ID: 1

Preferred form of presentation: Poster

First-in-women study of a drop-in gamma probe for robot-assisted radioguided sentinel lymph node procedure in early-stage cervical cancer

I.G.T. Baeten[1], J.P. Hoogendam[1], A.J.A.T. Braat[2], R.P. Zweemer[1], C.G. Gerestein[1]

[1] Department of Gynecologic Oncology, Division of Imaging and Oncology, University Medical Center Utrecht, Utrecht University, Utrecht, the Netherlands

[2] Department of Radiology and Nuclear Medicine, Division of Imaging and Oncology, University Medical Center Utrecht, Utrecht University, Utrecht, the Netherlands

BACKGROUND/AIM

Minimally invasive radioguided sentinel lymph node (SLN) procedures, increasingly performed with robot-assisted laparoscopy, currently rely on the use of a rigid laparoscopic gamma probe, which has limited maneuverability and control. To overcome these restrictions, we evaluated the safety and feasibility of a drop-in gamma probe system for SLN detection in patients with early-stage cervical cancer and compared its performance with the rigid gamma probe.

METHODS

Ten patients with FIGO stage IA – IB2 or IIA1 cervical cancer scheduled for robot-assisted laparoscopic SLN procedure were included. All patients underwent preoperative ^{99m}Technetium-nanocolloid (^{99m}Tc) injection into four quadrants of the cervix followed by SPECT/CT imaging. Intraoperatively the tethered drop-in gamma SENSEI® (Lightpoint Medical Ltd, Chesham, UK) was used for radioguided SLN detection, subsequently confirmed by the standard rigid laparoscopic gamma probe. Sentinel lymph node detection rates and anatomical SLN location were assessed. Surgeon questionnaires were used to assess usability.

RESULTS

In all patients at least one SLN was successfully resected under guidance of the drop-in gamma probe(overall detection rate: 100%). Bilateral SLN detection rate with the drop-in gamma probewas 80%. Of the two patients with unilateral SLN detection only, one presented with an atypical SLN location at the aortic bifurcation that was detected only on SPECT/CT. The other patient had failed unilateral ^{99m}Tc uptake. Combined use of preoperative SPECT/CT and drop-in gamma proberesulted in a bilateral detection rate of 90%. Similar to the drop-in gamma probe, overall and bilateral SLN detection rate of the rigid gamma probe was 100% and 80%, respectively. No significant discrepancy existed between the drop-in and rigid gamma probe (p=0.69). In total 21 SLN's were detected with the drop-in gamma probes including all three tumor positive nodes. Because of wristed articulation of the robotic tissue grasper and possibility of autonomous probe control by the surgeon, maneuverability and control with the drop-in gamma probe were highly rated in surgeon questionnaires. No adverse events related to the intervention occurred.

CONCLUSIONS

Sentinel lymph node detection with a drop-in gamma probe is safe and feasible in patients with early-stage cervical cancer. The drop-in gamma probe provides enhanced maneuverability and surgical autonomy compared to the rigid gamma probe.

REAL-TIME AUGMENTED REALITY IN ROBOTIC SURGERY. A LESSON TO LEARN FROM LAPAROSCOPY

V.Chatzirafail[1], E.Karatrasoglou[1,4], A.Tserkezoglou[1], A.Bartoli[3], N.Bourdel[2],

1 Department of Gynecologic Surgery, Euroclinic Group of Hospitals,Athens, Greece

2 Department of Gynecologic Surgery, CHU Estaing Clermont-Ferrand, France

3 Faculty of Medicine, Institute Pascal, Clermont -Ferrand, France

4 Faculty of Medicine, University of Athens, Greece

BACKGROUND/AIM: We describe the progress of the general concept of ''Augmented Reality'' and ''Real-time Augmented Reality'' in minimal invasive gynecologic surgery during the last decade and we highlight potential benefits of this breakthrough technology in robotics . The main questions are whether robotic surgery needs to invest more time, more funding and hopes on this innovative step and which are the clinical limitations of this project.

METHODS: review of literature

RESULTS: ''Augmented Reality'' is a new guidance technology ,used in the medical field quite recently. as a general concept it allows a surgeon to see subsurface structures in an endoscopic video. During the last decade attempts have been made to incorporate this technology in minimally invasive gynecology, initially as an experimental learning tool and eventually as a live interactive imaging for assisting laparoscopic and robotic surgeons.

Initially Robotics pioneered by integrating a software that projected 3D constructed images form simple spiral computed tomography (CT) on the patient's body. Changing a window's deepness level allowed the robotic surgeon to navigate through patient's anatomy and marked pathology. Unfortunately, from that point on robotic technology observed laparoscopy taking the lead.

