British Society of Interventional Radiology

Interventional Oncology

BSIR IOUK Annual Meeting Programme

19th - 20th June 2025

Leonardo Royal Hotel,
Tower Bridge, London

BSIR IOUK Annual Meeting

Welcome

It is my great pleasure to welcome you all to London for the 10th Annual Meeting of Interventional Oncology UK (IOUK).

This year marks a significant milestone in our journey - a decade of bringing together a community of professionals dedicated to advancing cancer care through minimally invasive therapies. Over the past ten years, IOUK has grown into a vital platform for education, collaboration, and innovation, reinforcing the essential role of Interventional Oncology as a cornerstone of modern multidisciplinary cancer care. We are proud to see IOUK continuing to strengthen connections with colleagues and experts across the UK, USA, Europe, and India. This international collaboration not only elevates the scientific calibre of our programme but also fosters shared learning to improve outcomes for patients around the world.

Our sincere thanks go to the outstanding faculty who have generously contributed their time and expertise, as well as to our industry sponsors whose continued support enables us to deliver a high-quality educational experience. I would also like to express my gratitude to the BSIR team, whose ongoing partnership and behind-the-scenes efforts play an instrumental role in the success of this meeting.

It is particularly encouraging to witness the increasing engagement of trainees in our community. This year, we have received a record number of abstract submissions, reflecting the growing interest and future promise of the next generation of interventional oncologists.

Thank you all for joining us as we celebrate this important milestone. I look forward to an inspiring and interactive meeting.

Dr Praveen Peddu
Chair-Elect, Interventional Oncology UK
Consultant Interventional Radiologist

BSIR IOUK Annual Meeting Programme

Day One - Thursday 19th June 2025

Time	Session Title and Speakers
08:00-09:30	**Registration and Coffee**
08:30-09:45	**Industry Sponsored Trainee Hands-on Session** (Beaumont & Sidney Suite)
09:50-10:00	**Welcome and opening address** (Bartholomew & Harpley Suite) **Dr Praveen Peddu**
10:00-11:00	**HCC Debate** (Bartholomew & Harpley Suite) **Dr Dominic Yu, Dr Abid Suddle & Dr Paul Ross** • Early-stage HCC – Modern ablative techniques Professor Raj Narayanan • Ablative single session Y90 without MAA Professor Riad Salem • Advanced parenchymal preserving surgical techniques for HCC Professor Krish Menon • New novel TACE using hybrid CT angio Professor Naveen Kalra
11:00-11:30	**Tumour Board** **All Faculty**
11:30-11:50	**Coffee Break & Posters**
11:50-12:50	**Future Liver Remnant** (Bartholomew & Harpley Suite) **Professor Krish Menon & Dr Teik Choon See** • Liver venous deprivation – Results from Dragon Trial. Dr Sachin Modi • Radiation lobectomy - update Dr Peter Littler • Estimation of FLR and functional reserve Dr Salil Karkhanis
12:50-13:20	**Aquilant Sponsored Symposium - Robotic Ablation of Tumours - A New Era of Precision with Epione®** (Bartholomew & Harpley Suite) Dr Praveen Peddu & Professor Govindarajan Narayanan

BSIR IOUK Annual Meeting Programme

Day One - Thursday 19th June 2025

Time	Session Title and Speakers
13:20-14:20	**Lunch**
14:20-14:50	**Liver Metastatic Disease** (Bartholomew & Harpley Suite) **Dr Pauline Kane & Professor Derek Manas** • Oligometastatic disease Ablation Vs Surgery – Lessons learnt from Collission Professor Martijn Meijerink • MCRC – An update on systemic therapy and disease Dr Paul Ross • Y90 in CRLM– Is there a need for update guidance? Professor Riad Salem
14:50-15:20	**Tumour Board**
15:20-15:50	**Palliative IO for Advanced Cancers** (Bartholomew & Harpley Suite) **Dr Mark Anderson & Dr Steve Bandula** • Palliative Interventions in Advanced Neck and Thoracic tumors Dr Tarun Sabharwal • Electrochemotherapy for Spinal Tumours Professor Afshin Gangi • Soft Tissue Tumours and Sarcomas Dr Nicos Fotiadis
15:50-16:35	**Abstract winners Oral Presentations** **Dr Dominic Yu & Dr Ed Johnston**
16:35-17:00	**Coffee Break**
17:00-17:45	**Industry Sponsored Symposium - Sirtex** (Bartholomew & Harpley Suite) **Dr Nabil Kibriya** • Update for SIRT with SIR-Spheres® Y-90 resin microspheres Dr Teik Choon See • Treat the Tumour and Save the Liver with degradable starch TACE: rationale and evidence Dr. Federico Collettini
17:45-18:30	**Drinks Reception**

BSIR IOUK Annual Meeting Programme

Day Two - Friday 20th June 2025

Time	Session Title and Speakers
08:30-08:45	**Coffee and Registration**
08:30-09:45	**Trainee IO Foundation Session** (Sydney and Beaumont Suite) • HCC management 101: a clinical walkthrough of the BCLC guidelines Dr Georgia Priona • Burn, Freeze, Zap: an overview of modern ablation techniques Dr Jim Zhong • A beginner's guide to TACE: techniques, timing and tips Dr James Gordon-Smith
08:45-09:45	**Pancreas and Biliary** (Bartholomew & Harpley Suite) **Professor Raj Narayanan & Dr Peter Littler** • Pancreatic IRE V MR guided SABR: Results of Crossfire trial Professor Martijn Meijerink • Endobiliary RFA for Malignant strictures : An update Dr Damian Mullan • Y90 for NET liver metastates Dr Bian Stedman • IRE for Gall Bladder tumours: Experience from India Professor Naveen Kalra
09:45-10:15	**Celebrating 10 years of IOUK** (Bartholomew & Harpley Suite) **Professor Tze Wah & Professor Martijn Meijerink** Dr David Breen
10:15-10:45	**Coffee Break and Poster Session**
10:45-11:45	**GU/Renal** (Bartholomew & Harpley Suite) **Dr Graham Munneke** • Renal IRE Professor Tze Wah • Renal Cryoablation V MWA Dr Miles Walkden

BSIR IOUK Annual Meeting Programme

Day Two - Friday 20th June 2025

Time	Session Title and Speakers
11:45-12:45	**Lunch**
12:45-13:15	**Jean Ratcliff Oral Presentations** (Bartholomew & Harpley Suite) **Dr Graham Munneke & Dr Nicos Fotiadis**
13:15:14:15	**Endocrine** (Bartholomew & Harpley Suite) **Dr Sachin Modi** • MWA Thyroid Ablation Initial experience Dr Tim Yusuf • Adrenal Ablation Dr Deborah Low
14:15-15:45	**Practical IO** (Bartholomew & Harpley Suite) **Professor Tze Wah & Dr Peter Littler** • Pancreatic/biliary case Dr Nabil Kibriya & Dr Stephen Gregory • Liver Case Dr Jim Gordon Smith & Dr Hamish Ireland • Lung Case Dr Paras Dalal • Bone/Soft Tissue Case Dr Ed Johnston & Dr Nicos Fotiadis • Renal Case Dr Miles Walkden & Dr Graham Munneke
15:45-16:00	**Closing Remarks**

BSIR IOUK Annual Meeting

Faculty List

Dr Praveen Peddu	King's College Hospital
Professor Govindarajan Narayanan	University of Miami, Miller School of Medicine
Professor Riad Salem	Northwestern University, Chicago
Professor Krish Menon	King's College Hospital
Professor Naveen Kalra	Post Graduate Institute of Medical Education & Research, Chandigarh
Dr Sachin Modi	University Hospitals Southampton
Dr Peter Littler	Freeman Hospital
Dr Salil Karkhanis	Queen Elizabeth Hospital
Professor Martijn Meijerink	Amsterdam UMC
Dr Paul Ross	Guy's and St Thomas' NHS Foundation Trust
Dr Tarun Sabharwal	Guy's and St Thomas' NHS Foundation Trust
Professor Afshin Gangi	University Hospital of Strasbourg, France
Dr Nicos Fotiades	The Royal Marsden Hospital
Dr Damian Mullan	The Christie NHS Foundation Trust
Dr Brian Stedman	University Hospitals Southampton
Dr David Breen	University Hospitals Southampton
Professor Tze Wah	Leeds Teaching Hospitals Trust
Dr Miles Walkden	University College Hospital
Dr Tim Yusuf	King's College Hospital
Dr Deborah Low	Royal London Hospital
Dr Nabil Kibriya	Kings College Hospital
Dr Stephen Gregory	Kings College Hospital
Dr Hamish Ireland	Royal Infirmary of Edinburgh
Dr Jim Gordon Smith	Royal Infirmary of Edinburgh
Dr Paras Dalal	Harefield Hospital
Dr Ed Johnston	Royal Marsden Hospital
Dr Steve Bandula	University College London
Dr Dominic Yu	Royal Free Hospital
Dr Graham Munneke	University College Hospital
Dr Mark Anderson	Oxford University Hospitals NHS Trust
Dr Pauline Kane	King's College Hospital
Professor Derek Manas	Newcastle Hospitals NHS Foudation Trust
Dr Teik Choon See	Cambridge University Hospitals NHS Foundation Trust
Dr Abid Suddle	King's College Hospital
Dr Federico Collettini	Charité Universitätsmedizin Berlin

