

Virtual Academic Surgery Conference 2021 Conference Proceedings

The 2021 Virtual Academic Surgery Conference (VASC) was held virtually on March 27th 2021. Twelve abstracts were selected for presentation at the conference and eight of those have been submitted for publication in the conference proceedings, published by the Cambridge Medicine Journal.

Contents

Page 2

Presenting author: Belle Liew

Title: Does Post-Mastectomy Radiation Therapy Worsen Outcomes in Immediate Autologous Breast Flap Reconstruction? A Systematic Review and Meta-Analysis

DOI: doi.org/10.7244/cmj.2021.04.001.1

Page 3

Presenting author: Pranav Satish

Title: Prostate cancer topography and tumour conspicuity on multiparametric magnetic resonance imaging: A systematic review and meta-analysis

DOI: doi.org/10.7244/cmj.2021.04.001.2

Page 4

Presenting author: Filzah Hanis Osman

Title: Ablative Therapies versus Partial Nephrectomy for Small Renal Masses: A systematic review and meta-analysis

DOI: doi.org/10.7244/cmj.2021.04.001.3

Page 5

Presenting author: Jen Wae Ho

Title: Validating a novel visual field assessment app: a pilot study

DOI: doi.org/10.7244/cmj.2021.04.001.4

Page 6

Presenting author: Emily Hale

Title: Endoloops in laparoscopic appendicectomy: a cost effectiveness analysis

DOI: doi.org/10.7244/cmj.2021.04.001.5

Page 7

Presenting author: Pranav Satish

Title: European Association of Urology COVID intermediate prioritisation group is poorly predictive of pathological high-risk among patients with renal tumours

DOI: doi.org/10.7244/cmj.2021.04.001.6

Page 8

Presenting author: Monty Fricker

Title: Salvage versus primary robot-assisted radical prostatectomy: a propensity-matched comparative effectiveness study from a high-volume tertiary centre

DOI: doi.org/10.7244/cmj.2021.04.001.7

Page 9

Presenting author: Aqua Asif

Title: Virtual interactive surgical skills classroom: a parallel-designed, non-inferiority, adjudicator-blinded, randomised controlled trial (VIRTUAL)

DOI: doi.org/10.7244/cmj.2021.04.001.8

Title:

Does Post-Mastectomy Radiation Therapy Worsen Outcomes in Immediate Autologous Breast Flap Reconstruction? A Systematic Review and Meta-Analysis

Authors and affiliations:

Belle Liew^{1*}, Clea Southall², Muholan Kanapathy^{1,2}, Dariush Nikkhah^{1,2}

¹ Division of Surgery & Interventional Science, University College London, London, United Kingdom

² Department of Plastic and Reconstructive Surgery, Royal Free NHS Foundation Trust Hospital, London, United Kingdom

***Corresponding Author:**

Belle Liew: zchabli@ucl.ac.uk

Presenting Author: Belle Liew

Conflicts of interest:

The authors declare no conflicts of interest.

Funding sources:

The authors declare no funding sources.

Abstract:

Background

There is great uncertainty regarding the practice of immediate autologous breast reconstruction (IBR) when post-mastectomy radiotherapy (PMRT) is indicated. Many plastic surgery units differ in their protocols, with some recommending delayed breast reconstruction (DBR) instead. Nevertheless, the cosmetic and psychosocial benefits offered by IBR are significant. The aim of this study was to comprehensively review and analyse existing literature to compare irradiated and unirradiated autologous flaps.

Methods

A comprehensive search in MEDLINE, EMBASE and CENTRAL databases was conducted in November 2020 for primary studies assessing outcomes of IBR with and without PMRT. Primary outcomes were the incidence of clinical complications, observer- and patient-reported outcomes. Meta-analyses were performed to obtain the pooled risk ratio of individual complications where possible.

Results

Twenty-one articles involving 3817 patients were included. Meta-analysis of pooled data demonstrated risk ratios for fat necrosis (RR=1.91, $p<0.00001$), secondary surgery (RR=1.62, $p=0.03$) and volume loss (RR=8.16, $p<0.00001$) favouring unirradiated flaps, but no significant difference in all other reported complications. The unirradiated group scored higher in observer-reported outcome measures, but self-reported aesthetic and general satisfaction rates were similar.