During the last decade IT experts in collaboration with laparoscopic surgeons conceived and experimented on ''Real-Time Augmented Reality''. ''Real -time AR'' has been initially tested in gynecologic surgery with a very mobile organ like the uterus. This technology works by overlaying information from another modality, such as magnetic resonance imaging (MRI) and fusing it with the endoscopic images. The objective was to identify the hidden pathology below the surface of the uterus and automatically detect the location and size of this pathology. at this point, laparoscopic surgeons are able to detect in real time endoscopy the location of uterine myomas and extend the limits even further. The next goal is to automatically detect more complex structures, such as cancerous tumors, nodules of deep -endometriosis, nerves and lymph-nodes.

Judging from the above, the questions that we pose is the following: if such a software can be adjusted to plain laparoscopic scoped why not be integrated to the advanced technology of da-vinci surgical software? Could patients and robotic surgeons further beneficiate from combining these two pioneering technologies?

ID: 3

Preferred form of presentation: Oral communication

HINTS AND TIPS IN CASES OF CHALLENGING MYOMATOSIS

V.Chatzirafail[1],E.Karatrasoglou[1,2],A.Mpakas[3], G.Gallou[3], A.Pavlaki[4],A.Tserkezoglou[1]

[1] Department of Gynecologic Surgery, Euroclinic Group of Hospitals, Athens, Greece

[2] Faculty of Medicine, University of Athens, Greece

[3] Department od Anaesthesiology, Euroclinic Group of Hospitals, Athens, Greece

[4] Department of Istopathology, Iaso Hospital ,Athens, Greece

BACKGROUND/AIM: We describe different technical modifications wιth the technique of robotic myomectomy ,in cases of complex myomatosis. All cases were performed by the same surgeon in our institution.

METHODS: We include patients who underwent robotic-assisted laparoscopic myomectomy for multiple, bulky tumors for the period from April 2000 to June 2020.

RESULTS: For the majority of patients robotic myomectomy can provide the most effective, least invasive treatment for uterine fibroids, especially in cases of bulky and multiple leiomyomas. Robotic approach has already proven its value and may be preferred for cases with higher complexity and multiple fibroids in myomectomy. Therefore, we are presenting the indicated robotic approach in the following cases of myomatosis: multiple myomas and diffuse myomatosis, bulky fibroids which reach or exceed the level of umbilicus, highly vascularized myomas and leiomyomas in challenging locations. Limits of robotic surgery still remain the size and the number of myomas. However, the more experiences the robotic surgeon is , the more these limits are pushed ,taking advantage of new techniques , for example the use of haemostatic agents and the new software of perioperative imaging (augmented reality software).

CONCLUSION: Robotic myomectomy is feasible for managing very challenging cases of extreme myomatosis. It is a safe procedure with acceptable longer operative time, hence, the selection of suitable patients for the robotic approach should remain uncompromised issue.

ID: 4

Preferred form of presentation: Oral communication

Impact of Surgery on Surgeon Health (ISSUE): A Feasibility Study

A . Amirthanayagam[1], M. Zecca[2], S. Barber[3], B. Singh[4], E.L. Moss[1,5]

[1]Leicester Cancer Research Centre, University of Leicester, Leicester, UK

[2]Wolfson School of Engineering, Loughborough University, UK

[3]NIHR Research Design Service East Midlands and Leicester Clinical Trials Unit, University of Leicester, Leicester, UK

[4]Department of Surgery, University Hospitals of Leicester NHS Trust, UK

[5]Department of Gynaecological Oncology, University Hospitals of Leicester NHS Trust, UK

Background: Minimally invasive surgery (MIS) is associated with superior peri-operative morbidity/mortality outcomes compared to open surgery for the management of many conditions, however the impact of an increased MIS workload on surgeons has been largely forgotten. Optimising surgeons' working conditions is vital for their own health and career longevity, but also for patients' safety and outcomes, due to the impact on surgical performance. ISSUE is a feasibility study that aims to develop and validate a multi-faceted assessment tool to objectively capture the real-time physical/psychological impact that performing surgery has on the surgeon.

Methods: Consultant Gynaecological Oncologists and Colorectal Surgeons at a University Hospital Cancer Centre were recruited to collect data on the physical/psychological impact of performing intra-abdominal procedures (open/laparoscopic/robotic-assisted). The study is funded by an Intuitive Surgical Research Grant. The primary outcome is the proportion of surgical procedures where all 5 variables of the assessment tool are captured: continuous heart-rate and movement sensor monitoring; salivary cortisol; STAI and work-related musculo-skeletal (WMS) questionnaires. Secondary outcome measures include optimisation/validation of patient data recording measures to capture anaesthetic/operative/clinical events and outcomes; and identification of primary/secondary outcome measures for a definitive multi-centre study comparing different routes of surgery. This study includes a temporal validation where the validation data will not be viewed until the risk score is finalised.

