knot pusher

### Suture materials:

#### Properties of a suture material:

1. Tensile strength of the suture material.
2. Biodegradability and breaking strength retention of the suture material
3. Elasticity of the suture material.
4. Ease of handling and knotting.
5. Visibility of the suture material in laparoscopic surgery.

#### Classification of suture materials:

- a. Natural suture materials – plain catgut, chromic catgut, black silk.
- b. Synthetic non-absorbable suture materials – polypropylene, polyamide.
- c. Synthetic absorbable suture materials – polyglactin 910, polydioxanone (PDS).

#### Chromic catgut characteristics:

- Natural, absorbable.
- Ideal for most of the knots.
- Twine texture and rough surface.
- Resistant to reverse slipping.
- Swells on absorption of water and tightens.
- Difficult to cinch with a larger gauge.

#### Characteristics of Polyglactin 910:

- Synthetic absorbable.
- Polyfilament.
- Resistant to reverse slipping, but less so than catgut.

- Easy to cinch with larger gauge.
- Soft material so difficult to handle while forming the knot.
- Delayed absorption.

#### Characteristics of PDS:

- Synthetic absorbable
- Monofilament
- Tends to slip
- Knot security is less
- Stiff material so easier to form the knot
- Easy to cinch as it slides smoothly

#### Characteristics of Polypropylene:

- Synthetic non-absorbable
- Monofilament
- Tends to slip
- Knot security is less
- Stiff material, so easier to form the knot
- Easy to cinch as it slides smoothly

#### Characteristics of Black silk:

- Natural absorbable
- Polyfilament
- Easily available
- Knot security is less as it tends to slip
- Suture tensile strength is less as it breaks easily
- Soft material so difficult to design knot
- Easy to cinch as it slides smoothly

Commonly, chromic catgut and polyglactin 910 are used in constructing the loop.

#### Extracorporeal knots and loops:

Endoloops are useful in applying ligature to vessels and tubular structures, e.g. appendicular stump after laparoscopic appendectomy and to a wide cystic duct. It is also useful in ligating the neck of the hernial sac transected at the internal ring in laparoscopic TEP hernia repair.

Its advantages as compared to intracorporeal suturing and knotting are:

- a. It is stronger than the intracorporeal knot.
- b. It is easier to apply.

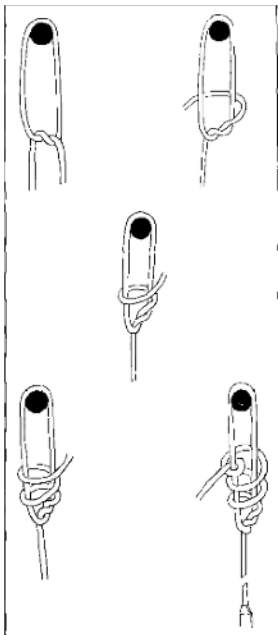
### Characteristics of the ideal extracorporeal knot:

1. It should be safe, i.e., it should not reverse slip
2. Easy to perform (by all).
3. Easy to secure or cinch.
4. Applicable in all types of suture materials.
5. Retain significant holding strength.

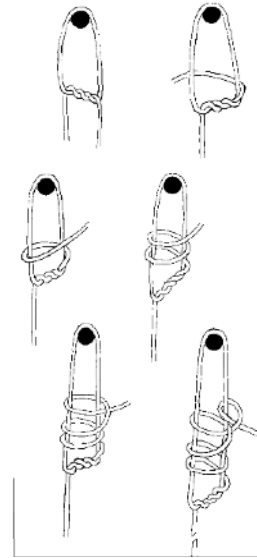
### Preformed loops:

Preformed loops are commercially available . Two variants, one of chromic catgut and one of polyglactin 910 are there. The advantage is their easy availability. The disadvantage is the cost of these preformed loop and their single use.

#### a. Roeder Knot



#### b. Melzer Knot



The Tayside knot, Cross square knot, Blood knot and modified Blood knot are of historical interest only and no longer employed in modern laparoscopic surgery.