BSIR IOUK Annual Meeting

Accepted Case Studies

Author: Jason Yeung
Title: The Interventional Oncology Case Study I learnt most from

Case description: JB was a 32-year-old man who was diagnosed in early 2022 with epithelioid haemangioendothelioma (EHE) of the C5 vertebra, with a single hepatic metastasis. EHE is a rare vascular neoplasm of intermediate malignant potential. His spinal disease was treated surgically with C5 corpectomy and posterior fixation, followed by subtotal resection of the tumour to preserve motor function, with adjuvant radiotherapy to the operative site. The single deposit in the liver was first treated using microwave ablation (MWA), but further liver metastases then developed. Over the next three years, hepatic disease burden was managed with a spectrum of interventional oncology (IO) techniques. These treatments extended his life significantly and allowed him to reach meaningful personal milestones, including his wedding. The patient underwent seven IO ablation procedures, primarily MWA, with an average of two lesions treated per sitting. When treatment of one lesion high in the right hepatic dome (Figures 1-2) led to a diaphragmatic hernia and bowel obstruction, an urgent laparotomy was required. This experience influenced subsequent focal ablation technique: a similar subdiaphragmatic lesion was later treated using irreversible electroporation (IRE) to reduce the risk of collateral injury. In addition to local therapy, image-guided liver biopsies were performed to screen for targetable mutations, although none were identified. As disease progressed with increasing multifocality, focal ablation became unfeasible. The patient was referred for selective internal radiotherapy (SIRT), delivered at a specialist centre. His most recent PET-CT (Figure 3) and liver MRI show stable disease, and he remains on the liver transplant list—a potential curative option should he remain free of extrahepatic disease.

Reflection: Besides the technical skills required with the different IO treatments used, caring for this patient also necessitated the continuous reassessment of risk, thoughtful communication, and meaningful collaboration across the broader multidisciplinary team. JB was highly engaged and motivated, pushing conventional treatment boundaries and advocating for aggressive local therapy wherever possible. While this can be challenging, it served as a powerful reminder that patients are not passive recipients of care—they are partners in decision-making. The complication of diaphragmatic herniation following microwave ablation was a sobering moment for the team. It reinforced that even minimally invasive therapies carry real risks, particularly when working near critical structures. This case also

reinforced the value of interventional oncology as a flexible tool within the wider oncology pathway—bridging systemic treatment gaps, offering tumour control, and preserving quality of life for longer than would have otherwise been possible, especially in treating complex and rare cancers where the tumour biology can be unpredictable.

Key Learning Points:

• Interventional oncology can provide durable disease control in select patients with hepatic metastases from rare tumours like EHE, especially when systemic options are limited.

• The proximity of lesions to the diaphragm requires careful procedural planning and consideration of technique (e.g., IRE vs MWA).

• Patient-centred care includes listening, even when patients challenge standard pathways. Their priorities can shape decisions in a meaningful and ethical way.

Please note patient consent and institutional review board approval were obtained.

Figure 1

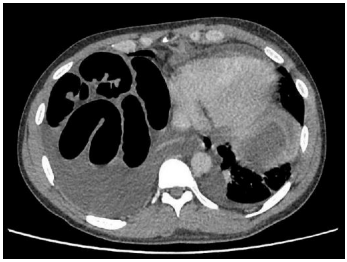

Figure 2

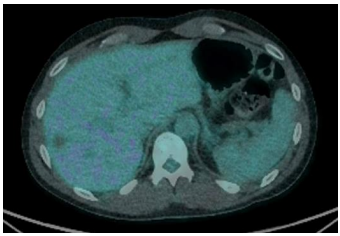

Figure 3

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Accepted Case Studies

Author: Aletor Amakhian
Title: The Interventional Oncology Case Study I learnt most from
TITLE: When Precision Meets Caution: A Case of Colorenal Fistula Following CT-Guided Microwave Ablation of a Renal Tumour

Background: Microwave ablation (MWA) is an increasingly adopted, nephron-sparing therapy for small renal tumours, offering a minimally invasive alternative to surgery. As a modality guided by real-time imaging, it carries a safety profile with low complication rates (1–5%) and effective oncological control, with CIRSE guidance recommending a <6.5% local recurrence within 2.5 years. Despite its established efficacy, the risk of collateral thermal injury to adjacent structures remains, especially when ablating larger renal masses or operating in anatomically constrained environments. Techniques such as hydrodissection are critical adjuncts in safeguarding adjacent organs. This case highlights a rare but serious complication — a colorenal fistula — and the valuable lessons gleaned during a trainee-led audit of renal ablation cases.

Case Discussion: While analysing our audit data which retrospectively assessed 24 CT-guided MWA cases for renal tumours performed over a three-year span, the mean lesion size across the cohort was 2.2 cm, with average ablation duration of 4 minutes. Only one complication occurred — in the patient with the largest tumour (4.7 cm) who underwent a prolonged 6-minute ablation, and uniquely, without hydrodissection. Within a month post-ablation, the patient presented with left flank pain. Imaging and surgical review confirmed a colorenal fistula, a rare communication between the left colon and ablated renal parenchyma. Remarkably, the fistula resolved with conservative management and surveillance, without lasting sequelae.

Reflection & Learning Points: As a trainee, leading this audit was a transformative experience — not just in understanding procedural metrics, but in appreciating the nuanced balance between technical confidence and procedural humility.

My key reflections and learning points:
1. Respect Tumour Size & Location: Larger renal tumours pose greater thermal risks. This case reinforced the importance of adapting technique and vigilance for atypical presentations.
2. Hydrodissection is Protective, Not Optional: Operator familiarity may lead to

omitting safeguards like hydrodissection, especially when confidence builds. This case reminds us that every ablation deserves a tailored safety plan, regardless of how “routine” it seems.
3. Audit Drives Insight: This outlier case only stood out because of structured audit. Retrospective reflection provided context that isolated complications alone do not.
4. The Value of Conservative Management: Multidisciplinary input (surgical and radiological) supported a non-invasive approach, reinforcing that not all complications mandate escalation, especially when recognized early.
5. Trainee Involvement Builds Systems Thinking: Beyond the technical, this case cultivated awareness of complication tracking, standard adherence, and reflective learning — all critical in evolving as a safe, thoughtful IR.

Conclusion: This case serves as both a clinical teaching tool and a personal milestone in my IR training. It underscores the need for procedural diligence, technique refinement, and continuous audit-led learning. As ablation techniques evolve and expand, so must our commitment to reflective practice — particularly in the hands of trainees shaping the next generation of image-guided oncologic care.

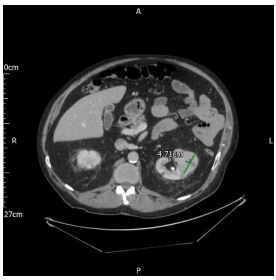

Figure 1

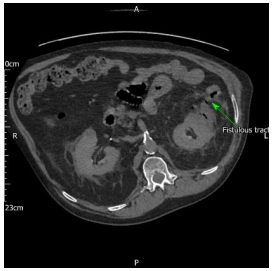

Figure 2

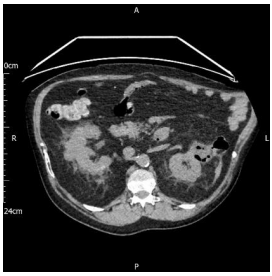

Figure 3

Figure 4

BSIR IOUK Annual Meeting

Accepted Case Studies

Author: Vinson Wai-Shun Chan

Title: The Interventional Oncology Case Study I learnt most from A 53-year-old woman with complex renal cell carcinoma underwent CT-guided irreversible electroporation (IRE), presenting technical challenges and offering valuable insights into the adoption of novel technology and the dynamics of interventional oncology teams.

Case Description: The patient presented with non-specific back pain, with MRI revealing a 3.0cm left-sided endophytic, central interpolar renal mass situated in proximity to the primary renal vein (superiorly), a branch of the left renal artery, the renal pelvis, the proximal ureter (inferomedially), and an interpolar calyx (superiorly-laterally) (Figure 1). Biopsy suggested papillary or chromophobe renal cell carcinoma. The multidisciplinary team deemed partial nephrectomy high-risk due to the tumour's endophytic location and complexity. After counselling, the patient chose image-guided ablation over radical nephrectomy. IRE was selected to preserve nearby structures. A ureteric stent was inserted retrograde to protect the ureter.