Results: Following ethical approval, recruitment commenced in December 2021. Eight consultants have been recruited to date. All surgeons undertook baseline skills testing with/without the monitoring equipment. Performance metrics were recorded using the Lapskills software (Innovus). The surgeons' smoothness/acceleration scores for all cutting/suturing/knot tying tasks were in the lowest quartile of the global average, indicating high technical skill that was not impaired by the monitoring equipment. A medical physics assessment of monitoring equipment was performed before use in the theatre environment. The first patient was recruited in January 2022 and currently 3-5 cases (open/laparoscopic/robotic) are being recruited/week. It is anticipated that recruitment of the initial 65 cases will be achieved by May 2022, with a validation cohort (100 cases) being recruited by February 2023.

Discussion: Recruitment to ISSUE is progressing well and there is a high level of engagement with both surgeons and patients. The outcome of ISSUE will be a validated tool with a high sensitivity at detecting high impact surgery that can be used in a prospective, multi-centre study to provide an objective measure of the impact of different surgical routes on the surgeon.

ID: 5

Preferred form of presentation: Oral communication

De novo pain and relief of pain after robotic abdominal synthetic mesh implants

S.E. Schraffordt Koops MD PhD[1], H.W.R. Schreuder MD PhD [2,] L. Heydanus [2], F. van Zanten MD PhD [1,2].

[1]Meander Medical Center, Department of Gynaecology, Amersfoort, The Netherlands.

[2]University Medical Center Utrecht, Department of Gynaecologic Oncology, Utrecht, The Netherlands.

Background/Aim: Sacrocolpopexy is the gold standard for the treatment for apical/vault prolapse. The standard procedure is performed conventional laparoscopically or robot assisted. The question of the role of implants as a cause for pain has arisen because of high complication rates for pain occurring after vaginal use of MESH. Scarce scientific evidence until now shows a large difference in complication rates between the different sorts of implants used and between different types of surgery (vaginal/abdominal). This study was set up to address this knowledge gap. This abstract is a prospective (known denominator) large cohort study on the role of the internationally most used mesh type (polypropylene) and presents data on pain after robot assisted sacrocolpopexy for the treatment of pelvic organ prolapse.

Methods: prospective observational cohort study (Canadian task Force classification II-2). Setting: a singlelarge teaching hospital with a tertiary referral function for patients with gynecological prolapse. Inclusions: all consecutive women undergoing robot-assisted surgery for the treatment of pelvic floor prolapse treated between 2014 and 2018. This study was part of The Prospective Assessment of Robotic Sacrocolpopexy database (PARSEC NCT01598467 clinicaltrials.gov). Enrolled patients completed questionnaires prior to surgery and 12 months postoperatively. A numeric rating score (NRS) self-evaluating degree of pain score on a scale of 0-10, and description of the pain location when present, were included in the questionnaire. The pain was specified, and patients were asked for the presence location, and severity of pain during the previous weeks. Further assessment included the Pelvic Organ Prolapse/Urinary Incontinence Sexual Questionnaire (PISQ-12) which scores sexual activity barriers to activity and dyspareunia. To assess life impact the Pelvic Floor Impact Questionnaire (PFIQ-7) was used. Direct Postoperative pain was scored using the visual analogue scale.

Results: 115 patients were included. The follow-up duration was 12.8 ± 3.7 months. The preoperative prevalence of patient self-reported pain was 52%. The postoperative self-reported pain was 24%. De novo pain found 4.3%. Self-reported ongoing pain was noted in 18%. In twenty-nine percent of patients with pre-operative self-recorded pain, the pain had resolved after surgery. Preoperative pain and previous intra-abdominal surgery were identified risk factors for postoperative pain. (intra-abdominal surgery OR 3.6, 95% CI 1.2-10.7; preoperative NRS pain score OR 1.4, 95% CI 1.1-1.7)

Conclusion: Mostly pain is reduced or resolved after robot assisted abdominal pelvic organ prolapse surgery with mesh implants. Risk factors for postoperative pain included prior intra-abdominal surgery and preoperative existing pain.

ID: 6

Preferred form of presentation: Oral communication

Shaving tecnique with Robotic approach in 45 patients affected by DIE

G.R.Damiani[1], X. He[1], G. Cormio [1], M. Villa[2], E. Cicinelli[1], A. Pellegrino[2]

[1]Department of Obstetrics and Gynaecology, University of Aldo Moro, Bari, Italy

[2]Department of Obstetrics and Gynaecology, Hospital of Lecco Alessandro Manzoni, Lecco, Italy

BACKGROUND: Endometriosis presents three entities: peritoneal endometriosis, ovarian endometriotic cysts (endometrioma) and deep infiltrating endometriosis or DIE. Rectovaginal septum (RVS) and sigmoid endometriosis, the most common types of DIE, are often associated with severe, progressively debilitating abdominal and pelvic pain, affecting the quality of life and infertility. No medical treatment has yet been shown to achieve a long-term cure, with symptom recurrence rates as high as 76%, in addition surgery has been shown to significantly improve endometriosis-associated symptoms. Minimally invasive surgery represents the gold standard for the management of DIE involving the RVS. This study aimed to evaluate the feasibility of robotic-assisted laparoscopy (RAL) and to investigate clinical outcomes including complications, pain relief and recurrence rate.