Conclusions

IBR should still be offered to patients as a viable option after mastectomy, even if they require PMRT. Despite the statistically significant higher risks of fat necrosis and contracture, these changes appear to be less clinically relevant, as corroborated by generally positive self-reported scores from patients who developed the aforementioned complications. Preoperative and intraoperative measures can further optimize reconstruction and mitigate post-radiation sequelae. Careful management of patients' expectations is also imperative.

Title:

Prostate cancer topography and tumour conspicuity on multiparametric magnetic resonance imaging: A systematic review and meta-analysis

Authors and affiliations:

Pranav Satish^{1,2*}, Alex Freeman³, Daniel Kelly⁴, Alex Kirkham⁵, Clement Orczyk^{2,6}, Benjamin S. Simpson⁷, Francesco Giganti^{2,5}, Hayley C. Whitaker², Mark Emberton^{2,6*}, Joseph M. Norris^{2,6*}

¹ UCL School of Medicine, University College London, London, UK

² UCL Division of Surgery & Interventional Science, University College London, London, UK

³ Department of Pathology, University College London Hospitals NHS Foundation Trust, London, UK

⁴ School of Healthcare Sciences, Cardiff University, Wales, UK

⁵ Department of Radiology, University College London Hospitals NHS Foundation Trust, London, UK

⁶ Department of Urology, University College London Hospitals NHS Foundation Trust, London, UK

⁷ UCL Cancer Institute, University College London, London, UK

* joint-senior authors

***Corresponding Author:**

Pranav Satish: zchaati@ucl.ac.uk

Presenting Author: Pranav Satish

Conflicts of interest:

JMN received funding from the MRC. BSS received funding from the Rosetrees Trust. HCW received funding from PCUK, the Urology Foundation and the Rosetrees Trust. AK, AF and ME have stock interest in Nuada Medical. ME received funding from NIHR-i4i, MRC, Sonacare, Trod Medical, Cancer Vaccine Institute and Sophiris Biocorp for trials in prostate cancer. ME is a medical consultant to Sonacare, Sophiris Biocorp, Steba Biotech, GSK, Exact Imaging and Profound Medical. Travel allowance was previously provided from Sanofi Aventis, Astellas, GSK and Sonacare. ME is a proctor for HIFU with Sonacare Inc. and paid for training other surgeons in this procedure.

Funding sources:

The authors declare no funding sources.

Abstract:

Introduction

The implications of tumour location on mpMRI conspicuity are not fully understood. Identifying topographical correlates that influence conspicuity may improve outcomes. Here, we present the first systematic review and meta-analysis describing the effect of tumour location on prostate cancer conspicuity on mpMRI.

Methods

Medline, PubMed, EMBASE and Cochrane databases were systematically searched and results were assessed as per the PRISMA statement. Differential tumour conspicuity on mpMRI was compared between cancers in the peripheral zone (PZ), transitional zone (TZ), base, apex, anterior and posterior. Meta-analysis was conducted to compare diagnostic odds ratios (DOR) of mpMRI detection for tumours in the PZ and TZ. PROSPERO registration: CRD42021228087.

Results

Thematic synthesis showed apical and basal tumours had reduced conspicuity compared to mid-gland tumours. Cancer in the TZ demonstrated increased conspicuity on T2-weighted imaging, whilst PZ cancers had higher conspicuity on diffusion-weighted and dynamic contrast enhancement imaging. mpMRI had better diagnostic accuracy for PZ lesions, albeit higher specificity for TZ lesions. Meta-analysis showed an increased DOR for PZ tumours (OR: 7.206 [95% CI: 4.991;10.403], compared to TZ (OR: 5.310 [95% CI: 3.082; 9.151]). However, the test for subgroup differences was not significant ($p = 0.2743$).

Conclusions

Cancer in the apex or base of the prostate may be less conspicuous than mid-gland tumours. Similarly, TZ cancer appears to have reduced conspicuity compared to PZ cancer, however, meta-analysis did not show a significant difference between DOR. Future larger studies with prospective datasets are required to clarify the relationship between tumour position and conspicuity.