# Writing a Scientific paper

## Measuring techniques: Accuracy and Validity

Dr Manu Vats, MBBS, MS, FMAS



Dr Manu Vats

Dr. Manu Vats is a man of mystery. For his designation, he simply likes to put it as working at a Government Institute. Maybe RAW? Or perhaps, ISRO. He looks quite James Bondish too. Being of a philosophical turn, he abhors permanence and thrives on the temporality of existence. His favorite pastime is to bully children out of their Playstations and start gaming, all under the pretext of improving his hand-eye co-ordination. He likes to cook (not very well, apparently), and paints when the mood is upon him. His 'ultimate ambition' is to better himself, both personally and professionally. Well, Manu, if that's your aim, you are in the right company for at AMASI we always strive to better others.

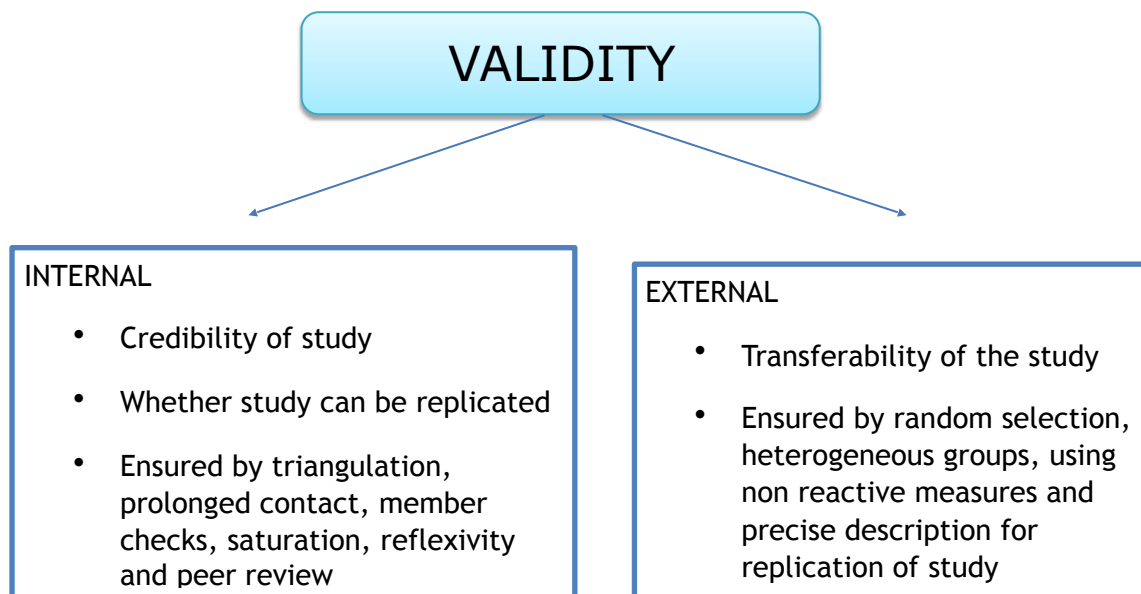
### Introduction

As surgeons, we have all undergone the 'ritual' of successful thesis-writing and submission. Of course, we remember what a difficult 'operation' that was, and what a sense of relief we felt when it got completed. During our residency, the thesis research we did was mandatory and essential for us to become surgeons. Later on, in life, whether we choose to pursue research or not is a different matter. However, most of us have built on those early 'skills' acquired during our residency and do frequently contribute to enrich the scientific world of surgery with our research and discoveries. When the researcher does an experiment (also known as First Hand Investigation), it is imperative that he or she is aware of the measuring techniques of the research for a meticulous analysis of the results, aiding him or her to reach genuine and authentic conclusions. In this segment, we will discuss accuracy and validity as measuring techniques for scientific research.

Accuracy is the term used to describe how close the measured value in a study is, to the actual value. In other words, it is an indicator of the deviation of the observations from the actual or intended value. When this deviation occurs systematically in the study, it is known as 'bias.' Other point aberrations are classified under random deviation or errors. The systematic deviation remains uniform throughout, whereas random deviations will be point errors. The quality of the measuring device or instrument determines the accuracy. Another term, 'precision' comes up when discussing accuracy.