METHODS: From October 2010 and December 2021, 45 women with ENZIAN score for endometriosis >40 (stage 4 endometriosis), who underwent robot assisted laparoscopy (da Vinci Intuitive Surgical System), were included. This analysis evaluated the procedures performed, the operative time, the complications, blood loss, the recurrence and the impact on the quality of life.

RESULTS: All patients obtained a successful complete nodule debulking by the wall shaving technique, that were confirmed histologically. The median duration of the intervention is 174 minutes (range, 75-300 mm), nobody received blood transfusion. the median of endometriotic nodule was 21 mm (range, 10-60 mm) with free margins in all cases. The median revised Enzian score for location A (RVS) was 2 (range 1,3), indeed the most frequent Enzian score was A2B0C0 (48.8%), followed by A3B0C0 (26.6%). 8 cases of A1B2C0 (17.8%) underwent to excision of uterosacral nodules with a case (0.3%)of prolonged urinary catheterization. In 5 cases (11.1%) partial vaginal resection was required to remove endometrioc nodules of the RVS. In 2 cases (5 %) intraoperative complications with opening of rectal wall, 3 case (6.7%) of conversion to laparoscopy. The reoperation rate was 0%. The mean follow up period wa 20.5 months. Complete or significant pain relief was reported in all cases at the third month of follow up.

CONCLUSIONS: This study analyzed our series of robot-assisted laparoscopies for deep infiltrating endometriosis. Without significant increasing of intraoperative or postoperative complications, and operative time, robot assisted laparoscopy seems to be promising as a safe and winning alternative for surgical treatment of DIE.

ID: 7

Preferred form of presentation: Oral communication

traditional vs robotic assisted laparoscopy in cervical cancer: cost-effectiveness

X. He[1,] G.R.Damiani[1], G. Cormio [1], M. Villa[2], E. Cicinelli[1], A. Pellegrino[2]

[1]*Department of Obstetrics and Gynaecology, University of Aldo Moro, Bari, Italy*

[2]*Department of Obstetrics and Gynaecology, Hospital of Lecco Alessandro Manzoni, Lecco, Italy*

Recently, since the prospects of robotic surgery have embraced the advanced surgical oncology and this type of surgery seems to be adequate and feasible with optimal outcomes in some fields of oncology, it is logically inevitable to perform an economical analysis with robotic techniques (RRH)versus traditional laparoscopy(TLRH). Robotic surgical techniques are known to be expensive, but they can reduce the cost of hospitalization and improve patient's outcomes.This study aimed to compare economic expense and clinical outcomes of RRH versus TLRH in the radical hysterectomy

From March 2010 to March 2020, 65 patients referred at Alessandro Manzoni Hospital for cervical cancer, including 40 patients who underwent Robotic radical hysterectomy (RRH) and 25 who underwent to Traditional laparoscopy radical hysterectomy (TLRH), were included in a prospective study. All patients underwent to hysterectomy type-B or C1 (Querleu-Morrow classification). RRH group was compared with TLRH group, matched by age, body mass index, tumor size, FIGO stage, comorbidity, previous neoadjuvant chemotherapy, histology type, and tumor grade to obtain homogeneous samples. Direct costs and hospitalization costs are calculated for both, clinical outcomes are evaluated.

10 patients (15%) in RRH group and 7 (10.7%) in TLRH group underwent type-C RH.Type B RH was performed in the remaining cases, 30 and 18 in RRH and TLRH group respectively. Median operative time was similar in both groups, 230.54 min (SD ± 53.24 min) vs 245.87 min (SD ± 90.03 min). RRH was associated with significantly less bood loss.One case of re-intervention in RRH group, and three case in the other group due to an ureteral fistula. The median time to resumption of bladder function was 2 days in RRH and 3 days in TLRH. In TLRH group five patients were discharged with self catheterization, while in the other group all patients were voiding spontaneously without any difficulty. The cost of the robot-specific supplies was €2755 per intervention. When considering overall medical surgical care, the patient treatment average cost of a RRH was € 5695.31 with an HS of 3.58 days [(SD ± 1), while it was € 3790.86 for TRLH, with 4.27 days (SD ± 1.79).

RRH resulted 1.5 times more expensive than TRLH, but clinical outcomes will be better. The principal costs of robot was the fixed cost, robotic disposable instruments, which are not compensated by the hospital room costs and by an experienced team staff. Implementation of strategies to reduce the cost of robotic instrumentation is due.

ID: 8

Preferred form of presentation: Oral communication

3D printing model for precise pre surgical planning in Robotic Surgery

Rooma Sinha, Bana Rupa, Ravikanti Prasad

Department of Minimally Invasive Gynecological Surgery & Radiology

Apollo Hospitals, Hyderabad, India

BACKGROUND/AIM: The aim of this presentation is to review the utility of patient-specific 3D printed models of the uterus in surgical planning and as an intra-operative visual aid during robotic myomectomy and adenomyomectomy. 3D print model can help in planning of hysterotomies, assessment of the depth of myometrial involvement and proximity to the endometrial cavity and intra-operative identification of fibroids which are not palpable during robotic surgery. Additionally, the 3D model can serve as an educational tool for patients and trainees.