Title:

Ablative Therapies versus Partial Nephrectomy for Small Renal Masses – A systematic review and meta-analysis of observational studies

Authors and affiliations:

Vinson Wai-Shun Chan¹, Ahmad Abul¹, Filzah Hanis Osman¹, Helen Hoi-Lam Ng¹, Kaiwen Wang¹, Yuhong Yuan², Jon Cartledge³, Tze Min Wah^{4*}

¹ School of Medicine, Faculty of Medicine and Health, University of Leeds, Leeds, UK

² Department of Medicine, McMaster University, Hamilton, Canada

³ Department of Urology, St James's University Hospital, Leeds Teaching Hospitals NHS Trust, Leeds, UK

⁴ Department of Diagnostic and Interventional Radiology, Institute of Oncology, St. James's University Hospital, Leeds Teaching Hospitals NHS Trust, Leeds, UK

***Corresponding Author:**

Prof. Tze Min Wah: tze.wah@nhs.net

Presenting Author: Filzah Hanis Osman

Conflicts of interest:

TMW has received research grant from Boston Scientific and Education grant from Angiodynamics.

Funding sources:

No funding was received for this study.

Abstract:

Introduction:

The ideal treatment of small renal masses is unclear. Ablative therapies (AT) have been considered as a potential alternative to partial nephrectomy (PN) due to their lower complication rates and similar oncological durability. We conducted a systematic review to compare oncological outcomes in T1a or T1b patients undergoing AT vs PN.

Methods:

This review is registered on PROSPERO (CRD42020199099). Medline, EMBASE, and Cochrane CENTRAL were searched to identify studies comparing AT and PN. The Cochrane RoB 2.0, ROBINS-I tool and the GRADE approach were used to assess any risk of biases.

Results:

From 1,748 identified records, 32 observational studies and 1 RCT involving 74,946 patients were included. AT patients were found to be significantly older than PN patients (MD 5.70, 95% CI 3.83-7.58), which highlights the serious confounding bias found in the included studies. Patients who received AT for T1a tumours were found to have significantly worse overall survival (HR 1.64, 95% CI 1.39-1.95), but similar cancer-specific survival (CSS), metastatic-free survival, and disease-free survival to PN. There were significantly fewer post-operative complications (RR 0.72, 95%CI 0.55-0.94) and smaller decline in renal function post-operatively in AT (MD: -7.42, 95%CI -13.1- -1.70). In T1b patients, while CSS was similar between AT and PN, there is contradicting evidence for other oncological outcomes.

Conclusion:

AT is potentially non-inferior to PN in the treatment of T1a small renal masses due to similar long-term oncological durability, lower complication rates and better renal function preservation. In T1b patients, long-term high-quality studies are needed to confirm potential benefits of AT.

Title:

Validating a novel visual field assessment app: A pilot study

Authors and affiliations:

Jen Wae Ho^{1*}, Andrew Keenlyside², Jake Sieradzki³, Su Hua Sim, Mark Hughes¹

¹ Edinburgh Translational Neurosurgery, University of Edinburgh

² School of Medicine, University of Dundee

³ School of Medicine, University of Edinburgh

*** Corresponding Author:**

Jen Wae Ho: jen.ho@nhs.scot

Presenting Author: Jen Wae Ho

Conflicts of interest:

No conflict of interest to declare.

Funding sources:

Translational innovation grant, Wellcome/University of Edinburgh

Abstract:

Introduction

The paper Cullen chart has been a validated adjunct to perimeters in detecting scotomas for various neuro-ophthalmological pathologies for decades. It was digitized into a prototype-app to empower future users to conduct remote monitoring of visual fields. This project aimed to refine the apps' usability for future users to self-assess and monitor their visual fields by exploring the difficulties faced using the app, to gather feedback, and subsequently to improve its usability for future iterations to objectively compare iterations using the MAUQ scores.

