

AS29-6

## Hands-on training system for laparoscopic ventral hernia repair using newly developed training box and porcine model

Hitoshi Idani<sup>1</sup>, Yoshiyuki Omomo<sup>2</sup>, Kenichi Wada<sup>2</sup>, Suma Nakagaki<sup>2</sup>, Sumio Matsumoto<sup>3</sup>

<sup>1</sup>Department of Surgery, Hiroshima City Hiroshima Citizens Hospital, Japan

<sup>2</sup>Professional Affairs and Clinical Education, Covidien Japan Inc., Japan

<sup>3</sup>Department of Surgery, National Hospital Organization Tokyo Medical Center, Japan

Laparoscopic ventral hernia repair (LVHR) has recently been introduced. However, its training system has not yet been established. We have started a new Hands-on training course using newly developed training box and porcine model for LVHR in 2005. Training box is covered with a double layer seat. The outer layer is made of silicon sponge and the inner layer is made of polyethylene foam with a defect of 2cm in diameter. This model was used for training for IPOM. In a porcine model, a 5cm of laparotomy was made near the umbilicus and only the skin was closed. This animal model was used for IPOM with or without defect closure. We prepared two Hands-on courses, one day course using the training box and two day course using the training box and the animal model performed concomitantly with a laparoscopic inguinal hernia repair, which was named "Master Class".

In the Master Class, all trainees had lectures for TAPP, TEP and LVHR and had Hands-on box training for TAPP and LVHR in the first day. In the second day, Hands-on training for TAPP, TEP and LVHR was performed. From 2005 to 2015, more than 200 trainees attended our training course. 75% of participants evaluated this course as excellent or good. And all participants considered introducing LVHR. This new training system is effective for safe introducing LVHR.

AS30-1

## Lichtenstein repair of indirect inguinal hernias with acellular tissue matrix grafts in adolescents and young adult patients (13 to 45 years old)

Ying-mo Shen, Shuo Yang, Jie Chen

Department of hernia and abdominal surgery, Beijing Chao-Yang Hospital, Capital Medical University, China

**Objective:** To evaluate the outcomes of Lichtenstein hernioplasty using acellular tissue matrix (ACTM) grafts in adolescents and young adult patients (13 to 45 years old).

**Methods:** In this study, 317 patients, 13 to 45 years old, with primary unilateral indirect inguinal hernias, received Lichtenstein hernioplasty using ACTM mesh (ThormalGEN<sup>®</sup> thoracic surgical graft produced by Grandhope Biotech Co., Ltd., bovine pericardium tissue graft, Guangzhou, China). The outcome measures were the length of the operation, postoperative visual analogue scale (VAS) pain score, length of hospitalization, postoperative complications and recurrence rate.

**Results:** The operative time was (31.2±5.8) min and the length of hospitalization was (1.4±0.7) d. The minimum follow-up was 24 months, there were 2 postoperative wound infections (0.6%) and fully recovered by change of dressing for 1 month; there were no chronic postoperative pain (visual analogue score > 4, lasted 3 months) or local foreign body sensation occurred; 13 patients (4.1%) developed scrotal hydroceles and recovered by the scrotal puncturation. There were no recurrences and other complications.

**Conclusions:** Lichtenstein hernioplasty using ACTM grafts is a safe and available treatment in adolescents and young adult patients (13 to 45 years old).

AS30-2

## Utility of laparoscopic percutaneous extraperitoneal closure for young adult patients with indirect hernia

Shunsuke Tamura, Shinichiro Ushida, Hirotaka Yamamoto, Yuichiro Miyaki, Eiji Miyazaki, Kazuhumi Suzuki

Department of Surgery, Seirei Hamamatsu General Hospital, Japan

Laparoscopic percutaneous extraperitoneal closure (LPEC) is a common technique for indirect hernia repair in infants, whereas tension free technique is conventionally performed for indirect hernia in adult. The most common cause of indirect hernia in infants is patent processus vaginalis. Since the mechanism of indirect hernia in young adult (between ages 16 to 30) is similar to that of infants, we hypothesize that LPEC can be applied for indirect hernia in young adults. Between 2009 and 2016 we performed LPEC for 13 young adult patients, 7 men and 6 women. 4 patients had left indirect hernia, 6 patients had right inguinal hernia, and 3 patients had bilateral hernia. The results were satisfactory, with average operation time of 34.7 and 44 minutes for unilateral and bilateral cases, respectively, with no postoperative recurrence. In addition, with LPEC, the risk of spermatic cord stenosis, a rare complication of conventional tension free technique, can be avoided, intraabdominal observation with laparoscopy allows diagnosis of occult hernia, and smaller incision with less postoperative pain can lead to improved patient satisfaction.

In conclusion, LPEC is justified for indirect hernia in young adults.