METHODS: Three patients undergoing a robotic myomectomy and one adenomyomectomy at Apollo Hospital, Hyderabad, India were selected prospectively. MRI sequences with slice thickness of 1mm in all 3 views (Axial, Coronal and Sagittal) were used. Materialise Mimics to segment the data from the MRI scanned images were used and then 3matic was used to perform CAD operations to make it print ready. The technology used for 3D printing of model was FDM (Fused Deposition Modeling) on the Flashforge Guider 2S printer and the printing was done using ABS (Acrylonitrile butadiene styrene) material. Models were printed for two patients and in the other 2 cases the soft version of the 3D PDF model was made available to the surgeon. These models were used for counselling the patients, preoperative surgical planning and intra-operative guidance to the surgeon.

RESULTS: Case 1 had 12 myomas (FIGO 2-6), case 2 had one left lateral wall lobulated (FIGO 4; 15x13 cms) myoma and case 3 had 8 myomas (FIGO 2-6). Intra-operatively, the 3D models were manipulated by the console surgeon and was used to plan hysterotomy, identify and remove all the myomas in the first three cases. Case 4 had posterior wall adenomyoma and the 3-D PDF model was used to calculate the volume in three dimensions (7x4x4 cms), and excision of adenomyoma in 3 dimensions was done with the real time measurements on the uterus done by a scale inserted intra abdominally. The excised specimen matched in three dimensions as calculated by the model.

CONCLUSIONS: 3D printing is increasingly being used in surgical planning in various fields. Removal of all myomas prevents residual disease. Precise adenomyoma excision and uterine reconstruction is paramount for future reproduction. Patient-specific 3D models can help in these clinical setting. Cost and availability of 3D models are limiting factors for widespread use. As this technology develops, 3D printing may become a more promising surgical tool.

ID: 9

Preferred form of presentation: Oral communication

Assessment of Patient-Reported Preferences for Same-Day Discharge after Robotic assisted Pelvic floor Reconstruction

D. Bolovis, M. Schreibmayer, C. Brucker

Department of Obstetrics and Gynaecology, University Hospital, Paracelsus Medical University, Nuremberg, Germany

Background and Objectives:

Pelvic floor surgery in the German health system is an inpatient service. The purpose of this clinical study was to evaluate the patient dismissal preferences following robotic assisted uterus suspension in a high volume tertiary care hospital, in order to analyse the future potential for the establishment of fast track concepts in Germany, defined as dismissal within 24 hours after surgery.

Methods:

In this retrospective study we took a review of the medical records of patients receiving robotic assisted uterus suspension between January 2020 and January 2022 at the university Ob/Gyn clinic of Klinikum Nuremberg, Germany. Unilateral pectineal suspension (UPS) is a novel technique for the correction of apical prolapse. It is performed in five defined standardized steps with the use of the da Vinci Xi® surgical system. The cranial part of the pectineal ligament is used for lateral fixation. A non-absorbable suture is placed between the pectineal ligament and the anterior cervix to suspend the uterus in its natural anatomical position. Remaining anterior and/or posterior defects were corrected vaginally. All patients were asked during the morning ward rounds to define their preferred dismissal time point, and the answer given was noted in the patient file.

Results:

Between January 2020 and January 2022, 115 robotic uterus suspension procedures were performed. All cases were completed without conversions or complications. Of these 115 cases, 12 patients received an additional anterior repair, 18 patients received a posterior repair und 9 patients a combined anterior und posterior repair. 76 patients had no additional procedures. 46 patients (40.0%) wanted to leave the hospital on the same day, 52 patients (45.2%) on the first postoperative day, 11 patients (9.6%) on the second postoperative day and 6 (5.2%) patients the third day after surgery.

Conclusions:

The evaluation of patient dismissal preferences after robotic assisted uterus suspension exposes the potential of establishing fast track dismissal concepts after pelvic floor reconstruction in Germany. Our data show that respecting the patients' preferences, the majority (85.2%) of the patients could have been efficiently treated in a defined fast track setting.

ID: 10

Preferred form of presentation: Oral communication

2arm-3instrument "Sinha-Apollo" Technique for Robotic Hysterectomy

Rooma Sinha, Bana Rupa, Mamatha Reddy

Department of Minimal Access & Robotic Surgery Gynecology Apollo Hospitals, Hyderabad India

Background /Aim: Laparoscopic hysterectomy is still has not universally adopted due to steep learning curve. We aim to present a 2arm-3instrument "Sinha-Apollo Technique" for Robotic Hysterectomy with DaVinci system and compare our results with the classical 3arm- 4 instrument technique.

