SYLLABUS

SUTR-706:
No Suture, No Surgery!
Samurai “Goemon” Techniques to Master Laparoscopic Suturing

AAGL acknowledges that it has received educational grants from the following companies:
Applied Medical Resources Corporation, ETHICON, Intuitive Surgical, KARL STORZ Endoscopy-America, Inc.

AAGL acknowledges that it has received in-kind support from the following companies:

Be a Surgical “Multiplier” in MIGS
Inspire Brilliance Through Teamwork

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Professional Education Information

Target Audience
This educational activity is developed to meet the needs of surgical gynecologists in practice and in training, as well as other healthcare professionals in the field of gynecology.

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The AAGL designates this live activity for a maximum of 3.75 AMA PRA Category 1 Credit(s)™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

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As a provider accredited by the Accreditation Council for Continuing Medical Education, AAGL must ensure balance, independence, and objectivity in all CME activities to promote improvements in health care and not proprietary interests of a commercial interest. The provider controls all decisions related to identification of CME needs, determination of educational objectives, selection and presentation of content, selection of all persons and organizations that will be in a position to control the content, selection of educational methods, and evaluation of the activity. Course chairs, planning committee members, presenters, authors, moderators, panel members, and others in a position to control the content of this activity are required to disclose relevant financial relationships with commercial interests related to the subject matter of this educational activity. Learners are able to assess the potential for commercial bias in information when complete disclosure, resolution of conflicts of interest, and acknowledgment of commercial support are provided prior to the activity. Informed learners are the final safeguards in assuring that a CME activity is independent from commercial support. We believe this mechanism contributes to the transparency and accountability of CME.

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AAGL encourages its members to interact with each other for the purposes of professional development and scholarly interchange so that all members may learn, network, and enjoy the company of colleagues in a professional atmosphere. Consequently, it is the policy of the AAGL to provide an environment free from all forms of discrimination, harassment, and retaliation to its members and guests at all regional educational meetings or courses, the annual global congress (i.e. annual meeting), and AAGL-hosted social events (AAGL sponsored activities). Every individual associated with the AAGL has a duty to maintain this environment free of harassment and intimidation.

AAGL encourages reporting all perceived incidents of harassment, discrimination, or retaliation. Any individual covered by this policy who believes that he or she has been subjected to such an inappropriate incident has two (2) options for reporting:

1. By toll free phone to AAGL’s confidential 3rd party hotline: (833) 995-AAGL (2245) during the AAGL Annual or Regional Meetings.
2. By email or phone to: The Executive Director, Linda Michels, at lmichels@aagl.org or (714) 503-6200.

All persons who witness potential harassment, discrimination, or other harmful behavior during AAGL sponsored activities may report the incident and be proactive in helping to mitigate or avoid that harm and to alert appropriate authorities if someone is in imminent physical danger.

For more information or to view the policy please go to:
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**SUTR-706: Didactic/Simulation Lab: No Suture, No Surgery!**  
**Samurai “Goemon” Techniques to Master Laparoscopic Sutting**

**Co-Chair:** Nichole Mahnert, Akira Shirane  
**Faculty:** Andrea G. Aguirre, Tomonori Hada, Yoichiro Hamasaki, Fuyuki Ichikawa, Ryuji Kojima, Courtney S. Lim, Janelle K. Moulder, J. Biba Nijjar, Adeoti E. Oshinowo, Keisuke Oyama, Jasmine Pedroso, Shintaro Sakate, Mari Sawada, Lauren D. Schiff, Terumi Shirane

The ABOG MOC standards now allow participation in ABOG-approved Simulation Courses to meet the annual Improvement in Medical Practice (Part IV) MOC requirement. This course has been approved to meet ABOG Improvement in Medical Practice requirements until 12/31/2020.