Procedural Details: Under general anaesthesia, CT-guided IRE was performed using the NanoKnife System in prone positioning. The procedure was performed under general anaesthesia with CT guidance using the Nanoknife System. Six electrodes were strategically placed along the tumour periphery with 1.8–2.2 cm inter-electrode spacing (Figure 2). A deliberate transcalyceal approach facilitated superior margin access (Figure 3). After confirming 20–40A current delivery with test pulses, two cardiac-gated 90-pulse cycles achieved complete ablation with 0.5 cm pullback overlap. Immediate post-procedural CT showed a contained urinary leak managed conservatively.

Outcome: The patient was discharged the next day with a planned follow-up MRI at 1 month. Renal function remained stable at the time of discharge.

Reflection and Learning Points: This case profoundly shaped my understanding of implementing novel technologies in interventional oncology, as well as the role of team and behavioural science within the interventional oncology suite.

1. Precision demands of IRE - While IRE's non-thermal approach represents an effective problem-solving strategy given its ability to preserve crucial structures like bile ducts and vasculature, IRE requires millimeter-level accuracy in probe

placement. During the procedure, maintaining parallel electrode trajectories proved challenging due to the tumour's deep interpolar location, requiring an unconventional transcalyceal approach. Unlike cryoablation's visible ice ball, IRE provides no real-time visual confirmation, increasing the reliance on post-procedural imaging and interventional radiologist expertise. This case taught me that novel technologies often work in synergy with seasoned, experienced approaches.

2. Human factor in IO - The pivotal moment of the case came during generator setup when probe numbering discrepancies arose due to miscommunication. Despite the senior consultant's confidence in the configuration, the junior registrar felt empowered to voice concerns due to our team's established culture of open dialogue. This flat hierarchy cultivated through approachability, and civility allowed rapid error correction. We halted the procedure, rechecked all the electrodes labelling and discovered incorrect configuration that risked subtherapeutic treatment or complications. This incident illustrates Maslow's hierarchy in healthcare: team members must feel secure to self-actualise as proactive safety advocates. I've proactively fostered this environment in all cases.

The case reshaped my leadership approach. Where I once prioritised technical mastery, I now recognise that nurturing team dynamics is equally vital.

Declaration: Patient consent was sought for this case study.

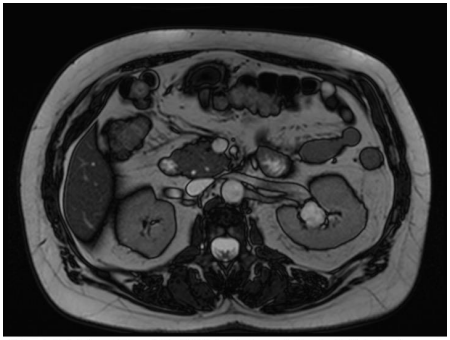

Figure 1. Axial view of T2 weighted MRI showing a central endophytic lesion in proximity to the left renal vein and renal artery

Figure 3. Intra-procedural CT (Axial) showing IRE needle puncturing the calyx to allow for transcalyceal approach and access of superior margin of the tumour

Figure 2. Intra-procedural CT (Coronal) showing 6 IRE needles bracketing the tumour

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Accepted Case Studies

Author: Peng Kwan Ng

Title: The Interventional Oncology Case Study I learnt most from Planning, Patience and Precision: The secrets to a successful SIRT treatment.

Introduction: The interventional oncology case which I learned most is the SIRT (Selective Internal Radiation Therapy) case which I performed with my consultant. SIRT is a treatment performed in 2 stages- workup and treatment stages. It is a treatment option in selective patients with advanced hepatocellular carcinoma (HCC) and can potentially downstage the disease for curative treatments such as surgery or ablation.

Case: My case involved a middle-aged man with background liver cirrhosis and a large 8cm HCC involving segments 5 to 8. We started by planning the case and examining the previous CT which showed a replaced hepatic artery proper (rHAP) from the superior mesenteric artery (SMA). Access was gained via the right common femoral artery. SIMS 1 catheter was used to cannulate the SMA and digital subtracted angiography (DSA) performed demonstrating the arterial anatomy to the liver (Figure 1). The right hepatic artery (RHA) was catheterised using a microcatheter and a cone beam CT (CBCT) was performed (Figure 2). The CBCT was extremely useful as it demonstrated that not all the tumour was supplied by the RHA, the rest was supplied from branches of the LHA which we later confirmed. The RHA was divided into 3 branches. It was important to visualise all these branches well to ensure treatment flowed into all vessels. We therefore magnified the view and angled the image intensifier to a obtain a good view of these vessels (Figure 3a,b). I noticed how small differences in the microcatheter positions can influence the flow of contrast/ treatment into the RHA branches (Figure 3a,b). These differences in microcatheter positions albeit small, could result in lack of treatment into some vessel branches, potentially causing suboptimal treatment. These steps were repeated in the LHA. Y90 treatment was delivered on treatment day without any issues and early follow-up CT demonstrated good response.

Reflections: I learned plenty from this case.
1) The importance of planning. By reviewing the CT beforehand, we knew the rHAP originated from the SMA rather than the coeliac axis. This saves time as we did not need to interrogate the coeliac axis to search for the HAP. The right catheter selection can also be made through good planning which will reduce procedural time and stress.

2) Patience. It is important to not cut corners and to perform procedures methodically even if it means increasing procedural time slightly. In this case, even though it took time to perform multiple CBCTs, angle the image intensifier as well as magnify views to view the vessels better, the benefits are enormous as they ensure treatment areas are not missed.
3) Precision. I learned how tiny changes in microcatheter positions can influence the contrast/ treatment flow dynamics. As evident in this case, slight position change of the microcatheter could mean treatment bypassing a vessel branch which eventually leads to suboptimal treatment. Therefore, it is important to be patient and precise when performing SIRT.

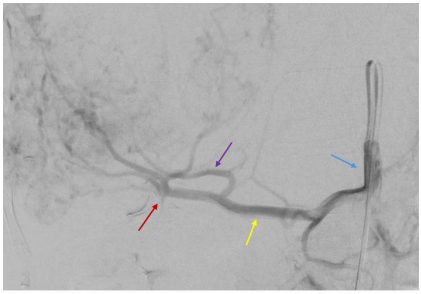

Figure 1: DSA from the SMA (blue arrow). Red arrow demonstrates overlapping vessel branches from the RHA. Replaced HAP (yellow arrow) and LHA (purple arrow).

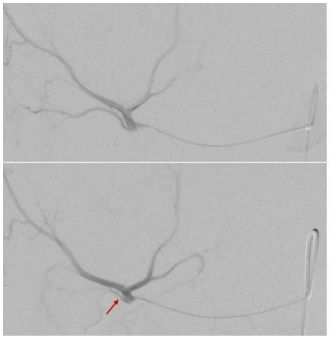

Figure 3a (top): Selective DSA from the RHA with magnified view and caudal angulation of the image intensifier to 'open up' the trifurcation of the vessels and visualise vessels flow better. Figure 3b (bottom): Tiny differences of the microcatheter positioning can affect the flow of contrast and now the inferior branch (red arrow) has little to no flow in it.

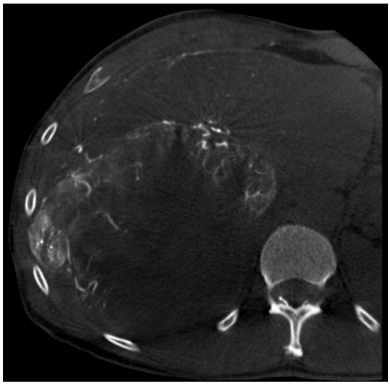

Figure 2: Cone beam CT (CBCT) from RHA demonstrates contrast filling within the anterolateral aspect of the tumour. However, note the absence of contrast filling within the posteromedial aspect of the tumour which is supplied from the LHA.