Precision describes the dispersion of the observations from the actual value. Precision is a measure of the reliability or reproducibility of the results. This is usually described by the standard deviation of the probability distribution. Reduction of bias or systematic error increases the validity of the instrument. An instrument has to have sufficient precision in order for it to be valid. Therefore, an accurate instrument must be valid and precise<sup>1</sup>.

Validity denotes the extent to which an instrument measures what it intends to measure. In other words, it signifies how truthful the results are. Validity of a study is a sine qua non for all scientific study designs. For a test to be designated as valid, all variables except for the one being investigated must be kept the same or controlled. The presence of a control group ensures that the variables have been kept constant. Validity has two parts i) internal validity and ii) external validity<sup>2</sup>.



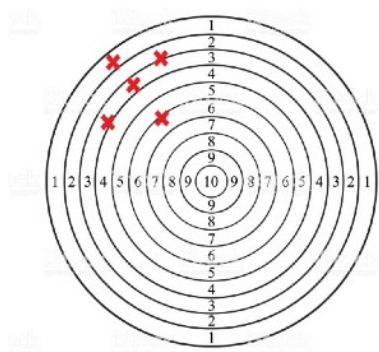
The four types of validity are:

1. Face validity
2. Content validity
3. Construct validity
4. Criterion related validity

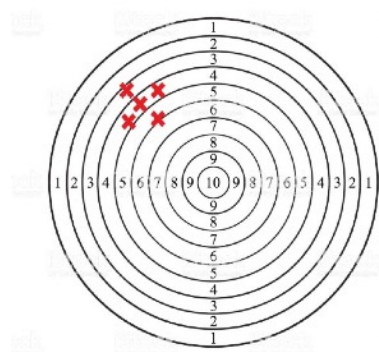
These can be better explained with the help of an example. By using metrics, we can measure the performance and technical skills of surgeons during simulation. The knowledge of the level of performance skill permits the establishment of norms, proficiency target goals for successful training, comparison to colleagues, and an objective standard for certification. Face validity is the expert opinion on whether the metrics used are appropriate to measure the quality of performance of surgical skills being evaluated.

Content validity refers to the extent to which the instrument fully measures the subject. For example, a laparoscopic skill simulator program asking a trainee only to touch their instrument to a specific target will not be considered as having good content validity. Whereas, a program assessing the ability of the trainee to transfer items after precise coaptation of instruments is considered to have good content validity<sup>3,4</sup>. Construct validity refers to the meaningfulness of the instrument when it is in practical use. A hypothetical construct is employed for comparison. Lastly, criterion validity is a test in which there is comparison of measurements in the concerned test and the measurements of the skill in an actual clinical scenario.<sup>4</sup>It is of utmost importance to ensure that a study is designed to be valid.

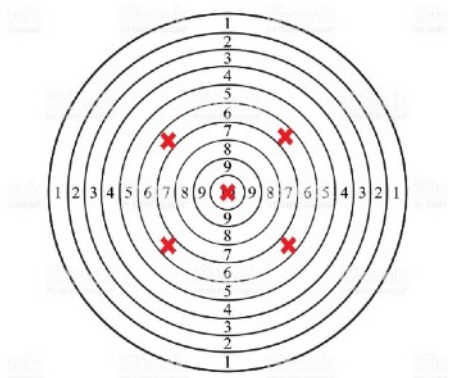
Moving on from the world of statistical definitions, let us visit a 10m air pistol shooting range. There are 4 shooters practising: Shooter A, Shooter B, Shooter C and Shooter D. The following are their shooting target boards:



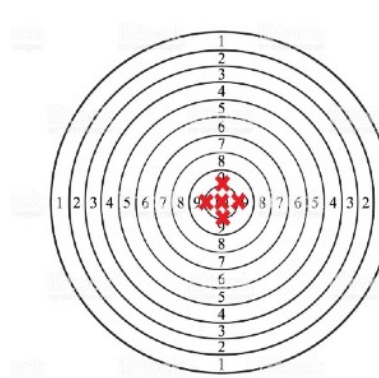
Shooter A: Low validity and low precision



Shooter B: Low validity but high precision



Shooter C: High validity but low precision



Shooter D: High validity and high precision  
(The Best Shooter)

Shooter A or the scientific test A is neither precise (no two results are close to each other) nor are they valid, since they are not near the centre (that is the intended target).