AS30-3

## Long-term outcomes of groin hernia repair in octogenarians and nonagenarians: the French "club hernie" database results

MARC SOLER<sup>1</sup>, Jean Francois Gillion<sup>2</sup>, All the Members of the Club Hernie<sup>3</sup>

<sup>1</sup>Department of Parietal Surgery, Clinique Saint Jean, France

<sup>2</sup>Department of Visceral Surgery, Hopital Prive D'antony, France

<sup>3</sup>Parietal Surgery, Club Hernie, France

The French Surgeons of the Hernia-Club have gathered their patients' data from their patients since 2011. The input are anonymous, exhaustive, registered in real time, before the outcomes are known, and every participant consents to random controls of their data.

From September 1st 2011 to April 15th, 2016, 14,254 groin hernias in 12,089 patients (18-101 years old) have been operated on including:

-10,287 patients [18-79 years old] in the 'young' group.

-1,504 patients [80-89 years old] in the octogenarians' group

-289 patients [90-101 years old] in the nonagenarians' (and more) group.

**Results:** The Female rate is increasing with the age. There were more unilateral, lateral, femoral hernias with the age. There were less laparoscopic procedure with the age. Post-operative pain at 8, 30, [90-180] days and 2 years decrease with the age. The rate in an ambulatory setting is decreasing with the age.

About the emergency surgery: The emergency surgery, women and femoral hernias rate increase with the age. The laparoscopic procedure and ambulatory setting rate decrease with the age.

**Conclusions:** In the elderly patients there are more female, more femoral hernias and more emergency surgery. In elderly patients, surgeons preferred not to do laparoscopic procedure even in scheduled surgery or in emergency surgery.

The authors recommend to operate sooner the female, and specifically the femoral hernias.

A complete statistical evaluation will be given.

AS30-4

## Feasibility and Safety of Endoscopic Total Extraperitoneal Preperitoneal Inguinal Hernia Repair in Very Old Age: A Propensity Score-Matched Comparison

Yao-Chou Tsai

Surgery, Taipei Tzu Chi Hospital, Taiwan

**Backgrounds:** Several studies of hernia registries have revealed that older age patients are associated with higher peri-operative complication rates compared with younger patients. However, the incidence of hernia is increasing with aging process. To evaluate the feasibility and safety of endoscopic hernia repair in very old age patients (>75 years), we conducted a prospective case-matched control study to compare peri-operative outcomes between patients older and younger than 75 years.

**Methods:** Between Sep. 2008 and Jul. 2015, 572 consecutive patients undergoing endoscopic hernia repair were included in this prospective study. This case-matched control study was matched based on sex, ASA score, and BMI between patients younger and older than 75 years. The propensity-score matching of two groups on 1:1 basis. Peri-operative data were prospectively recorded for all patients including demographic data, operation time, length of hospital stay, narcotic dose, and complications.

**Results:** Finally, fifty four patients who was younger than 75 years were extracted to match the 54 patients >75 years. These two groups had similar baseline characteristics except age. These two groups had similar peri-operative outcomes in hernia recurrence, metachronous contralateral hernia occurrence, complication rate and chronic pain. Besides, patients not less than 75 years had lower requirement for pain rescue analgesics than those who was younger than 75 years ( $p = 0.047$ ).

**Conclusions:** In experienced hands, endoscopic inguinal hernia repair is feasible and safe for patients not less than 75 years with comparable peri-operative outcomes in patients younger than 75 years.

AS30-5

## Individualized treatment of the elderly tension-free hernia repair

Chang-fu Qin, Jie Chen, Ying-mo Shen

Department of hernia and abdominal wall surgery, Beijing Chao-Yang Hospital, Capital Medical University, China

**Objective:** To analyze tension-free hernia repair surgery carried in the elderly in terms of operation method, anesthesia method and therapeutic effect.

**Methods:** A total of 1652 cases of elderly patients with tension-free hernia repair performed in our hospital from September 2012 to September 2014 were retrospectively analyzed. We compared different operation schemes for operation time, postoperative pain, postoperative narcotic response, time to leave bed, time to active food intake, length of hospital stay, wound complications, recovery time, recurrence rate, and time to resuming routine daily life, etc.

**Results:** All the elderly patients with inguinal hernia were cured, and the therapeutic effect was satisfactory. There has been no recurrence, and no wound infection. Compared with general anesthesia surgery, local anesthesia surgery has advantage in shortening the time to resuming daily life, time to leave bed, time to active food intake, and length of hospital stay. ( $P$  values < 0.05). Conclusion: Individualized care plan is satisfactory in the surgical treatment of elderly inguinal hernia. Tension-free hernia repair in the elderly is safe, fast, and effective.

**Key Words:** Elderly inguinal hernia; Individualized treatment; Tension-free hernia repair; Local anesthesia;

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CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

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### Laparoscopic percutaneous extraperitoneal closure for over 80 year-old patients

Minoru Nishihara, Nobuo Kuniyoshi, Akehiro Oshita, Hironori Nomura, Hiroyuki Aka, Takumi Miyahira, Naoji Hanashiro, Hideki Ryo, Norihiko Okushima, Hiroo Takehara

Department of Surgery, Heartlife Hospital, Japan

**Background and Purpose:** The anterior repairs were the standard procedure to treat adult inguinal hernias in our hospital. Since 2013, we introduced laparoscopic hernia repairs (TAPP, LPEC), and developed the indication of LPEC for over 80 year-old patients with inguinal hernias.