BSIR IOUK Annual Meeting

Accepted Case Studies

Author: Reza Sarwary
Title: CEUS-Guided Renal Biopsy: The IO Case I Learned Most From

Renal mass biopsies are vital in the assessment of indeterminate renal lesions including focal and non-focal lesions. However, their diagnostic accuracy can be limited in lesions with heterogeneous enhancement or necrotic areas. In such cases, targeting viable, vascularised tissue is essential to reach a definitive diagnosis. Contrast-enhanced ultrasound (CEUS) has emerged as a valuable adjunct to conventional ultrasound for guiding abdominal interventions. CEUS employs intravenous ultrasound contrast agents, such as sulphur hexafluoride microbubbles, to dynamically assess lesion perfusion in real time. This form of imaging aids in the differentiation between viable tumour regions from non-enhancing necrotic or fibrotic areas, enabling more precise targeting during biopsy procedures. During my placement at King's College London's Interventional Radiology department, I reviewed case outcomes from image-guided renal biopsies and observed that CEUS-guided renal biopsies have a higher diagnostic accuracy than those performed using conventional US or CT guidance alone. The added perfusion detail offered by CEUS allowed operators to confidently target viable tissue, particularly in partially necrotic or cystic lesions, where conventional imaging often struggled to define a suitable sampling area. CEUS was also especially effective in highlighting peripheral enhancement in otherwise inconspicuous lesions. Other than biopsies, CEUS has broad applications in abdominal interventions. A review of literature shows that CEUS is increasingly utilised in procedures such as drainage, nephrostomy insertion, biliary interventions and in the evaluation of vascular complications. Its advantages include the absence of ionising radiation, lack of nephrotoxicity, and immediate bedside availability, making it incredibly useful in patients with renal impairment or those undergoing repeated procedures.

Reflection: My exposure to CEUS reshaped my understanding of image-guided interventions. Previously, I saw image guidance primarily as a structural exercise—focused on anatomy, avoiding vessels, and choosing safe access paths. CEUS introduced a functional dimension, revealing not just where a lesion is, but where it is actively vascularised. This real-time perfusion insight directly impacted decision-making and outcomes. What I find most interesting is the practicality of CEUS. Compared to CT or MRI, it provides accurate real-time information, avoiding delays, radiation, and nephrotoxic contrast agents. Its application

in biopsy demonstrates how functional imaging can elevate the precision of interventional oncology procedures. This experience deepened my appreciation of how innovations and the continuous evolution of technique and technology in imaging can refine established procedures and ultimately improve patient care. This is one of the reasons I find myself more and more passionate about pursuing a career in radiology, particularly interventional radiology due to the scope and promise of future applications. It requires constant revaluation of conventional techniques which pushes you as a clinician.

Key Learning Points: CEUS improves biopsy yield by identifying perfused, viable tumour regions within complex lesions. CEUS is increasingly applied across procedures, enhancing precision and patient outcomes. Understanding CEUS is essential for modern interventional oncology practice which is important for my future career.

Ethical Statement: This case study is based on patient data. Patient consent was obtained. Hospital board consent was obtained.

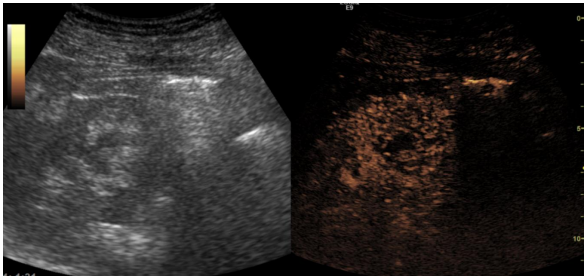

Figure 1

Figure 2

Figure 3

BSIR IOUK Annual Meeting

Accepted Oral Presentations

Effects of Image-guided Ablation of Small Renal Mass in Patients with Chronic Kidney Disease: A Systematic Review and Meta-analysis

Authors: Vinson Wai-Shun Chan, Donna Jaison, Kanika Mathew, Tze Min Wah

Aim: This systematic review aims to evaluates the safety, efficacy, and complications of image-guided ablation (IGA) for treating small renal masses (SRM) in chronic kidney disease (CKD) patients.

Method: A systematic literature search was conducted across Cochrane, MEDLINE, and Embase databases on 12/01/2024. Inclusion criteria: studies on image-guided ablative therapies for SRM ≤7cm or T1a/b in CKD stage 3 or higher patients. Exclusion criteria: conference proceedings, abstracts without full access, paediatric, and non-human studies.

Results: This meta-analysis included 5 studies with 2523 patients, with a mean age of 70.1 years. Pooled reduction in pre-treatment and post-treatment eGFR was 13ml/min/1.73^2, with insignificant heterogeneity (I2=33.7%, p>0.1). Subgroup analysis revealed that the patients with a solitary kidney had a smaller pooled drop in eGFR (4.16 ml/min/1.73^2) compared to patients with other causes of CKD (17.29 ml/min/1.72^2). There was significant heterogeneity between studies in the CA subgroup (I2 = 56.67%) while RFA was homogenous (I2 = 0.00%), however, no difference in renal function outcome was observed. Renal function progression showed minimal change in eGFR across the follow-up time for both modalities, though one study showed a more noticeable change, and one showed an initial decrease followed by an increase in eGFR at later follow-ups.

Conclusion: Image-guided ablation is a safe treatment modality for patients with known CKD when treating small renal masses, causing minimal drop in renal function. However, there is a lack of long-term follow-up data for renal function follow-up and further prospective research is encouraged.

Irreversible Electroporation of Hepatocellular Carcinomas – a single centre intermediate-term outcome

Authors: Elias Williams, Vinson Wai-Shun Chan, Krish Gupta, Jim Zhong, Omar Abdel-Hadi, Jonathan Smith, James Lenton, Tze Min Wah

Aims: Irreversible Electroporation (IRE) is a novel, non-thermal ablation technique. This study aims to review the efficacy and safety of IRE in hepatocellular carcinomas (HCCs).

Materials and Methods: This is a retrospective study of consecutive patients undergoing IRE for HCCs. IRE was utilised where other ablation techniques were contraindicated due to the proximity of the tumours to vital structures. Cases were performed under general anaesthesia with CT guidance. All patients were followed up regularly as per local protocol with MRI or CT with contrast.

Results: 34 patients with 36 tumours underwent 38 IRE sessions. The mean patient age (SD) was 68.2 (8.1) years. The overall technical success rate was 88.9%. A total of 6 minor and 3 major (2 Pneumothoraces, gastric perforation) were observed. The mean follow-up duration was 39.3 months (SD 28.0). At 1, 2 and 5 years, the local recurrence-free survival rates were 76.2% (95%CI 54.2-85.0%), 66.3% (95%CI 47.2-79.8%), and 31.1% (95%CI 11.4-53.4%), respectively. The metastasis-free survival rates were 92.9% (95%CI 74.6 - 98.2%) at 1 and 2 years, respectively and 82.6% (95%CI 48.9 – 95.0%) at 5 years. The cancer-specific survival rates at 1 year, 2 years, and 5 years were 97.0% (95%CI 80.4-99.6%), 82.6% (95%CI 63.0-92.4%), and 65.2% (95%CI 38.5-82.5%), respectively. The overall survival rates at 1 year, 2 years, and 5 years were 90.8% (95%CI 73.9-96.9%), 74.0% (95%CI 54.5-86.1%), and 45.4% (95%CI 25.1-63.7%), respectively.

Conclusion: IRE is a safe and effective ablative technique where other options are contraindicated due to a tumour proximity to vital structures.

BSIR IOUK Annual Meeting

Accepted Oral Presentations

Percutaneous Transhepatic Biliary Drainage Complication: A 9-year Retrospective Single Centre Analysis

Authors: Dr Sarah Sanders & Dr Nethmee Malla

Aims: To evaluate the complication rates and all cause 30-day mortality following percutaneous transhepatic biliary drainage (PTBD) procedures within a large tertiary centre and to compare these findings with published literature.

Materials and Methods: A retrospective analysis was performed of all PTBD procedures performed on adult patients within NHS Lothian Health Board over a period of 9 years (01/01/2016 - 31/12/2024). The all cause 30-day mortality following each procedure was analysed. As well the development of non-infectious complications (e.g. haemorrhage, bile leakage), infectious complications (e.g. biliary sepsis, abscess formation) and pancreatitis within 1 week post-procedure.

Results: In total, 501 patients underwent 550 discrete biliary punctures in this 9 year time frame. 460 (83.6%) of these procedures were carried out for malignant aetiology. The remaining 90 (16.4%) procedures were carried out for benign aetiologies such as biliary stricture and obstruction secondary to biliary calculi.] The all cause 30-day mortality rate following PTBD procedure was 15.5%. The overall complication rate per procedure was 21.3%. The rate of non-infectious complications (i.e. haemorrhage, bile leak) was 3.6%. The rate of infectious complications was 12.2%. The rate of post-procedure pancreatitis was 7.3%.

Conclusion: Complications including infection, haemorrhage, bile leakage and pancreatitis are an accepted risk when performing PTBD. This study found that such complications occur in 21.3% of procedures in our centre. However this figure and our local all cause 30-day mortality remains to similar or lower than comparative studies within published literature.

BSIR IOUK Annual Meeting

Accepted Oral Presentations

Patient-Reported and Health Related Quality of Life Outcomes After Percutaneous Renal Cryoablation

Authors: Jim Zhong, Tze Wah, Maariyah Bajibhai, Fatima Shaikh

Aim: The study aim was to assess the impact on health-related quality of life (HRQoL) and patient-reported outcome measures (PROM) following renal tumour cryoablation.