**Course Description**

This course provides an overview of multiple approaches to master laparoscopic suturing. We will review laparoscopic suturing fundamentals that include trocar placement, introduction of the needle into the abdomen, and needle handling. We will discuss the benefits of various approaches to efficiently and effectively perform an intracorporeal knot. The “Kurashiki” method will be highlighted, which simplifies laparoscopic suturing to make it successful, smooth, and fun. These principles will then be applied to individual scenarios for laparoscopic suturing, such as vaginal cuff closure, uterosacral suspension, myomectomy, and repair of vessel, ureter, bladder, and bowel injuries. Videos will be used to demonstrate techniques. Most importantly this course will include multiple opportunities for hands-on practice with laparoscopic and robotic platforms.

**Course Objectives**

At the conclusion of this activity, the participant will be able to: 1) Apply and master various knot-tying techniques; 2) demonstrate suturing techniques on different tissues with precision; and 3) work with colleagues and trainees to apply tips and tricks to suture laparoscopically.

**Course Outline**

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<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Presenter(s)</th>
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<tr>
<td>7:00</td>
<td>Welcome, Introductions, and Course Overview</td>
<td>N. Mahnert, A. Shirane</td>
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<tr>
<td>7:05</td>
<td>Trocar Placement and Needle Loading</td>
<td>N. Mahnert</td>
</tr>
<tr>
<td>7:10</td>
<td>Dancing Needle and Perfect Thread Control</td>
<td>T. Hada</td>
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<td></td>
<td>• Hands-on and time trial</td>
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<tr>
<td>7:45</td>
<td>Funky Surgeon Knot: Cuff Closure and McCall’s Culdeplasty</td>
<td>T. Shirane</td>
</tr>
<tr>
<td></td>
<td>• Hands-on, Tasks and Time Trial</td>
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<tr>
<td>8:15</td>
<td>Robotic Suturing</td>
<td>A.G. Aguirre</td>
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<tr>
<td></td>
<td>• Hands-on, Tasks and Time Trial</td>
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<tr>
<td>9:00</td>
<td>Break</td>
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<tr>
<td>9:15</td>
<td>Cool! Pushing and Sliding Knot</td>
<td>S. Sakate</td>
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<td>Repair and Reconstruction of Damaged Organs: Ureteral Anastomosis</td>
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<td>10:25</td>
<td>High Speed Continuous Suturing—Myomectomy and Cuff Closure</td>
<td>F. Ichikawa</td>
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<td>• Hands-on, Tasks and Time Trial</td>
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<tr>
<td>10:55</td>
<td>Incorporate Daily Training into Your Busy Practice Questions &amp; Answers</td>
<td>All Faculty</td>
</tr>
<tr>
<td>11:00</td>
<td>Adjourn</td>
<td></td>
</tr>
</tbody>
</table>
PLANNER DISCLOSURE
The following members of AAGL have been involved in the educational planning of this workshop (listed in alphabetical order by last name).
Art Arellano, Professional Education Director, AAGL*
Linda D. Bradley, Medical Director, AAGL*
Erin T. Carey
Consultant: MedIQ
Mark W. Dassel
Contracted Research: Myovant Sciences
Erica Dun*
Adi Katz*
Nichole Mahnert*
Linda Michels, Executive Director, AAGL*
Erinn M. Myers
Speakers Bureau: Laborie Medical Technologies, Teleflex Medical
Other: Unrestricted educational grant to support NC FPMRS Fellow Cadaver Lab: Boston Scientific Corp. Inc.
Amy Park*
Grace Phan, Professional Education Specialist, AAGL*
Akira Shirane*
Harold Y. Wu*
Linda C. Yang
Other: Ownership Interest: KLAAS LLC

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Matthew T. Siedhoff
Consultant: Applied Medical, Caldera Medical, CooperSurgical, Olympus
Amanda C. Yunker
Consultant: Olympus
Linda Michels, Executive Director, AAGL*