Methods

Participants (n = 15; age: 24-58) recruited through convenience sampling underwent mixed (quantitative and qualitative) methods to measure 1. Participants' adherence to the app instruction through observation, 2. objective experiences of using the app through self-reporting using the mHealth App Usability Questionnaire (MAUQ), and 3. Subjective experience of app using through semi-structured interviews. Descriptive analysis was computed for observation and MAUQ data. Thematic analysis was adopted to analyse the semi-structured interview data.

Results

1/15 adhered to 3 written instructions and 8/15 participants had awkward hand movements. The MAUQ median score was 123/147, the MAUQ domain mean scores - ease of use and satisfaction, system information arrangement and usefulness were 81.6%(45.7/56), 80.6%(33.9/42) and 80.2%(39.3/49), respectively. Questions 4, 5, 9, 11 and 19 were the 5 lowest-scoring questions. Qualitative data were categorised into instructions, test, and feedback which had codes and subcodes.

Conclusion

Feedback for improvements were surrounding central fixation, remembering peripheral stimuli, uncover eye when interacting with peripheral stimuli, video examples, an introduction to the app and audio instructions.

Acknowledgement:

This research was undertaken as partial fulfilment of the requirements for the MSc Surgical Sciences at The University of Edinburgh

Title:

Endoloops in Laparoscopic Appendicectomy: a Cost Effectiveness Analysis

Authors and affiliations:

Emily Hale^{1*}, Joel Bowen¹, Jonathon Sheen², Kirk Bowling³

¹ General Surgery Department, Torbay Hospitals NHS Trust

² Trauma and Orthopaedics Department, Torbay Hospitals NHS Trust

³ Upper GI Surgery Department, Torbay Hospitals NHS Trust

***Corresponding Author:**

Emily Hale: e.hale1@nhs.net

Presenting Author: Emily Hale

Conflicts of interest:

The authors declare no conflicts of interest.

Funding sources:

The authors declare no funding sources.

Abstract:

Introduction

Over 50,000 appendicectomies are performed in the UK annually with significant associated costs to the healthcare system. The aim of this study was to investigate whether a significant difference in complication rate exists where different numbers of endoloop ligatures have been applied to the appendiceal base during laparoscopic appendicectomy, and to analyse for potential cost saving.

Methods

We performed a retrospective analysis of appendicectomies at our centre in one year, providing a sample of 254 patients. Cases were analysed against exclusion criteria, operative method, and histological findings. Each was followed up for complications in the 30 days post discharge and graded using the Clavien-Dindo system. Our null hypothesis of no difference in complication rate was tested using Fisher's exact test.

Results

Of 254 patients, 59 were excluded due to open approach, non-endoloop method, or lack of available record, leaving a population of 195. The result of the two-tailed P value equalled 1.000, indicating no statistically significant difference in complication rate whether one or two endoloops were used. Regarding cost effectiveness, an endoloop costs £13.59. If the 62 cases in which 2 endoloops were used to secure the base had utilised a single endoloop, this would amount to a saving of £842.58.

Conclusion

Our study set out to assess whether the complication rate differs in cases where one or two endoloops have been applied. Retrospective statistical analysis found no significant difference between groups. Based on these findings, we recommend use of one endoloop to secure the base in laparoscopic appendicectomy.

Title:

European Association of Urology COVID intermediate prioritisation group is poorly predictive of pathological high-risk among patients with renal tumours

Authors and affiliations:

Pranav Satish^{1*}, Teele Kuusk², Nick Campain³, Yasmin Abu-Ghanem², Joana Neves², Ravi Barod², Soha El-Sheikh⁴, Faiz Mumtaz², Prasad Patki², Maxine Tran², My-Anh Tran-Dang⁴, Lee Grant⁵, Tobias Klatter⁶, Axel Bex²

¹ University College London, Division of Surgical and Interventional Science, London, United Kingdom

² Royal Free Hospital, Centre for Kidney Cancer, London, United Kingdom,

³ Royal Devon and Exeter Hospital, Department of Urology, Exeter, United Kingdom

⁴ Royal Free Hospital, Department of Pathology, London, United Kingdom

⁵ Royal Free Hospital, Department of Radiology, London, United Kingdom

⁶ Royal Bournemouth Hospital, Department of Urology, Bournemouth, United Kingdom

***Corresponding Author:**

Pranav Satish: zchaati@ucl.ac.uk

Presenting Author: Pranav Satish

Conflicts of interest:

The authors declare no conflicts of interest.