Materials and Methods: This prospective study recruited patients undergoing renal cryoablation from October 2024 through February 2025. HRQoL was evaluated using the EQ-5D-5L (validated questionnaire used to assess HRQoL, comprising five dimensions (mobility, self-care, usual activities, pain/discomfort, and anxiety/depression), each with five levels of severity, and a visual analogue scale to rate overall health. Assessment timepoints were baseline (pre-ablation) and post-operatively on day-1, day-8, month-1, -3 and -6. 6-month data was not yet available at the time of abstract submission.

Results: 23 patients (9 female, 14 male) were recruited. Median age 70 years (range: 37-80). The median (range) of overall health scores at baseline, day-1, month-1 and month-3 were 80 (20-100), 77.5 (55-100), 80 (50-95) and 80 (50-95) respectively. By day-8 improvements were observed with both mobility and self-care showing an average of 50% improvement, while usual activities improved by 75% and pain/discomfort by 25%. By month-1, improvements in usual activities (25%) persisted, but all other domains returned back to baseline levels. From month-3 onward, no further changes were observed indicating that the majority of functional recovery occurs within the first 1-2 weeks post-treatment, with long-term stabilisation thereafter.

Conclusion: Renal cryoablation has a minimal impact on quality of life with return to baseline scores for the majority of patients after one month and improvements in HRQoL outcomes for some patients.

BSIR IOUK Annual Meeting

Accepted Oral Presentations

Liver venous deprivation vs portal vein embolisation: a single centre experience
Authors: Emma Routledge, Chloe Elliott, Dr Peter Littler

Aims: Patients with malignant liver disease confined to the right lobe may be candidates for surgical resection. However, a small future liver remnant (FLR) increases the risk of post-surgical liver failure. Portal vein embolisation (PVE) and liver venous deprivation (LVD) are procedures used to induce FLR hypertrophy, thereby reducing this risk. This study compares the efficacy and safety of LVD versus PVE in patients considered for hemi-hepatectomy for malignant liver disease at the Freeman Hospital, Newcastle upon Tyne.

Materials and Methods: A retrospective analysis was performed on 32 patients who underwent either PVE (n=9) or LVD (n=23) between May 2018 and May 2024. Data was collected from electronic patient records and radiology systems. The analysis focused on FLR hypertrophy, the rate of progression to surgery, and complications.

Results: Compared with PVE, LVD demonstrated a greater increase in absolute FLR volume (57% vs 39%) and speed of hypertrophy (7.5cc/day vs 4.2cc/day). A higher proportion of patients in the LVD cohort proceeded to surgery (78% vs 56%), and complication rates were lower in the LVD cohort (9% vs 33%).

Conclusion: LVD demonstrated superior efficacy in inducing FLR hypertrophy, with faster growth, a higher rate of progression to surgical resection, and fewer complications compared to PVE. Based on these results and published data, the Freeman Hospital has adopted LVD as the first-line treatment for these patients.

BSIR IOUK Annual Meeting

Accepted Oral Presentations

Patient experience of participation within the CAIN trial, a phase 1 clinical trial evaluating the effectiveness and safety profile of the HistoSonics Histotripsy System in treating primary solid rena

Author: Jakki Brnadon

Purpose: The CAIN trial successfully delivered the global-first translation of histotripsy technology in renal cancer treatment (Leeds Teaching Hospitals NHS Trust, 2023). The aim of this patient-focused study was to gather insights into the participants' experience.

Material and Methods: The UK National Institute of Health Research (NIHR) Participant in Research Experience Survey (PRES) was provided to all participants treated between 01/03/2023-01/11/2024. Completion of the survey was voluntary, and responses anonymised. Data were extracted to measure demographics, Likert scale responses of research experience and free-text comments.

Results: All study participants (n=8) responded. Demographics: All white British ethnicity, female/male (2/6), Age groups [60-69 (n=2), 70-79 (n=3), 80-89 (n=1), non-stated (n=2)]. All participants stated this was the first research trial they had participated in. All agreed (n=2) or strongly agreed (n=6) they would take part in research again. All agreed (n=1) or strongly agreed (n=7) they felt prepared for the trial by the information provided. All agreed (n=2) or strongly agreed (n=6) they felt their participation had been valued. All agreed (n=2) or strongly agreed (n=6) they had been treated with courtesy and respect. Participants' free-text comments identified key themes of altruism, the desire to contribute to medical science and the development of future treatments and technologies.

Conclusion: Participants were prepared to try novel therapy despite absence of long-term data, with high levels of motivation to help others and future technologies. High levels of satisfaction were reported for participating in this early-phase innovative, novel trial treatment, with willingness to participate in future trials.

BSIR IOUK Annual Meeting

Accepted Posters

A Retrospective Single-Institution Case Series Investigating Complications and Management Following CT-Guided Microwave Ablation of Primary and Metastatic Lung Tumours

Authors: Laiba Baig, Azhar Ahamed, Mark Maddock, Rahul Chivate

Aims: CT-guided microwave ablation (MWA) was recently introduced at this institution as a treatment modality for both primary and metastatic lung malignancies, with the first procedure performed in 2023. This case series evaluates the complications associated with lung ablation and their subsequent management, with the aim of assessing the overall safety of the procedure.

Materials and Methods: A retrospective analysis was conducted of all patients who underwent CT-guided lung ablation between 2023 and March 2025. Data collected included patient demographics, tumour origin, tumour characteristics (location and number), procedural details (power and burn time), post-procedural recovery, hospital stay duration, complications, and management strategies.

Results: A total of 34 patients underwent CT-guided lung ablation, with 47 ablations performed; some patients received up to three separate treatments. Among the 47 procedures, the most frequent complication was chest pain, reported in 25.5% (n=12) of cases, managed successfully with simple analgesia. Antibiotic therapy for suspected or confirmed chest infections was required in 21.3% (n=10) of cases. Pleural effusions developed in 17.0% (n=8), with 8.5% (n=4) necessitating catheter drainage. Less common complications included haemothorax 6.4%, (n=3), bronchopleural fistula 4.2% (n=2), stroke 2.1% (n=1), brachial plexus injury 2.1% (n=1), and paroxysmal supraventricular tachycardia (SVT) 2.1% (n=1), the latter requiring long-term pharmacological management.

Conclusion: The majority of complications following CT-guided lung ablation were managed conservatively, predominantly with simple analgesia and non-invasive interventions. No patients required surgical management. These findings support the safety profile of CT-guided MWA in the treatment of both primary and metastatic lung tumours.

Microwave Ablation of Malignant Liver Lesions: Does the Presence of Cirrhosis Affect the Diameter of the Ablation Zones? A Case-Control Study from a Single Institution

Authors: Behnam Shaygi, Rebecca Burger, Nader Ashraf, Roberto Luigi Cazzato, Praveen Peddu

Objectives: Thermal ablation techniques, such as radiofrequency ablation (RFA) and microwave ablation (MWA), are used to treat hepatic malignancies. The 'oven effect,' where background cirrhotic tissue insulates and enhances heating, is well-documented in RFA but not in MWA. This study aims to explore whether the oven effect occurs in MWA.

Methods: A retrospective case-control study included all patients undergoing MWA for hepatic malignancies over a 3-year period. Patients were divided into two groups based on liver lesion characteristics: H group (hepatocellular carcinoma, likely cirrhotic liver) and M group (metastases, likely non-cirrhotic liver). Ablation volumes were calculated using CT scans performed 6 weeks post-ablation. Multivariate linear regression analysis was performed to assess the significance of differences in ablation volume.

Results: Ninety-four patients (57 in H group, 37 in M group) were included. Groups were demographically matched, and ablation parameters (intensity and duration) were comparable. The mean ablation volume in the M group was 2.3cm3 smaller than in the H group, but this difference was not statistically significant (95% confidence interval -7.8, 3.3; $p = 0.42$).

Conclusion: This study found no evidence of the oven effect phenomenon in MWA. This may result from MWA's ability to achieve higher temperatures and larger ablation zones, reducing the impact of local tissue characteristics.

BSIR IOUK Annual Meeting

Accepted Posters

Trans-arterial embolisation prior to image-guided ablation for T1b/T2a renal masses – A systematic review and meta-analysis

Authors: Hira Zaman, Aisha Ahmed, Vinson Wai-Shun Chan, Tze Min Wah, Jim Zhong

Aims: Image-guided ablation (IGA) is a safe treatment for small renal cell carcinomas. However, trans-arterial embolisation (TAE) before IGA may increase success rates in larger tumours. This systematic review evaluates the safety and efficacy of TAE and IGA in the literature.

Materials and methods: A literature search was performed on 19th October 2023 on Embase, Medline and Cochrane CENTRAL for primary studies evaluating TAE prior to ablation of T1b/T2a renal mases. Paediatric patients and those with inherited RCCs were excluded. Primary outcome is recurrence free survival. Secondary outcomes include other oncological outcomes, post-operative complications, and renal function.