FACULTY DISCLOSURE
The following have agreed to provide verbal disclosure of their relationships prior to their presentations. They have also agreed to support their presentations and clinical recommendations with the “best available evidence” from medical literature (in alphabetical order by last name).
Andrea G. Aguirre*
Tomonori Hada*
Yoichiro Hamasaki*
Fuyuki Ichikawa*
Ryuji Kojima*
Courtney S. Lim*
Nichole Mahnert*
Janelle K. Moulder
Consultant: Hologic
J. Biba Nijjar*
Adeoti E. Oshinowo*
Keisuke Oyama *
Jasmine Pedroso*
Shintaro Sakate*
Mari Sawada*
Lauren D. Schiff*
Akira Shirane*
Terumi Shirane*

Content Reviewer has nothing to disclose.

Asterisk (*) denotes no financial relationships to disclose.
Objective

- Discuss and perform the 5 steps of holding a needle for suturing

Two major trocar placement styles in Japan

Modified Diamond

Ipsilateral

Needle Loading

- Holding the needle has 5 steps. Today, I show fundamental holding technique.

- Background-
  - Right hand; needle holder.
  - Left hand; maryland dissector.
5 Steps of holding the needle

1; Hold the string near the needle by the right hand
2; Hold the needle by the left hand
3; Turn the needle (dancing needle technique)
4; Fine adjustment (has 3 types)
5; Hold the needle by the right hand
Basic ①
Standing position is important

Stand just the same as YOUR operation

Basic ②
Parallelize the long tail and needle holder
(Stand the string)

Long tail

→ Short tail

Basic ③
Perform near the suturing point

Perform near the suturing point

Basic ④
Right : Piston
Left : Rotation

Right hand : Piston motion
Left hand : Rotation motion

Basic ⑤
Right hand-only training

Twist the string around the needle holder
(use piston and rotation motion)

Basic ⑥
Left hand-only training

Rotation motion is difficult
and needs training
You Tube

There are some movies for laparoscopic training. Search Words “Laparo Hada”

SUTR-706: Didactic Simulation Lab
No suture, No surgery!
Samurai "Gyosan" Techniques
to master laparoscopic suturing
Funky Surgeon Knot: Cuff Closure and McCall’s Culdeplasty

Terumi Shirane M.D.
Kurashiki Medical Center
Department of Obstetrics and Gynecology

Objective
- Apply the basic surgeon’s knot
- Study various surgeon knot techniques:
  - Funky Seven Techniques
- Apply to clinical practices:
  - Cuff Closure and McCall’s Culdeplasty

Master The Basic Surgeon’s Knot

Camera
10mm
5mm 5mm 5mm

(our style)

Master The Basic Surgeon’s Knot

Two Way Player
In Laparoscopic Surgery?

- You can suture by both your dominant and non-dominant hand equally.
- You can perform two-handed coordination.

Disclosure
I have no financial relationships to disclose.
Master The Basic Surgeon’s Knot

Record of the movement of forceps in the dry box

The trajectory of forceps shows below:
- Near the ligation point (especially left hand).
- By the combination of regular movements.

Study various surgeon’s knot techniques: funky seven techniques

What is the most difficult point of surgeon’s knot?

Making double half knot smoothly.

Let me show you seven surgeon’s knot techniques, dedicated to making double half knot.

#1 Thumbs Up
#2 Give Me Some More
#3 Barber King
#4 Funky Fishing
#5 Moonwalk
#6 Screw Driver
#7 Twisting The Night Away

Apply to clinical practices: cuff closure and McCall’s culdeplasty

The Practice Is For Actual Surgery.

Finally, I show you the way of cuff closure and McCall’s culdeplasty of total laparoscopic hysterectomy in our institute.
Apply to clinical practices: cuff closure and McCall’s culdeplasty

Vaginal cuff closure

McCall’s culdeplasty

unabsorbed suture

1 2 3 4 5 6 7

This Lecture’s Task and Time Trial

- You suture a vaginal cuff model and make a surgeon’s knot at any two points with 0-Vicryl (CT-1 needle) suture cut to 25cm.