Methods: We included 25 cases with classical technique (group A), and 100 cases of modified technique (group B). Baseline patient characteristics of age, BMI, clinical uterine size, console time, total operative time, estimated blood loss, length of hospital stay, need for IV analgesia were recorded. Statistical analysis was done using SPSS Ver 25 (p value <0.05 significant; two tailed). In the 2arm-3instrument technique the primary optic port was placed in midline. The left and right robotic trocars were placed 8 to 10 cm lateral to midline and 3-4 cm inferior to the optic trocar and a 5mm assistant port on the left side. A 30 degree telescope was used with a sequential strategy to complete all left side ligaments and uterine complex up to the colpotomy ring before moving to the right side by selecting the fenestrated bipolar in arm 2 (40 watts) and hot shear monopolar scissors in arm1 (30 watts). Salpingectomy and/or oophorectomy was done after completion of the hysterectomy. After opening the anterior and posterior leaf of broad ligament, the left uterine artery and vein was skeletinised and the ascending branches of the uterine vessels was coagulated. Next the same steps were followed on the right side. Colpotomy done on KOH cup with hot shears. The vaginal cuff closure was accomplished with the 5x5 rule with the fenestrated forceps in arm 2 and a mega needle driver in arm 1 including both the vaginal fascia and vaginal epithelium in each bite.

Results: Age, BMI and requirement of post-operative intravenous analgesia was similar in both groups. The clinical uterine size was significantly more (p=0.0015) in group B. The total operative time, console time, blood loss and length of hospital stay were all significantly less in group B.

Conclusion: Simple and reproducible steps described as the Sinha- Apollo Technique can increase the adoption of Robotic Hysterectomy. The strategy of completing the surgical steps on one side up to the colpotomy cup before moving to the other side enhances the economy of movements and is time efficient. The use of only 2 arms and 3 instruments translates in cost reduction.

ID: 11

Preferred form of presentation: Oral communication

Effectiveness of robotic surgery compared to conventional laparoscopy in gynecologic surgery

<u>M. Gracia</u>[1], M.A. Herráiz [2,] PJ. Coronado [2].

[1] *University Hospital La Paz*

[2] *San Carlos University Hospital.*

Aim:

To compare surgical outcomes, morbidity, survival and ergonomics between robotic and laparoscopic surgery in gynecologic surgery.

Material and methods:

Comparative study between two minimally invasive surgery approaches (robotic and conventional laparoscopic) carried out in a tertiary hospital in patients operated for gynecological indications from 2007 to 2019.

We collected 610 patients, 319 of them were operated by robotic surgery (RS) and 219 by conventional laparoscopic approach (CL) .

Basic demographic characteristic, surgical outcomes, morbidity, ergonomics and survival were compared between both approaches.

Ergonomics was evaluated through a survey conducted by surgeons.

Procedures performed were hysterectomy with double adnexectomy, hysterectomy with lymphadenectomy (pelvic or pelvic and para-aortic), radical hysterectomy and para-aortic lymphadenectomy.

Results:

Total operation time was significatively longer in patient operated by robotic surgery (RS 207 minutes vs. 188 min CL; p=0.008). Blood loss was reduced in patients operated by robotic approach (RS 115 ml vs. CL 150 ml; p=0.032). No differences were found in hospital stay, number of pelvic or paraaortic nodes, laparotomic conversion or reintervention rate and intra or postoperative complications between both surgical approaches.

All parameters evaluated in relation to ergonomics obtained a better punctuation in robotic surgery group, founding statistical significative differences compared to conventional laparoscopic.

Disease free survival was 85% in the robotic group and 90.7% in the laparoscopic group (HR: 0.47; IC95%:0.26-0.86; p=0.015), although overall survival was similar in both surgical approaches. In a multivariant analysis the only independent factor related to disease free survival was FIGO stage.

Conclusions:

Robotic surgery is comparable to conventional laparoscopy in terms of perioperative morbidity, conversion rate, hospital stay, number of nodes obtained, or overall survival. Robotic surgery increases total operative time and reduces intraoperative bleeding compared to laparoscopy. Robotic surgery significantly improves the ergonomics of the surgeon.

ID: 12

Preferred form of presentation: Oral communication

Can we justify not offering robotic surgery to patients with endometrial pathology. Lessons learnt from COVID-19 pandemic experience.

N Gul and R Todd

Gynaeoncology Centre, Department of Obstetrics and Gynaecology. Women's and Children's Department. University Hospital North Midlands, Royal Stoke Hospital. S-O-T. UK.

Aims

To review perioperative outcomes of open and laparoscopic hysterectomy in comparison to robotic hysterectomy in patients with endometrial pathology (hyperplasia and endometrial cancer) in a single gynaeoncology centre. Retrospective study of two-year period of COVID-19 pandemic.