Results: A comprehensive literature search yielded a total of 547 records. Among these, 19 studies, involving 224 patients, were included for the analysis. Notably, only one study specifically compared TAE and IGA to IGA alone. The sample sizes of the included studies were relatively small, ranging from 2 to 31 patients. Furthermore, only two studies had follow-up periods exceeding two years. At the 3- to 6-year follow-up period, meta-analysis revealed a remarkable 100% cancer-specific survival rate (95% confidence interval: 0.96–1.00). A recurrence rate of 3% (95% confidence interval: 0.00–0.08) was observed during the follow-up period. Intra-operative complication rate was 3% (95%CI: 0.01–0.05, I^2 = 0.01%). Post-operative complications were reported in 18% (95%CI: 0.08–0.29, I^2 = 84.59%) of the included cases.

Conclusion: TAE prior to IGA for larger renal tumours is a safe and effective treatment option. However, literature is limited by small sample size and limited follow-up. Further prospective comparative investigation is encouraged.

BSIR IOUK Annual Meeting

Accepted Posters

Ultra long-term renal function post image-guided ablation and partial nephrectomy for stage 1 renal cell carcinomas

Authors: Hannah Whittaker, Vinson Wai-Shun Chan, Rhys Miller, Filzah Hanis Osman, Jon Cartledge, Naveen Vasudev, Selina Bhattarai, Jim Zhong, Omar Abdel-Hadi, Jonathan Smith, James Lenton, Tze Min Wah

Aims: Long-term renal function post image-guided ablation (IGA) and partial nephrectomy (PN) is underreported. This study aims to outline the ultra-long term renal function of IGA and PN patients.

Materials and methods: This is a retrospective study of localised RCC (T1) patients undergoing image-guided cryoablation, radiofrequency ablation (RFA) or laparoscopic PN from 2004-2015 at our institution. Cox regression and log-rank analysis were used for survival analysis of long-term renal function, alongside t-test, chi-squared tests.

Results: A total of 295 patients undergoing image-guided cryoablation (104), image-guided RFA (99), and laparoscopic PN (92) were included. Median follow-up was 136 months (IQR 76). IGA patients were older (mean difference 13.8 years, $p<0.001$) and more comorbid (mean difference in Charlson index 1.47, $p<0.001$). Pre-treatment CKD is significantly more prevalent in patients undergoing IGA (29.1%) than PN (10.9%) ($p=0.001$). At 10-years follow-up, eGFR decreased 16.6% in IGA vs 8.4% in PN ($p=0.12$). New CKD (Grade 3 or above) developed in 28.3% of IGA patients vs 15.2% of PN patients ($p=0.027$) at follow-up. However, on a multivariable cox regression model, when taking account into age and Charlson comorbidity index, new-CKD free survival is similar between IGA and PN (HR 0.72, 95% CI 0.34-1.52, $p=0.390$). Six patients underwent renal dialysis, all IGA patients due to pre-treatment CKD. CKD-specific deaths were similar (HR 0.26, 95%CI 0.03-2.2, $p=0.218$).

Conclusion: Despite an older, co-morbid population pre-treatment, IGA achieved similar ultra-long-term renal function to PN. However, this study is limited by selection bias, and long-term results from randomised trials are warranted.

BSIR IOUK Annual Meeting

Accepted Posters

Ultra long-term cardiovascular outcomes post image-guided ablation and partial nephrectomy for stage I renal cell carcinomas.

Authors: Rhys Miller, Vinson Wai-Shun Chan, Hannah Whittaker, Filzah Hanis Osman, Jon Cartledge, Naveen Vasudev, Selina Bhattarai, Jim Zhong, Omar Abdel-Hadi, Jonathan Smith, James Lenton, Tze Min Wah

Aims: Nephrectomies may worsen cardiovascular outcomes in renal cancer patients, but the association of image-guided ablation and cardiovascular outcomes is unexplored. This study aims to evaluate the long-term cardiovascular outcomes of image-guided ablation and partial nephrectomy (PN).

Material and Methods: This is a retrospective study of localised RCC (T1) patients undergoing image-guided cryoablation, radiofrequency ablation (RFA) or laparoscopic PN from 2004-2015 at our institution. A composite outcome of any cardiovascular events (including stroke, myocardial infarction, peripheral vascular disease, heart failure and venous/ arterial thrombosis) was created. Chi-square test, survival analysis and cox regression model were performed.

Results: 295 patients undergoing image-guided cryoablation (104), image-guided RFA (99), and laparoscopic partial nephrectomy (92) were included. Median follow-up was 136 months (IQR 76). IGA patients were older (mean difference 13.8 years, $p<0.001$) and more comorbid (mean difference in Charlson index 1.47, $p<0.001$). Cardiovascular events occurred in 37.8% of IGA patients and 20.0% of PN patients ($p=0.005$). However, when taken account into age and Charlson index using the cox regression model, cardiovascular events-free survival is not statistically different between IGA and PN groups (HR 0.80, 95% CI 0.43-1.49, $p=0.481$). Death from cardiovascular disease were observed in 10.2% of IGA patients and 4.1% of PN patients ($p=0.122$). Cardiovascular specific death survival is similar between IGA and PN (HR 0.52, 95% CI 0.14-1.88, $p=0.319$).

Conclusion: Despite an older, co-morbid population pre-treatment, IGA achieved similar ultra-long-term cardiovascular outcomes to PN. However, this study is limited by selection bias, and larger dataset with.

BSIR IOUK Annual Meeting

Accepted Posters

Preoperative deep pelvic venous embolisation: a case series
Authors: Emma Routledge, John Reicher, Georgia Priona

Aims: Pelvic exenterations and sacrectomies are complex oncological surgeries often associated with significant intraoperative blood loss, with reported averages between 2900ml and 6300ml. This case series describes the technique of preoperative deep pelvic venous embolisation and analyses outcomes regarding procedural safety and subsequent intraoperative blood loss.

Materials and Methods: Seven patients underwent preoperative deep pelvic venous embolisation prior to pelvic exenteration and sacrectomy at Newcastle upon Tyne Hospitals. Data was collected from electronic patient records and the patient archive and communication system.

Results: Four patients with locally invasive colorectal tumours underwent embolisation of bilateral internal iliac veins and major branches. Three patients with primary sacral tumours received both venous embolisation and selective arterial embolisation. No complications occurred from venous embolisation alone. Two minor complications were seen in patients who had both venous and arterial embolisation. Estimated intraoperative blood loss ranged from 700ml to 4000ml, with a median of 1600ml. Patients with sacral tumours had higher intraoperative blood loss than those with colorectal tumours.

Conclusion: Preoperative deep pelvic venous embolisation appears to be a feasible and safe technique that may help reduce intraoperative blood loss during pelvic exenteration and sacrectomy. The procedure can be successfully performed as a daycase with no morbidity directly attributable to the embolisation. It has been positively received by our surgical colleagues; however, the results are limited by the small sample size and further studies are needed to validate these findings.

BSIR IOUK Annual Meeting

Accepted Posters

Evaluating the Utility of Portal Venous Phase Acquisition at 3-Month Post-Cryotherapy Follow-Up CT: A Retrospective Review

Author: Maredudd Harris

Aims: To evaluate the clinical utility of portal venous phase imaging during 3-month follow-up CT following percutaneous renal cryoablation, specifically in assessing residual enhancement and its impact on patient management.

Materials and Methods: A retrospective review was conducted on 36 patients who underwent percutaneous cryotherapy for renal lesions between February 2023 and December 2024. All patients underwent standard triple-phase CT imaging (non-contrast, arterial, and portal venous phases) at approximately 3 months post-procedure. Imaging reports were reviewed to determine whether the portal venous phase contributed to the detection of residual enhancement, incidental findings, complications, or influenced follow-up planning.

Results: In all cases, residual enhancement was adequately assessed using the arterial phase, with no added diagnostic value from the portal venous phase. Incidental findings (e.g., hepatic or splenic lesions) and complications were occasionally characterized in the portal venous phase; however, all were also visible in the arterial phase. No case demonstrated a change in clinical management or follow-up strategy based on portal venous phase findings.

Conclusion: Portal venous phase imaging adds limited value in assessing ablation zones at 3-month post-cryoablation CT. Omission of this phase could reduce radiation exposure, shorten scan and reporting times, and streamline workflow without compromising diagnostic accuracy.