- You should make one by the basic way, and another with one of any seven funky techniques.
Robotic Suturing
Andrea Aguirre
The University of Arizona
College of Medicine – Tucson

Disclosure
I have no financial relationships to disclose

Objectives
• Compare and contrast instruments and sutures used for various forms of robotic suturing.
• Demonstrate various strategies for vaginal cuff closure.
• Discuss surgical strategies to help facilitate efficient suturing.

Consideration when suturing robotically:
• 3 vs 4 arm technique.
• Instruments.
• Type of suture.
• Bedside assist with or without port.
• Needle introduction/retrieval plan.

Instruments: needle drivers.

Instruments: Graspers

<table>
<thead>
<tr>
<th>ProGrasp Forceps</th>
<th>De Vinci XI X</th>
<th>10 Uses</th>
<th>Port #</th>
<th>400005</th>
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<table>
<thead>
<tr>
<th>Maryland Bipolar Forceps</th>
<th>De Vinci XI X</th>
<th>10 Uses</th>
<th>Port #</th>
<th>400005</th>
</tr>
</thead>
</table>
Suture
• Barbed vs Braided
  – Cost – Barbed suture is more expensive
  – More knots = more weak points.
  – Absorption time/Tensile strength retention 28 days vs 90-180 days.
• No difference in time, or complication rates in RCT’s.

Vaginal cuff closure
• Dehiscence:
  – Ranges from 0.14% - 4.1 % depending on study.
• Evisceration:
  – Ranges from 0.032% - 1.2% depending on study.
• Rates of complication vary depending on:
  – Mode of hysterectomy.
  – Surgeon experience.
  – Patient factors.

Rules for vaginal cuff closure:
1. Identify pubo-cervical fascia at time of bladder flap dissection.
2. Perform sufficient bladder dissection to provide space for bites.
3. Use minimal amount of electrosurgery during colpotomy.
4. Incorporate mucosa in all bites.
5. Bites should be no more than 5 mm apart.
6. Depth of bite should be no less than 5 mm.
7. Incorporate uterosacral ligaments at both corners for apical support.

Bladder dissection

Single layer closure with 3 arms and vicryl:

Double layer closure, 3 arms, barbed suture:
Suturing the Uterus:

- Rupture rates low after minimally invasive myomectomy (1.2%)
- Needle and suture retrieval facilitated with gel port.

Uterine closure after removal of interstitial ectopic:

Thank You

Sources

Cool! Pushing and Sliding Knot

Shintaro Sakate, M.D.
Kurashiki Medical Center, Japan

Objective

- Discuss and apply the Sliding Knot Techniques

Sliding Knot Techniques

【Pushing】
1. Make a square knot.
2. Release the lock of the knot by a dissector.
3. Slide the knot to the ligation point and secure the tissues.

【One hand slip knot】
1. Make a square knot not to be locked.
2. Pull the long tail toward the cannula without tightening the knot.
   ⇒ A third single-wrap throw or tightening the knot (re-converting) are needed.

Disclosure

"I have no financial relationships to disclose"

Shintaro Sakate
Kurashiki Medical Center, Japan
Sliding Knot Techniques

- Which is the dominant hand?
- Make a non-dominant hand closer to dominant hand, in a word “ambidexterity”.

Orizuru Training

- Folding an origami crane by laparoscopy

Sliding Knot Techniques

- Hands-on, Tasks and Time Trial
  - Suture a Yellow Suturing Pad 3 times by Sliding Knot using a 0-Vicryl on CT-1 needle cut to 30cm.
  - Time is measured from the moment the needle is loaded to needle holder to when the third suture is cut.