**Materials and Methods:** This study evaluated the hernia size, surgical methods and time, and post-operative hospital stay. For over 80 year-old patients, 24 cases treated for 2010 to 2012, and 25 cases treated after 2013.

**Results:** In 24 cases for 2010 to 2012 treated with anterior repairs, mean surgical time and post-operative hospital stay were 92.9 minutes and 10.8 days. 5 of 24 cases were died by other causes in 2 to 5 years after surgery. In 25 cases, 16 cases were unilateral hernia consisted of LPEC 3, TAPP 10, and anterior repairs 3. Mean surgical time was LPEC 80 minutes, TAPP 114.7 minutes, and anterior repairs 80.3 minutes. Mean post-operative hospital stay was LPEC 3 days, TAPP 2.6 days, and anterior repairs 5.7 days.

**Conclusion:** LPEC is the better procedure. LPEC can be performed less invasively and to keep QOL in the advanced age population. No complications were seen in LPEC.

AS31-1

### HERQL, the Hernia-specific Quality of Life Assessment Instrument): an update

Chi-Cheng Huang<sup>1,2</sup>, Feng-Chuan Tai<sup>1</sup>, Heng-Hui Lien<sup>1</sup>, Ching-Shui Huang<sup>1</sup>

<sup>1</sup>Department of Surgery, Cathay General Hospital, Taiwan

<sup>2</sup>School of Medicine, Fu-Jen Catholic University, Taiwan

**Background:** With the development of prosthetic mesh and tension free techniques, the recurrence rate following hernia repair has been reduced, and hernia outcomes research should focus on post-operative quality of life and potential complications.

**Methods:** A novel hernia quality of life assessment instrument, HERQL, was developed. The HERQL questionnaire comprises a 4-item summative pain score measuring pain and discomfort resulting from various strenuous activities. Symptomatic burden and functional domains, as well as post-operative satisfaction and potential complications are evaluated as well.

**Results:** A total of 200 HERQL surveys were completed by 114 patients with groin or abdominal wall hernias. Internal reliability of the summative pain score was satisfactory, with a Cronbach's alpha of 0.83. Criterion validity was examined by concomitant assessment of the pain/discomfort and health impact subscales of the EQ-5D questionnaire, with substantial to moderate correlations. Pre-operative patients reported more severe hernia protrusion, more pain during heavy exercise, and greater activity restriction and health impairment than follow-up patients, indicating clinical validity. The conceptual structure of HERQL was evaluated to determine the causal relationship between formative symptomatic subscales and reflective functional status indicators. Repeated measurement of summative pain scores revealed an estimated time effect of -0.24, which was the rate of change in the summative pain score across the pre-operative, immediate post-operative, and follow-up periods suggesting the clinical responsiveness of HERQL.

**Conclusion:** This study will facilitate hernia outcomes research and enhance the quality of care for this common disease by providing a validated HERQL instrument with enhanced sensitivity.

AS31-2

### Comparison of the perioperative QOL in inguinal hernia surgery -Between laparoscopic approach and anterior approach-

Masahiro Ishizaki, Hiroshi Kawai, Hirokuni Ikeda, Ryoma Sugimoto, Norichika Iga, Ryosuke Yoshida, Naohisa Waki, Hideyuki Nishi, Kazuki Yamashita

Department of Surgery, Okayama Rosai Hospital, Japan

**Purpose:** we made questionnaires about QOL after surgery and compared the early QOL between TAPP and anterior approach. Methods: 159 patients had elective inguinal hernia repairs in our hospital from December 2013 to June 2016. 97 patients had TAPP operations (20 both sides) and 62 anterior approach operations (4 both sides). Medical secretaries gave VAS (Visual analog scale) score questionnaires to those patients at 1-3 days after surgery, and at 2-3 weeks after surgery. Questions are about disturbance with early QOL.

**Results:** mean unilateral operative time was 118.3 and 65.8 minutes in TAPP and anterior approach respectively. P values of T-test of disturbance with walking, sensing of bloating, pain (both navel and inguinal), sensing of foreign body, and swelling of wound in 3 days were 0.06, 0.03, 0.01, 0.87 and 0.21 respectively in favor of anterior approach group. But the differences in those symptoms in 3 weeks disappeared between those two groups. But limiting for 91 latest cases only, there was no significant disadvantage for those QOL factors in 1-3 days between them.

**Discussion:** perioperative QOL of anterior approach was not inferior to laparoscopic surgery and even better in early series. We assumed that long operative time of early TAPP group mostly accounts for the poor QOL in early series.

**Conclusions:** the surgery with anterior approach should be reevaluated to be chosen in day surgery. We need to experience more cases to find out the best operation.