BSIR IOUK Annual Meeting

Accepted Posters

Clinical Outcomes of Hepatocellular Carcinoma Treated with Transarterial Chemoembolization and Subsequent Microwave Ablation in a Tertiary Centre

Authors: Bethany Simpson, Ching Chung Foo, Derek Manas, Rohan Thakkar, Nicola Holmes-Long, Helen Reeves, Dhya Al-Leswas, Louise MacDougall, Yiannis Skarparis, Peter Littler, Georgia Priona

Aims: According to the 2022 Barcelona Clinic Liver Cancer (BCLC) guidelines for treatment of hepatocellular carcinoma (HCC), transarterial chemoembolization (TACE) is the standard of care for intermediate-stage (BCLC-B) disease, while ablation offers curative potential in early-stage (BCLC-A) disease for lesions ≤3cm. Synchronous TACE and ablation has demonstrated superior outcomes in tumours between 3–5cm. This study evaluates clinical outcomes of patients receiving TACE as primary or downstaging treatment with subsequent, nonsynchronous microwave ablation for HCC in a tertiary UK centre.

Materials and Methods: A retrospective review was performed on patients treated with TACE and microwave ablation at our tertiary centre between 2022 and 2024. Demographic, clinical, and radiological data were collected. Tumour response was assessed using modified Response Evaluation Criteria in Solid Tumours (mRECIST).

Results: 27 patients (22 males, 5 females) met inclusion criteria. Cirrhosis was present in 81% (Child-Pugh A). The mean pre-treatment lesion size was 30mm; 48% of tumours were >30mm. Post-TACE imaging showed a mean lesion size reduction of 8mm, with 48% achieving complete response. Following microwave ablation, 96% demonstrated complete response at first follow-up. There were no significant treatment related complications. Sustained complete lesional response was observed in 93% of cases during a mean follow-up period of 441 days.

Conclusion: TACE with subsequent, non synchronous ablation is safe and achieves high rates of complete response and durable local tumour control. These findings support TACE as an effective downstaging tool, facilitating curative ablation in patients where primary ablative therapy was not feasible at the time of presentation.

BSIR IOUK Annual Meeting

Accepted Posters

Use of Radioembolisation with or without PVE/DVE to augment FLR to enable liver resection: A case series

Authors: Smarth Batra, Brian Stedman, Thomas Armstrong, Professor John Primrose, Sachin Modi

Aim: To evaluate the role of Radioembolisation (SIRT) alone or in combination with portal vein embolisation (PVE) or dual vein embolisation (DVE) in augmenting future liver remnant (FLR) volume to facilitate curative-intent liver resection in patients with primary and secondary hepatic malignancies

Materials And Methods: A retrospective case series of four patients was reviewed. All patients were considered for liver resection but had insufficient FLR volume. Patient 1, underwent PVE followed by SIRT due to suboptimal hypertrophy post-PVE. Patient 2, had markedly reduced FLR following prior left-sided metastectomy and underwent SIRT combined with DVE. Patients 3 and 4, diagnosed with hepatocellular carcinoma (HCC) and metastatic neuroendocrine tumour (mNET) respectively, underwent SIRT alone. Volumetric assessments were performed pre- and post-treatment to evaluate FLR hypertrophy and resectability.

Results: All four patients demonstrated an increase in FLR volume and underwent liver resection. In addition, 3/4(75%) had a partial response to SIRT and 1/4(25%) had a complete response. No major post-procedural complications were observed.

Conclusion: Radiation lobectomy alone or in combination with PVE/DVE can provide stability of right sided disease allowing more time for FLR growth especially in small left lobes or poor responders to PVE. It can safely and effectively augment FLR to enable liver resection in selected patients with primary or secondary liver malignancies preventing post hepatectomy liver failure. This technique also allows a biological test of time of the disease process prior to embarking on major liver surgery.

BSIR IOUK Annual Meeting

Accepted Posters

Portal venous embolisation how are we doing? A review of 40 cases.
Authors: Mark Callaway

Aims: To review 40 cases undergoing portal venous embolisation as a method to facilitate liver resection.

Method: Forty consecutive cases undergoing portal venous embolisation performed by a single operator in a single institution were reviewed.

Results: There were 27 male patients with a mean age of 67 years. In this cohort 61.5% of patients were operated on post portal venous embolisation. Of the 40 cases 19 cases were referred for colorectal liver metastasis, 5 cases were referred for HCC, 3 cases were referred for intrahepatic cholangiocarcinoma and 12 cases were referred for bile duct malignancy Portal venous embolisation was technically possible in 39 out of 40 cases with portal venous thrombosis occurring in 2 of 40 cases. There was insufficient hypertrophy in 1 case. In the remaining cohort the liver volume increased from 25% to 39% FLR. Of the 40 cases referred where the referral was for solid malignancy 26 out of the 28 cases were operated on, where the patient was referred with a cholangiocarcinoma only 3 out of 12 were successfully resected.

Conclusion: PVE is a successful method of allowing resectability in patients with solid liver tumours. PVE in patients with cholangiocarcinoma has a poor outcome, with a 25% resection rate post procedure

BSIR IOUK Annual Meeting

Accepted Posters

A Direct comparison TAE and TACE in the treatment of primary liver tumour. A single operators experience

Author: Mark Callaway

Aims: Transarterial chemoembolisation is established treatment for more advanced primary liver tumours. This treatment uses a combination of chemotherapy and embolisation There remain centres that performed transarterial embolisation alone, with minimal evidence that there is difference in outcome. This study reviews a single centres experience in treating HCC by these two methods; initially by reviewing outcome following transarterial chemoembolisation and reviewing outcome in patients treated during the UK pandemic following a MDT decision to treat with embolisation alone.

Method: This is a retrospective study matching two groups of patients with long term outcome One group of patients, group A, were treated with conventional 50 mg doxorubicin and embolisation and a second Group B patients were treated with embolisation alone. All treatments were undertaken by a single operator.

Results: There was no statistically significant difference between the 2 cohort of patients. 100 patients in group A and 18 patients in group B. The patient's were similar in age and sex, group A mean age 70.7 and 88% male, Group B mean age 72.9 and 84% male. Most patients were Childs Pugh A and treated on imaging criteria; Group A Childs Pugh A 77%, biopsy 10%, Group B Childs Pugh A 66%, biopsy 22%, The tumour size was similar Group A 5.5cm and Group B 6.3cm

Conclusion: Using a Kaplan Meier analysis there was a 20% survival advantage in statistically matched patients treated with transarterial chemoembolisation as opposed to transarterial embolisation alone.

Assessing early quality of life using patient reported outcome measurement after image-guided microwave ablation of liver cancer
Authors: Jim Zhong, Tze Wah, Tania Charles, Ahmad Zargar

Aims: This prospective study aimed to assess the impact on health-related quality of life (HRQoL) outcomes in patients treated with microwave ablation (MWA) for liver cancer.

Materials and methods: Patients were recruited between 01/10/2024-27/02/2025. HRQoL was evaluated using the FACT-HEP questionnaire (validated 45-item self-report instrument measuring HRQoL in patients with hepatobiliary cancers) at baseline (pre-ablation) and post-ablation on day-1, day-8, month-1, -3 and -6. A higher score indicates a better HRQoL. Median percentage change between baseline and subsequent time points are presented.

Results: 16 patients were recruited. Median age was 63.5 years (range: 35–81). Indications for MWA included hepatocellular carcinoma (n=12), colorectal liver metastases (n=3), and renal cell carcinoma liver metastasis (n=1). Median tumour size was 1.6 cm (range: 1.0-3.3cm). The total FACT-HEP scores reduced by 7% on day-1 from baseline. This improved to 1% above baseline at day-8 and 7% at month-1. Physical well-being showed 2% decrease at day-1, which returned to baseline by day-8 and showed a 3% increase at month-1. Functional well-being increased by 6% at day-1, decreased to -4% at day-8 and improved to +4% at month-1. Emotional well-being increased by 4.5% at day-1, remained consistent at day-8 and increased to 14.2% at month-1. Social well-being did not change.

Conclusions: Minor declines in overall HRQoL and physical well-being were seen at day 1 post liver MWA however this returned to baseline by day 8 in the majority of cases and at 1 month improvements in HRQoL are observed. Persistent improvements in emotional wellbeing were observed as early as

BSIR IOUK Annual Meeting

Jean Ratcliff Accepted Posters & Oral Presentations

The Use of High Frequency Jet Ventilation (HFJV) in Percutaneous Ablations of Colorectal Liver Metastases

Authors: Nuran Seneviratne, Praveen Peddu, Brian Prater, Nabil Kibriya, Matthew Seager

Aims: To compare the impact of high-frequency jet ventilation (HFJV) versus conventional ventilation (CV) on procedural times and operator satisfaction during percutaneous CT-guided ablation of colorectal liver metastases.

Materials and Methods: Prospective cohort study. Median values are reported.