Shooter B or the scientific test B is precise (the results are in close proximity to each other); however their validity is low.

Shooter C or the scientific test C has low precision but high validity.

Shooter D or the scientific test D is high in both precision and validity<sup>1</sup>.

I would like to conclude this segment by putting forward a few questions concerning accuracy and validity, which every investigator must answer before initiating a scientific study.

1. Is the instrument sensitive enough to measure the changes I intend to measure?
2. Does this procedure actually test the hypothesis?
3. Have I identified and controlled all the variables except the one which is intended to be measured?
4. Is a control group required?
5. Is the sample size adequate?

After the test is done and results are analysed, one should be ready to answer the following questions:

1. Has the instrument been used correctly?
2. Has the data been recorded accurately enough?
3. Have I tested with repetition (to ensure reliability)?
4. Were there any factors which could not be controlled and may have affected the results?
5. Are the results accurate and reliable?

## References

1. Mohajan HK. Two criteria for good measurements in research: Validity and reliability. *Annals of "SpiruHaret". Economic Series*. 2017 Oct 1;17(4):59.
2. Beauchamp RD, Evers BM, Mattox KL, Townsend CM. *Sabiston textbook of surgery E-book*. Saunders; 2012.
3. Jonas Ranstam (2008) Methodological Note: Accuracy, precision, and validity, *Acta Radiologica*, 49:1, 105-106
4. Bolarinwa OA. Principles and methods of validity and reliability testing of questionnaires used in social and health science researches. *Niger Postgrad Med J* 2015;22:195-201.

## Special Article

### **Learning and teaching minimal access surgery; living through a learning curve**



**Prof Kuda B Galketiya** MBBS MS FRCS FCSSL FMAS

Professor in Surgery, Faculty of medicine, University of Peradeniya, Sri Lanka

Consultant Surgeon, Teaching Hospital, Peradeniya

Trainer and Examiner, Post Graduate Institute of Medicine, University of Colombo

I presented the above oration on the 7<sup>th</sup> of February 2020 (Bibile memorial oration 2020-Kandy society of medicine Sri Lanka) in which I discussed the pathway I came through to learn a wide range of laparoscopic and thoracoscopic surgeries and my contributions to train surgical post graduates.

In this, I paid my honors to Prof C Palanivelu as my chief mentor. In year 2000, when laparoscopic cholecystectomies were just beginning in Sri Lanka, I participated for a workshop at Sri Jayawardanapura Hospital, Sri Lanka where Prof. Palanivelu operated as the single resource person. He tirelessly demonstrated a wide range of laparoscopic surgeries in one day. I was impressed and decided to follow his foot steps. In 2003, when I was in Bangalore for a fellowship through College of Surgeons of Sri Lanka, I was delighted to see the Atlas in laparoscopic surgery written by Prof Palanivelu. I have not come across a better book than this for one to learn laparoscopy. This volume became my Guru for my progress in laparoscopy and thoracoscopy.

In 2017, a team of eminent surgeons led by Prof C Palanivelu visited Teaching Hospital of the Faculty of Medicine, University of Peradeniya, Sri Lanka. This was on invitation by Prof. M D Lamawansa, President, College of Surgeons of Sri Lanka. A two day live surgery workshop was conducted, which was attended by surgeons from all corners of the country because of the respect Prof. Palanivelu had earned in our country. For me in particular, it was a memorable day for my mentor to come and operate at our hospital.