Background

Endometrial cancer is 4th most common cancer in women with 6900 new cases per year. Majority present at age 64-74 and 93% are >50years with lifetime risk of 2-5%. Atypical endometrial hyperplasia is precursor of endometrioid adenocarcinoma with 45% risk of cancer.

Endometrial hyperplasia and endometrial malignancy are one of the commonest abnormal pathologies found in patients presenting with abnormal bleeding. Majority present at early stage hence treatment in form of hysterectomy is standard treatment options. In 2010, NICE recommended Keyhole surgery to improve perioperative outcomes with significant benefits shown over open operation. In last 10 years robotic surgery is undertaken in many gynaecological cancer cases especially with endometrial pathology in obese patients. During pandemic access to theatres was limited leading to delay in providing optimal treatment to patients. Many patients who were deemed at risk of perioperative morbidity were treated conservatively with hormone treatment. Reintroduction of minimal access surgery during pandemic after initial pause enabled surgeons to provide all surgical treatment methods to patients include open hysterectomy, laparoscopic and robotic. There is no clear indication of offering patients robotic surgery despite numerous published case series showing perioperative advantages with decrease length of stay.

Methods

University hospital north midlands is one of the largest trusts in UK with a very busy Gynaeoncology Centre, providing care within MDT structure. All modalities of treatment are available to patients including surgical (Open, laparoscopic, robotic), radiotherapy, chemotherapy and palliative. Retrospective review of all elective surgical cases was undertaken over 2-year period 2020-2021 and patients with endometrial pathology were included in this study. Data was retrieved from hospital IT system.

Study demographics included: Age, diagnosis, ASA grade, BMI and surgical treatment method. Perioperative parameters, conversion rates, transfusion rate, admission to HDU/ITU, Intra-operative and postoperative complications.

Main outcome measures comparing the three surgical treatment method included length of stay and readmission rates.

Results

During the 2-year pandemic period a total of 249 cases were identified from hospital IT system who had undergone elective surgical intervention for endometrial pathology. There were no strict criteria for selecting patients for different route of surgery although patients who were treated with robotic assistance had high comorbidity such as high BMI. One of the main limitations to robotic surgery was access to robot and theatre time. Of the 181 cases who had surgical treatment of hysterectomy. 80 patients had open laparotomy/hysterectomy. 101 cases had minimal access surgery, of which 46 patients were treated with robotic assisted hysterectomy. Theatre setup time was significantly higher in robotic assisted cases.

Robotic assisted cases had shortest length of stay and no readmission to hospital after discharge. There was no emergency admission to HDU/ITU following surgery. Open hysterectomy patients had longest length of stay as expected varying from 2 to 18 days. Laparoscopic group had significantly longer length of stay as compared to robotic surgery and readmissions were only seen in laparoscopic group.

Cases with comorbidity at the start of pandemic were managed conservatively with progestogens such as MIRENA, some of which eventually were treated with robotic assisted surgery.

Conclusions

Robotic assisted surgery is expanding in many parts of the world although the main limitation of implementation is cost. Indications for robotic surgery in gynaecology is still not clearly identified although various case series suggest better patient experience especially postoperative pain as compared to laparoscopic approach.

COVID-19 pandemic put more pressure on hospital capacity with delay in cancer treatment due to redeployment of staff and lack of theatre capacity. Unfortunately, the progression of neoplastic disease continues with poor outcomes as disease advances. Since major impact of pandemic has been on bed capacity, healthcare systems needs to utilise the modern treatment methods which clearly seem to have better perioperative outcomes. Our data would support offering robotic surgery to all patients to decrease the length of stay and readmission rates. Reflection on management during pandemic should help to overcome resistance to offering robotic surgery to all patients.

Complex surgical procedures are simplified with assistance of robot with decreased need for postoperative ventilator support in high BMI patients. This significantly balances out the cost of robotic surgery. Cost effectiveness and theatre efficiency can be improved with effective team working of nursing, surgical and anaesthetic staff. The cost saving from reduced hospital stay needs to be translated into the cost of providing the service and aiming for best patient outcomes. Reduce hospital stay, prevention of readmission are good clinical markers for good surgical outcome. Therefore, resistance to offer robotic surgery to all patients especially with endometrial pathology who have underlying comorbidity such as obesity cannot be justified.

Market is exploding with new surgical robots which will decrease the cost and hence increase wide implementation. However, in our opinion there needs to be more acceptance of concept and willingness to train all the team to make best use of current resources already existent in many hospitals for best outcome of our patients.

ID: 13

Preferred form of presentation: Oral communication

What is surgery? aim for a unifying definition for modern surgery understanding the applications for enhanced recovery

O. ALI

Department of Obstetrics and Gynaecology, Epsom and St Helier university hospital NHS trust, London, Surrey, UK

Background

Surgery is continuously developing with an accelerated rate since the introduction of minimal access techniques. A definition of what is surgery is designed to include the advances and the wide spectrum of innovations.