Results: Sixty-four patients underwent ablation of 81 nodules (median 15 mm, range 2–35); 69 were treated with microwave ablation (66 Emprint [Medtronic, Minnesota, USA], 3 Solero [Angiodynamics, New York, USA]) and 12 with irreversible electroporation (Nanoknife [Angiodynamics, New York, USA]). Forty-eight patients received CV and 16 HFJV. Operator satisfaction surveys were available for 45 cases. Pre-ablation anaesthetic time was shorter for CV (8 vs 15.5 minutes, P=0.01), with similar recovery times (13 minutes, P=0.982). Final $EtCO_2$ was higher with HFJV (6.4 vs 5.1 kPa, P=0.036), with one case converted to CV. For single-lesion microwave ablations, procedure times (total procedure minus anaesthetic time) were similar (CV 48 minutes, IQR 19.5 vs HFJV 46 minutes, IQR 10, P=0.566). Per-probe placement times were comparable (CV 5 minutes, IQR 4 vs HFJV 4.5 minutes, IQR 5.2, P=0.134). IRE probe placement times showed no significant difference (CV 41.5 minutes vs HFJV 41 minutes, P=0.820). Operator-reported procedure difficulty was similar. However, operators reported significantly less respiratory motion (Likert scale 1 vs 3, P<0.001) and greater overall satisfaction with ventilation using HFJV (5 vs 3, P<0.001).

Conclusion: HFJV increases pre-ablation anaesthetic time and final $EtCO_2$ without significantly reducing procedural or probe placement times, but significantly improves operator satisfaction.

BSIR IOUK Annual Meeting

Jean Ratcliff Accepted Posters & Oral Presentations

From Experience to Complexity: A Two-Cycle Audit of Liver Tumour Ablation Outcomes with Emphasis on Colorectal Liver Metastases

Author: Aletor Amakhian

Background: Percutaneous microwave ablation (MWA) is a recognised treatment for hepatic malignancies, including hepatocellular carcinoma (HCC) and colorectal liver metastases (CRLM). As operator experience grows, more complex cases are often undertaken.

Aim: This audit evaluates the safety and efficacy of MWA over two audit cycles, with a focus on CRLM outcomes.

Methods: A retrospective review of all percutaneous MWA procedures performed between October 2017 and June 2024 was conducted. Cases were divided into two cycles: Cycle 1 (Oct 2017–Jan 2021) and Cycle 2 (Jan 2021–Jun 2024). Patient data, tumour characteristics, complications and recurrence rates were collected. Outcomes were compared with CIRSE standards, with subgroup analysis of CRLM cases.

Results: Ninety-one ablations were performed (Cycle 1: n=28; Cycle 2: n=63).
- Complications: CT-guided MWA complications dropped from 12.5% to 0%; US-guided from 15% to 7%, both within CIRSE thresholds.
- Recurrence: In CRLM cases under US guidance, recurrence rose from 0% to 29%. CT-guided CRLM recurrence fell from 37% to 25%. No correlation was found between recurrence and tumour size or location. The increased CRLM recurrence in Cycle 2 was linked to the treatment of more complex lesions.

Conclusion: MWA is a safe modality with improving safety outcomes. However, the rise in recurrence among complex CRLM cases highlights the need for refined patient selection and collaborative planning. As technical expertise advances, maintaining oncological efficacy requires strategic stratification based on tumour complexity.

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Jean Ratcliff Accepted Posters & Oral Presentations

The prognostic value of Neutrophil-to-lymphocyte ratio and platelet-to-lymphocyte ratio for liver tumours, including HCC, CRLM, and cholangiocarcinoma after image-guided irreversible electroporation.

Authors: Krish Gupta, Vinson Wai-Shun Chan, Elias Williams, Jim Zhong, Omar Abdel-Hadi, Jonathon Smith, James Lenton, Tze Min Wah

Aims: The neutrophil-to-lymphocyte ratio (NLR) and platelet-to-lymphocyte ratio (PLR) are proposed as accessible and cost-effective biomarkers which may act as a surrogate for immunomodulation.

Materials and Methods: This is a retrospective study of all consecutive patients undergoing IRE for liver tumours (including HCCs, CRLMs and cholangiocarcinoma). Pre-operative and post-operative haematology tests were collected, and an optimal cut-off value was determined for each outcome and variable using the Cut-off Finder, a validated web application. Univariable Cox regression model was used to investigate the association between the cut-off values and survival outcomes.

Results: 40 patients with 42 liver tumours underwent 44 IRE sessions. The mean patient age (SD) was 68.9 (8.5) years. Both peri-operative changes in NLR of > -1.408 and changes in PLR of > 5.27 are associated with significantly worsened local-progression-free-survival (HR 2.85, 95%CI 1.05-7.76, p=0.033; HR 5.03, 95%CI 1.98-12.77, p<0.001). Post-treatment platelet levels of >145 10*9/L are associated with worsened distant-progression-free-survival (HR 9.77, 95%CI 1.01-94.76, p=0.016). Peri-operative change of NLR > -1.052 and PLR >36.7 is associated with improved (HR 0.32; 95% CI 0.11-0.95; p=0.032) and reduced (HR 3.68; 95% CI 1.15-11.74; p=0.019) cancer-specific survival, respectively. Peri-operative change in NLR of > -0.2041 is associated with improved overall survival (HR 0.21; 95% CI 0.06-0.7, p=0.005). Both pre- and post-treatment PLR of >97.73 and >89.82 are associated with worsened overall survival (HR 2.15, 95% CI 1.01-4.57, p=0.042; HR 4.53, 95% CI 1.35-15.17, p=0.007).

Conclusion: NLR and PLR are possible surrogates for systemic immune response and may predict long-term oncological outcomes.

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Jean Ratcliff Accepted Posters & Oral Presentations

A novel approach to treat colorectal liver metastases (CRLM) using combined Irreversible Electroporation (IRE) and Thermal Microwave Ablation (MWA).
Authors: Peng-Kwan Ng, Abdul Muiz Shariffuddin, Peter Littler

Aims: MWA can be curative for CRLM in selected patients, however its usage is limited near thermosensitive or vascular structures due to potential thermal injuries and heat sink effect. IRE is an alternative, however, is less effective than MWA and carries increased risk of local recurrence. Our study evaluates the safety, effectiveness and oncological outcomes of combining IRE and MWA in CRLM close to critical structures which are otherwise unsuitable for MWA alone.

Materials and Methods: This is a single centre, retrospective analysis of patients who received combined IRE and MWA treatment of CRLM between 2018 and 2023. 8 patients underwent this combination treatment either under CT or US guidance. Adverse events were evaluated against CIRSE complication classifications. Primary end points were tumour response and local progression free survival. Secondary end point was overall survival.

Results: Mean tumour size was 2.4cm. Median hospital stay was 1 day. 1/8 patients (12.5%) developed IR related CIRSE grade 1 complication which required no further treatment. Complete response (CR) was achieved in 7/8 patients (87.5%) on initial follow-up (4-8 weeks). The patient with residual disease had further ablation achieving CR. Mean follow up was 30 months. During follow up, 1 patient developed local tumour progression at 13 months. 6/7 patients (86%) remained alive 3 years post treatment.

Conclusion: Our study is the first to report the potential of combining MWA and IRE as a safe and effective treatment option for CRLM unsuitable for thermal ablation alone.

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Jean Ratcliff Accepted Posters & Oral Presentations

Liver Function Following Ablation for Colorectal Liver Metastases: A Service Evaluation

Author: Ayaat Ashi

Aims: This study aims to assess the underexplored impact of microwave and radiofrequency ablation on liver function in patients with colorectal liver metastases (CRLM), and to compare these effects with those of surgical resection and radiotherapy

Materials & Methods: Consecutive patients with CRLM who underwent day-case ablation at a single centre (2019-2024) were evaluated. Data were collected from the Welsh Clinical Portal. Liver function tests (LFTs)- including bilirubin, albumin, globulin, ALP, and ALT- were recorded pre-procedure, immediately post-procedure, and ≥3 months post-procedure. LFTs were compared using the Wilcoxon signed-rank test. Furthermore, our findings were contextualised with published outcome data from surgery and stereotactic radiotherapy. Ethical approval and individual consent were not required due to the nature of the evaluation. No off-label device use occurred.

Results: A total of 71 patients (71±12 years, 24 % female) were included. ALT increased significantly post-ablation (mean 27.5 to 76.6 U/L, p=0.0096), indicating acute hepatocellular injury, but improved by follow-up (64 U/L: normal <40U/L). ALP rose post-procedure (114 to 124 U/L, p=0.0096) and further at follow-up (144 U/L, p=0.0017). Bilirubin rose slightly post-procedure (13.5 to 16 µmol/L, p = 0.0533), but showed no significant long-term change from baseline. Albumin and protein remained stable along all-time points. Compared to surgery, which showed greater dysfunction and longer recovery times, and radiotherapy, which showed delayed cholestatic effects.

Conclusion: In CRLM patients, ablation causes mild, transient LFT derangements. Compared to surgery and radiotherapy, ablation appears at least equally safe and more liver-sparing. These findings support the feasibility and safety of ablation as a day-case treatment.

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