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Monday 1 December 2025, London, UK

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23rd National Conference of the UK and Ireland Neuroendocrine Tumour Society 2025

Oral Communications

OC1

Does surgical resection improve survival of pancreatic neuroendocrine tumours (panNET) less than 2 cm? a population-based study of 4,114 patients comparing England and the USA

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Background
PanNET are rare pancreatic tumours. Many studies include cases from referral centres only. Resection is normally recommended for localised tumours >2 cm. Tumours ≤ 2 cm are often monitored for progression if asymptomatic (as in the ASPEN study) but there are no randomised studies. This retrospective population-based study aimed to investigate the effect of surgery on survival of PanNET tumors ≤ 2 cm.
Methods
A total of 685 and 3429 patients with PanNET ≤ 2 cm were extracted from NCRAS (2012-2021) and SEER (2011-2022) databases respectively. Kaplan-Meier (KM), univariable and Multivariable Cox Regression (MCR) models for Overall survival (OS), cause-specific-survival (CSS), and Fine-Gray model (FG) for cancer-specific-survival (competing-risk model) were generated for comparing patients who had resection with patients who did not have resection.
Results
In NCRAS, median age was 64-years. Most patients were males (53.3%), white (88.0%), living in urban areas (74.5%), had T1 stage (77.1%), N0 stage (77.7%), M0 stage (72%), stage-group 1 (64.1%), and had surgical resection (53%). The most common resection type was partial/Whipple resection (83.8%). In SEER, median age was 64-years. Most patients were males (51.0%), white (65.5%), living in metropolitan areas (91.5%), had N0 stage (91%), M0 stage (94.5%), stage-group 1 (81.7%), and had surgical resection (62.5%). The most common resection type was partial/Whipple resection (78.4%). In both NCRAS and SEER, unadjusted Kaplan-Meier plots showed that resection is associated with better overall-survival as per log-rank tests ($P < 0.001$). Moreover, Multivariable-Cox regression for overall survival in SEER showed that surgery is associated with better survival (HR $=0.58$, $P < 0.001$) unlike NCRAS that showed no statistical significance (HR $=0.63$, $P = 0.1$). However, after adjusting for other factors (such as age and stage), both Multivariable-Cox regression for cause-specific survival and Fine-Gray model for cancer -specific survival for competing-risks showed that resection is not statistically different from receiving resection in both cohorts.
Conclusion
This large multi-national retrospective population study shows that surgical resection of PanNET ≤ 2 cm is not associated with improved cause-specific and cancer-specific survival (although it is associated with better unadjusted overall survival). This agrees with interim results of the ASPEN study and should inform guidelines for surgical management of PanNET.

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OC2

Real-world outcomes for PRRT in patients with well differentiated gastroenteropancreatic neuroendocrine tumours

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Background
Peptide receptor radionuclide therapy (PRRT) is recommended for patients with somatostatin receptor (SSTR)-positive well differentiated gastroenteropancreatic neuroendocrine tumours (WDGEP-NET) after progression on somatostatin analogue (SSA), but real-world data on outcomes is lacking.
Methods
We collected data on baseline demographics, tumour factors, and outcomes for patients with WDGEP-NET who received PRRT between 2018 and 2023 at a single UK European Neuroendocrine Tumour Society (ENETS) centre of excellence. The primary end point was progression free survival (PFS), secondary outcomes were overall survival (OS), objective response rate (ORR) and adverse events (AEs).
Results
Of 141 patients eligible for inclusion 51% were female, median age 65.3 years, and ECOG Performance status (PS) was 0 (25%), 1 (68%) or 2 (6%). Primary site was small bowel (54%), pancreas (29%), other (14%) or unknown (5%). Tumour grade (G) was 1 (44%), 2 (51%), 3 (1%,) or unknown 4%. Metastatic disease was present in 77% of patients, most commonly lymph node metastases (62%). Radiological progression prior to PRRT was documented in 92% patients, and 98% had received at least one prior systemic therapy (SSA in 78%). Four PRRT cycles were received by 82% patients. At censorship 38% of patients had experienced disease progression and median follow-up was 27.7 months (mo). Overall PFS was 35mths; 44mo and 27mo for G1 and 2 NET respectively (Log-rank Mantel-Cox Chi square 10.7, $P = 0.0011$); primary site and tumour functionality did not significantly influence PFS. Patients who completed four cycles of PRRT had significantly longer PFS than those who did not (37mo vs 19mo, $P = 0.0001$). SSA was stopped in 19% patients on completion of PRRT and this did not significantly impact on PFS. OS was 48 mo for all patients and ORR was 9.2 %. G1 and 2 AEs were experienced by 65% and 16% of patients respectively, most commonly fatigue, nausea and diarrhoea. G3 AEs occurred in 4%, and 1 patient experienced a grade 4 AE (thrombocytopenia). There were no treatment related deaths.
Conclusion
PRRT for WDGEP-NET achieves a favourable PFS (better in G1 than 2) and OS, but lower ORR in the real-world setting and is well tolerated.