Surgery is a calculated intentional necessary bodily injury to the anatomy, physiology and psychological well being to achieve a well defined target to maintain or improve patient physical, functional and psychological status using standardised techniques and specific tools.

Aim

To have an agreed definition that capture advances in surgical technique and aim for consensus that will include various disciplines and applications.

Methodology

The definition was standardised by 5 specialists taking into account the modern advances in surgical practice including robotic surgery and the established concept of enhanced recovery. The elements of this definition were concluded from reviewing the enhanced recovery program in laparoscopic hysterectomy analysing many outcome measures and studying some incidences from 2014 to 2019. The wording of the definition was peer reviewed again by further specialists across other disciplines in gynaecology, surgery as well anaesthesia, medicine and psychiatry. The definition was theoretically exercised at the various steps on the enhanced recovery program. The definition was also theoretically exercised on some incidences and complaints. Feed back was collated and analysed. There was a focus on decision making, consent, preoperative assessment and surgical approach.

Results

The definition was agreed to capture the essence of surgery in its modern era. The addition of physiology and psychological well being was felt necessary to highlight the importance of having specific outcome measures including patient satisfaction whenever possible as well as that some kind of surgery is intended to improve psychological well being like in aesthetic procedures. The use of a well defined target is consistent with the WHO surgical safety check regarding the intent and plan of surgery and recruiting the appropriate resources and time commitments. The mention of standardised techniques and specific tools will demonstrate the impotence of governance, training, certification, commissioning and appraisal of innovations.

Conclusion

The definition can offer a drive to improve surgical practice and advocate the least traumatic route to achieve the desired outcome. It is patient focused and can have potential legal and governance value. It can also imply that surgical training should ideally progress through simulation and adequate preparation before direct

operating on the patient. This definition will need to be validated through consensus and studies in various surgical specialties.

ID: 14

Preferred form of presentation: Video presentation

Robotic assisted isthmus cerclage: Benson modified technique

C. Picard, M.Chas, J. Pilloy, F.Perrotin, J. Potin, C. Arlicot, C. Brisson, J. Villemagne, C. Diguisto, T. Hebert.

Department of Obstetrics and Gynecology,Centre Olympe de Gouges, University Hospital of Tours, France.

Aim: To describe the technique of robotic assisted abdominal isthmus cerclage to prevent recurrent miscarriage.

Method: Video description of a robotic assisted abdominal cerclage performed in a patient who underwent radical trachelectomy for previous cervical cancer. Background and general consideration about abdominal cerclage will be added in the oral comment of the video.

Results: Step by step video of a robotic abdominal cerclage, using a 5 mm mersilene tape with straight needle.Once correctly positioned at the level of the isthmus, medial to the uterine arteries cross, the mesh is knotted posteriorly.

Conclusion: Robotic assistance in abdominal placement of an isthmus cerclage is a feasible and standardized technique. This step by step film aims to help spreading the technique.

ID: 15

Preferred form of presentation: Video presentation

Robotic assisted rectal segmental resection in DIE, the NOSE technique

L. Benbakoura, M. Chas, J. Pilloy, T. Hebert

Department of Obstetrics and Gynaecology, Bretonneau University Hospital, Centre Olympe de Gouges, Tours, France.

Aim: Technical video of a robotic assisted latero terminal anastomosis of the rectum performed after a segmental resection for deep infiltrative endometriosis, using the NOSE (Natural Orifice Specimen Extraction) technique.

Method: Step by step, 5 minutes video demonstrating DIE recto vaginal nodule management, and latero terminal rectal anastomosis

Result:Step 1 Recto vaginal DIE nodule management with vaginal resection. Step 2:Use of the vessel sealer to perform rectal dissection. Step 3:Vaginal introduction of the circular stapler and placement in the bowel. Step 4:Segmental resection of the rectum. Step 5: Latero Terminal anastomosis of the rectum, Step 6 Specimen extraction and vaginal cuff closure.

Conclusion: Robotic assistance is an easing tool to perform complex surgery, this video aims to help spreading this minimal invasive technique.

ID: 16

Preferred form of presentation: Video presentation

ICG-guided targeted Para-Aortic lymphadenectomy for advanced cervical cancer staging by robotics.

Sergi Fernandez, Carlos Ortega, Lola Martí, Marc Barahona, Jordi Ponce

Hospital Universitari de Bellvitge

In relation to localized advanced cervical cancer management, paraaortic lymphadenectomy remains useful for staging. Lymph node dissection, at least up to inferior mesenteric artery, is indicated when there are negative paraaortic lymph nodes on imaging.

Despite PET/CT and radiotherapy techniques are in continuous development, Pao Lymphadenectomy has not taken a step forward since long time ago. However, robotic approach by Da Vinci system ® incorporates ICG vision.

ICG has been demonstrated as perfect tool for lymph node mapping in gynecological malignancies. Therefore, we present surgical video about ICG-guided targeted para-aortic lymphadenectomy in locally advanced cervical cancer patients.