With a memorandum of understanding, we hosted the Skills course and Fellowship examination of the prestigious Association of Minimal Access Surgeons of India (AMASI) for three consecutive years since 2017. Since 2018, we have successfully conducted lectures and examinations online in order to reduce the cost while providing the benefit to the candidates. So far over fifty of Sri Lankan surgeons qualified to become fellows of the AMASI. Each year, all who won the fellowship travelled to India to participate for the mega event, the annual congress of AMASI. All of us who attended AMASICONs learnt a lot from the academic program and live surgeries and enjoyed the hospitality. Becoming a fellow of AMASI is a portal of entry for further learning and we have planned for live transmissions of surgery from India to Sri Lanka for the benefit of the fellows and post graduate trainees, the future fellows of AMASI.

The following surgeons have visited us to conduct the program.

Initial workshop in 2017

Prof C Palanivelu, Dr Tamonas Chaudhuri, Dr Dilip Gode, Dr C J Varghese,  
Dr Jugindra Sokhaibam, Dr D Senthilnathan

FMAS 2017

Dr Jugindra Sokhaibam, Dr Deborshi Sharma, Dr Kalpesh Jani, Dr Ishwar Hosamani,  
Dr Laxshman Sastry

FMAS 2018

Dr Abhay Narendran Dalvi, Dr Ramaesh Ardhanari, Dr Praba Om, Dr Roshan Shetty,  
Dr P P Rao

FMAS 2019

Dr Rajendra Mandia

In 2018 and particularly 2019 many lectures were on line as well as online MCQ with candidates receiving marks immediately.

## Prashna India

Dr VK Kapoor, Professor of Surgical Gastroenterology at SGPGIMS Lucknow, a member of AMASI, has launched a FREE online education portal - Prashna India - where students/surgeons can ask (post) their questions. The questions are answered by experts in respective topics/ areas and the answers are posted online.

In the last 5 years, more than 300 students/ surgeons from all parts of India have asked more than 700 questions which have been answered by more than 70 experts from India as well as abroad. These questions and answers are available on Prashna India website for free.

Prashna India also conducts live online case presentations/ discussions and open-house question-answer sessions called Ru-Ba-Ru. More than 25 such sessions have been conducted so far with a maximum of 44 students from 22 centers attending one such session. Audio recordings of these sessions are available on request. Videos of last two Ru-Ba-Ru sessions are available to view on Facebook site of Prashna India 29th January and 3rd February 2019.

Prashna India can be visited at <http://prashna-india.weebly.com/>

# Journal Watch

Article Reviewed:

## **Early recognition of clinically relevant postoperative pancreatic fistula: a systematic review.**

Smits FJ, Molenaar IQ, Besselink MG, Borel Rinkes IHM, van Eijck CHJ, Busch OR, van Santvoort HC; Dutch Pancreatic Cancer Group.

HPB (Oxford). 2020 Jan;22(1):1-11. doi: 10.1016/j.hpb.2019.07.005

### **Analysis: (To be paraphrased from the article)**

**Introduction:** Post-operative pancreatic fistula which are clinically relevant (POPF) occur in about 12% of cases following pancreaticoduodenectomy. They are one of the major causes of post-operative morbidity and mortality following this surgery. Hence, it is imperative that they should be recognised early so that their management may be optimized and standardized.

**Objectives:** To systematically review the literature on the clinical, biochemical and radiological variables associated with early identification of clinically relevant POPF.

**Recommendations:** Since, clinically relevant POPF appear after POD3, the study focused on variables measured then. The variables found to be significantly associated with clinically relevant postoperative pancreatic fistula were:

1. A non-serous drain output
2. Positive drain culture
3. Elevated temperature or CRP or WBC. Due to the heterogeneity that can be expected in individual CRP levels, measuring the rise of CRP levels on consecutive postoperative days after the third postoperative day may be more accurate.
4. Peripancreatic collections on abdominal CT scan
5. Early elevation in amylase in serum or drain fluid.

**Conclusion:** While there are several systematic reviews on predicting the likelihood of developing POPF, literature is lacking on early diagnosis of this potentially catastrophic complication. Based on this review, an algorithm was developed, to be implemented nationwide in Netherlands in a randomized trial (PORSCH trial) to evaluate its accuracy.

### **Review: (this should be the reviewer's opinion):**

**Commentary:** The authors' have carried out a systematic review on the variables which can help in early identification of clinically relevant POPF so that its management can be optimized.