Funding sources:

The authors declare no funding sources.

Abstract:

Introduction

The purpose of prioritisation is to minimise harm while safeguarding access to health care in times of reduced resources. The EAU Guideline Office Rapid Reaction Group (GORRG) issued priority recommendations during the COVID-19 pandemic. We evaluated if the clinical prioritisation for suspected renal cell carcinoma (RCC) planned for surgery matched final pathological risk.

Methods

From 23 March 2020 until 10 October 2020, patients with suspected RCC were prioritised according to GORRG recommendations. To increase statistical power, GORRG prioritisation was also retrospectively assigned to pre-lockdown RCC surgical cases. The priority group was assessed according to GORRG guidelines, and postoperative risk was assessed according to 2003 Leibovich scores. We evaluated concordance between GORRG prioritisation and post-operative risk, and if stratification could be further improved by subgrouping of size.

Results

351 patients with suspected RCC were prioritised and underwent surgery. The intermediate priority group showed poor concordance, with 25.7% and 16.4% being pathological low and high risk, respectively. The low priority group harboured 14.9% intermediate and 1.06% high risk RCC. Within the EAU intermediate group, 34.2% of cT1b tumours were low risk, and 32.3% of cT2a tumours high risk. Analysing at 1 cm increments, 45.1% of 4-5cm tumours were low risk.

Conclusions

The recommended prioritisation system can be error prone and should be prudently applied based on the centre's needs. Particularly amongst the intermediate group, centres with clinical capacity should not defer intervention of cT2a tumours for longer than absolutely necessary and in severely limited resources may consider intermediate priority tumours < 5cm as low priority.

Title:

Salvage versus primary robot-assisted radical prostatectomy: a propensity-matched comparative effectiveness study from a high-volume tertiary centre

Authors and affiliations:

Arjun Nathan^{1,2*}, Monty Fricker^{3*}, Ruben De Groot⁴, Amandeep Arora⁵, Yuzhi Phuah², Kiran Flora², Sonam Patel², Veeru Kasivisvanathan^{1,2}, Ashwin Sridhar¹, Greg Shaw¹, John Kelly¹, Tim Briggs¹, Prabhakar Rajan^{1,6}, Prasanna Sooriakumaran^{1,7}, Senthil Nathan¹

¹ Department of Uro-oncology, University College London Hospitals NHS Foundation Trust, London, UK

² University College London, London, UK

³ University of Newcastle, Newcastle, UK

⁴ Department of Urology, Onze Lieve Vrouw Hospital Aalst, Aalst, Belgium

⁵ Department of Urology, Tata Memorial Hospital, Mumbai, India

⁶ Barts Cancer Institute, CR-UK Barts Centre, Queen Mary University of London, London, UK

⁷ Nuffield Department of Surgical Sciences, University of Oxford, Oxford, UK

***Corresponding Author:**

Arjun Nathan: arjun.nathan.11@ucl.ac.uk

Presenting Author: Monty Fricker

Conflicts of interest:

The authors declare no conflicts of interest.

Funding sources:

The authors declare no funding sources.

Abstract:

Introduction

Salvage Robot-Assisted Radical Prostatectomy (sRARP) is a potential treatment option for locally recurrent Prostate Cancer after non-surgical primary treatment. There are minimal data comparing outcomes between similar-risk, propensity-matched salvage and primary Robot-Assisted Radical Prostatectomy (RARP). We compare perioperative, oncological and functional outcomes of sRARP with primary RARP and between sRARP post-whole and focal gland therapy.

Methods

1:1 propensity-matched comparison of 146 sRARP with primary RARP from a cohort of 3,852 consecutive patients from a high-volume tertiary centre.