References

Types of Urinary Tract Reconstruction

- Ureterocystostomy
  - Psoas Hitch
  - Boari Flap
  - End to end anastomosis

Indications of Urinary Tract Reconstruction

- Invasion or Metastasis of Cancer
- Infiltration of Endometriosis
- Injured ureter

Objective

Discuss the indications and types of urinary tract reconstruction.

“Higher suturing techniques expand indications of laparoscopic surgeries.”
“These techniques reduce and resolve complications.”

SUTR-706: Didactic /Simulation Lab Co-chair
Kurashiki Medical Center Director
Akira Shirane PhD

Disclosure

I have no financial relationships to disclose.
Types of Urinary Tract Reconstruction

- Ureterocystostomy
- Psoas Hitch
- Boari Flap
- End to end anastomosis
Objective

Through this section, you will be better able to:

- Describe the points of “high-speed” suturing.
- Develop effective dry-lab training.
- Apply laparoscopic continuous suturing skills.

Why training?

You need not special skills but basic ones to do suturing.
Suturing is combination of **basic skills**

- Holding a needle
- Placing a needle
- Pulling a thread
- Knot tying

Special skills are **unnecessary**.
There are **no shortcuts** to be good at suturing.

### Tips of continuous suturing

One of the points of "high-speed" suturing is...

- **Rhythm by left hand** (non-dominant hand)

### Key words

**Pick & Pull**

**Grab & Fix**
Vaginal cuff closure (Total laparoscopic hysterectomy)

Suturing by Prof. Andou

Reference (images)

- [https://www.sparklebox.co.uk/3081-3090/sb3090.html](https://www.sparklebox.co.uk/3081-3090/sb3090.html)
CULTURAL AND LINGUISTIC COMPETENCY

Governor Arnold Schwarzenegger signed into law AB 1195 (eff. 7/1/06) requiring local CME providers, such as the AAGL, to assist in enhancing the cultural and linguistic competency of California’s physicians (researchers and doctors without patient contact are exempt). This mandate follows the federal Civil Rights Act of 1964, Executive Order 13166 (2000) and the Dymally-Alatorre Bilingual Services Act (1973), all of which recognize, as confirmed by the US Census Bureau, that substantial numbers of patients possess limited English proficiency (LEP).

California Business & Professions Code §2190.1(c)(3) requires a review and explanation of the laws identified above so as to fulfill AAGL’s obligations pursuant to California law. Additional guidance is provided by the Institute for Medical Quality at http://www.imq.org

Title VI of the Civil Rights Act of 1964 prohibits recipients of federal financial assistance from discriminating against or otherwise excluding individuals on the basis of race, color, or national origin in any of their activities. In 1974, the US Supreme Court recognized LEP individuals as potential victims of national origin discrimination. In all situations, federal agencies are required to assess the number or proportion of LEP individuals in the eligible service population, the frequency with which they come into contact with the program, the importance of the services, and the resources available to the recipient, including the mix of oral and written language services. Additional details may be found in the Department of Justice Policy Guidance Document: Enforcement of Title VI of the Civil Rights Act of 1964 http://www.usdoj.gov/crt/cor/pubs.htm.

Executive Order 13166,”Improving Access to Services for Persons with Limited English Proficiency”, signed by the President on August 11, 2000 http://www.usdoj.gov/crt/cor/13166.htm was the genesis of the Guidance Document mentioned above. The Executive Order requires all federal agencies, including those which provide federal financial assistance, to examine the services they provide, identify any need for services to LEP individuals, and develop and implement a system to provide those services so LEP persons can have meaningful access.

Dymally-Alatorre Bilingual Services Act (California Government Code §7290 et seq.) requires every California state agency which either provides information to, or has contact with, the public to provide bilingual interpreters as well as translated materials explaining those services whenever the local agency serves LEP members of a group whose numbers exceed 5% of the general population.

If you add staff to assist with LEP patients, confirm their translation skills, not just their language skills. A 2007 Northern California study from Sutter Health confirmed that being bilingual does not guarantee competence as a medical interpreter. http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=2078538.