**Limitation:**

- (a) The studies included in the systematic review (an indeed available in literature) are widely heterogenous, thus pre-empting a meta-analysis.
- (b) The tests were not externally validated. Hence, while the variables impacting the early diagnosis of POPF could be identified, their cut-off values and the ideal point of time of their measurement could not be determined.
- (c) Moreover, the studies included different types of pancreatic resections and so factors affecting a particular pancreatic resection could not be isolated.
- (d) Several studies dealt only with high-risk patients leading to spectrum bias.
- (e) Verification bias was also not neutralized in several of the studies.

**Takeaway Point:**

While this systematic review has several limitation, it is an important one, as it helped to identify 5 clinical, biochemical and radiological parameters that could help in early identification of the clinically relevant POPF. It formed the basis for the algorithm that is being evaluated in the ongoing PORSCH trial, whose results should be interesting and impacting the practice of post-operative management of patients undergoing pancreatic resections.



## Upcoming Events

Event	Venue	Date	Organizer
FMAS Skill Course & Examination	Chandigarh	POSTPONED	Dr. Rajiv Sharma
FMAS Skill Course & Examination	Mangaluru	12 <sup>th</sup> - 14 <sup>th</sup> June, 2020	Dr. Roshan Shetty
FMAS Skill Course & Examination	Srinagar	26 <sup>th</sup> - 28 <sup>th</sup> June, 2020	Dr. Mushtaq Chakloo
Endoscopy Training Workshop followed by FMAS Skill Course & Examination	Raipur	2 <sup>nd</sup> - 5 <sup>th</sup> July, 2020	Dr. Devendra Naik
CME - 'Safety in Surgical Practice'	Kolkata	8 <sup>th</sup> , 9 <sup>th</sup> July, 2020	Dr. Om Tantia/ Dr. Tamonas Chaudhri
FMAS Skill Course & Examination	Delhi	7 <sup>th</sup> - 9 <sup>th</sup> August, 2020	Dr. Rajinder Parshad
AMASICON2020	New Delhi	1 <sup>st</sup> - 4 <sup>th</sup> October, 2020	Dr. Deborshi Sharma

# Past Events

AMASI Rural Surgical Camp 2020.  
14th February 2020, Midnapore



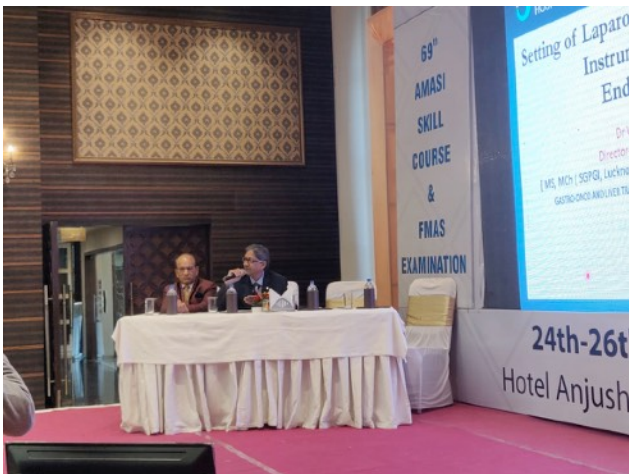
AMASI Rural Surgical Camp 2020.  
14th February 2020, Himalkasa



68th AMASI Skill Course  
3-5th January 2020, Rajkot



69th AMASI Skill Course  
24-26th January 2020, Ujjain (M.P)



70th AMASI Skill Course  
21-23rd February 2020, Pune



71st AMASI Skill Course  
28th February-1st March 2020, Kolkata





FIRST ANNOUNCEMENT



# AMASICON 2020

15<sup>th</sup> International Congress of the  
Association of Minimal  
Access Surgeons of India  
New Delhi  
[www.amasicon2020.com](http://www.amasicon2020.com)

**Theme :**  
Minimal Access Surgery -  
Past, Present & Future

**Venue:**  
The Leela Ambience Convention Hotel, New Delhi

**Dates:** 1st to 4th October 2020



## AMASI

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