Results

There were no significant differences in patient characteristics between the salvage and primary RARP groups. Grade III-V Clavien-Dindo complication rates were 1.3% and 0% in the salvage and primary groups (p=0.310). Median (IQR) follow-up was 16 (10, 30) and 21 (13, 33) months in the salvage and primary groups. BCR rates were 30.8% and 13.7% in the salvage and primary groups (p<0.001). Pad-free continence rates were 79.1% and 85.4% at two years in the salvage and primary groups (p=0.160). Erectile dysfunction was 95.2% and 77.4% in the salvage and primary groups (p<0.001). On comparison of whole and focal gland groups, biochemical recurrence was 33.3% and 29.1% (p=0.687), pad-free continence rates were 66% and 89.3% (p=0.001), and ED rates were 98.3% and 93% (p=0.145).

Conclusions

SRARP has similar perioperative but inferior oncological outcomes to primary RARP. Continence rates are similar to primary RARP, but potency is worse. Perioperative and oncological outcomes of sRARP after focal gland therapy are similar compared to after whole gland therapy but continence outcomes are superior.

Title:

Virtual interactive surgical skills classroom (VIRTUAL): a parallel-designed, non-inferiority, adjudicator-blinded, randomised controlled trial

Authors and affiliations:

Arjun Nathan^{1*}, Monty Fricker^{2*}, Aqua Asif¹, Maria Georgi¹, Sonam Patel¹, Man Kien Hang¹, Amil Sinha³, William Mullins³, Jessie Shea³, Nancy Hanna³, Massimo Monks⁴, David Peprah⁴, Akash Sharma⁵, George Ninkovic-Hall⁶, Benjamin W Lamb⁷, John Kelly¹, Ashwin Sridhar¹, Justin Collins¹

¹ University College London, London, UK

² Newcastle University, Newcastle, UK

³ University of Cambridge, Cambridge, UK

⁴ North Middlesex University Hospitals NHS Foundation Trust, UK

⁵ Imperial College London, London, UK

⁶ Liverpool University Hospitals NHS Foundation Trust, Liverpool, UK

⁷ Cambridge University Hospitals NHS Foundation Trust, Cambridge, UK

***Corresponding Author:**

Arjun Nathan: arjun.nathan.11@ucl.ac.uk and Monty Fricker: m.fricker1@newcastle.ac.uk

Presenting Author: Aqua Asif

Conflicts of interest:

The authors declare no conflicts of interest.

Funding sources:

Virtual classroom technology expenses and the purchasing of equipment and venue-hire were financed by UCL and the Royal College of Surgeons England. Non-financial support was not received.

Abstract:

Introduction

Virtual classroom training (VCT) is a novel educational method that permits accessible, distanced interactive expert instruction. We aimed to evaluate the efficacy of VCT in comparison to face-to-face training (FFT) and non-interactive computer-based learning (CBL) for basic surgical skills training.

Methods

72 participants recruited from five London medical schools underwent stratified block randomisation into three equal intervention groups based on subjective and objective suturing experience. VCT was delivered via the BARCO weConnect platform and FFT was provided by expert instructors. Optimal student-to-teacher ratio was used, 12:1 for VCT and 4:1 for FFT. The assessed task was interrupted suturing with hand-tied knots. The primary outcome was post-intervention Objective Structured Assessment of Technical Skills (OSATS) score, adjudicated by two blinded experts and adjusted for baseline proficiency.

Results

VCT was non-inferior to FFT (adjusted difference 0.44, 95% CI: -0.54 to 1.75, delta 0.675), VCT was superior to CBL (adjusted difference 1.69, 95% CI 0.41 to 2.96) and FFT was superior to CBL (adjusted difference 1.25, 95% CI 0.20 to 2.29). FFT alone was associated with student travel expenses (mean £4.88, SD 3.70). Instructor hours used per student for VCT and FFT were 0.25 and 0.75, respectively.

Conclusion

VCT has a similar educational benefit to FFT and is a suitable modality of high-quality surgical skills education. VCT provides greater accessibility and resource efficiency compared to FFT. VCT satisfies the requirement for social distancing during the COVID-19 pandemic and is better than non-interactive CBL. VCT has the potential to improve global availability and accessibility of surgical skills training.