DOI: 10.1530/endoabs.114.OC2

OC3

Impact of PRRT on quality of life in gastroenteropancreatic neuroendocrine tumours

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Introduction
Gastroenteropancreatic neuroendocrine tumors (GEP NETs) are a diverse group of malignancies arising from neuroendocrine cells within the gastrointestinal tract, pancreas. These tumors can lead to significant morbidity due to hormonal hypersecretion, tumor burden, and treatment-related side effects. As therapeutic strategies evolve as with peptide receptor radionuclide therapy (PRRT), there is growing recognition of the importance of evaluating patient-reported quality of life (QoL). To assess this impact meaningfully, validated instruments such as the European Organisation for Research and Treatment of Cancer (EORTC) quality of life questionnaire for gastrointestinal neuroendocrine tumours (QLQ-GI.NET21) and Quality of Life Questionnaire-Core 30 (EORTC QLQ-C30) for all cancer populations are invaluable. This study aims to evaluate the impact of PRRT on the QoL of patients with GEP NETs, using the above questionnaires to provide a comprehensive understanding of how PRRT influences patient well-being beyond traditional clinical endpoints.
Methods
Between 2015 -2025 patients who underwent PRRT at Royal Free London hospital, and consented for this study, completed two questionnaires, before PRRT is administered at each cycle. Patients who completed all 4 questionnaires were selected for this study. The response format of both questionnaires is a 4-point Likert scale. Responses to the questionnaire are linearly transformed to a 0 -100 scale using EORTC guidelines. A difference of ≥ 5 mean scores between any treatment cycle was considered clinically relevant. Statistical significance was only calculated for clinically relevant changes (mean score differences ≥ 5), using the paired t-test and ANOVA.
Results
All 4 GI-NET QOL questionnaires was completed by 268 patients and C30 questionnaires by 153 patients. There was a statistically significant difference between pre therapy score and 1st post therapy score, pre therapy score and 2nd post therapy score, pre therapy score and 3rd post therapy score in all 5 scales in the GI NET 21. There was no statistically significant difference between pre therapy scores and post therapy scores of C30 questioner.
Conclusion
PRRT improves the quality of life and disease specific concerns of GI NET.

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OC4

Efficacy of somatostatin analogues versus other systemic therapies as first-line palliative treatment for patients with advanced, grade 2, well-differentiated neuroendocrine tumours of extra-pulmonary origin with a Ki-67 index between 10% and 20%

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Background
In patients with advanced, grade 2 (G2), well-differentiated neuroendocrine tumours (WD-NETs) with Ki-67 $\geq$10% and $\leq$20% ("G2 high"), chemotherapy or protein kinase inhibitors (PKIs) are recommended options in the first-line palliative setting. Somatostatin analogue (SSA) therapy is a well tolerated alternative, yet randomised evidence is lacking.
Methods & Aims
A retrospective study was conducted in patients with locally advanced or metastatic "G2 high" WD-NETs of extra-pulmonary origin, diagnosed between 01/01/2009-31/02/2024, and treated at two European Neuroendocrine Tumour Society (ENETS) Centres of Excellence. Eligible patients had $\geq$1 line of palliative systemic treatment and were followed up for $\geq$6 months. The aim was to compare progression free survival (PFS) and overall survival (OS) of first-line SSA versus (vs) other systemic therapies (non-SSA). Chi-square test, Kaplan-Meier and Cox-regression analysis were applied as appropriate.
Results
Seventy-eight patients were identified. Clinical-pathological characteristics at start of first-line; male 54%, median age 61.7 years, pancreas 45%, small bowel 39%, other sites of origin 16%, distant metastases 86%, ECOG performance status 0-1 90%, median Ki-67 14%, functioning tumour 28%. First-line choice; SSA 68%, chemotherapy 24%, PKIs 8%. SSA/non-SSA combinations were not applied for functioning tumours. First-line discontinuation due to toxicity; SSA 0% vs non-SSA 24% ($P < 0.001$). Median age was higher in the SSA arm (64.4 vs 57.5 years, $P = 0.029$). Median Ki-67 did not differ between the two arms (13% vs 15%, $P = 0.094$). Presence of distant metastases; SSA 85% vs non-SSA 88% ($P = 0.770$); liver metastases 81% vs 84% ($P = 0.821$). Non-SSA was preferred for pancreatic primaries (57% vs 43%, $P < 0.001$); SSA for small bowel primaries (90% vs 10%, $P < 0.001$) or functioning tumours (91% vs 9%, $P < 0.001$). Median PFS for SSA vs non-SSA; 10.8 vs 15.9 months (HR = 1.08, 95%CI 0.63-1.84, $P = 0.788$). Median OS; 35.1 vs 30.2 months (HR = 0.62, 95%CI 0.33-1.15, $P = 0.129$). No clinical-pathological characteristic impacted PFS or OS.
Conclusions
In this study, SSA was a similarly effective first-line option to non-SSA for patients with advanced "G2 high" WD-NETs. Data from larger prospective studies are required for validation and to more reliably interrogate impact of clinical-pathological variables and further treatment lines.

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Poster Presentations

P1

A qualitative study exploring the impact of gastrointestinal symptoms and malnutrition on the daily lives of patients living with neuroendocrine tumours (DIGEST)

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Background
Neuroendocrine tumours (NETs) are rare cancers often associated with distressing gastrointestinal (GI) symptoms and malnutrition, significantly impacting patients' quality of life. Despite this, there is a paucity of qualitative research exploring how these symptoms affect day-to-day living.
Aim
This study aimed to explore the experiences of people living with NETs, focusing on GI symptoms and nutritional challenges, to inform and enhance clinical care.
Methods
A single-centre, qualitative study was undertaken involving semi-structured interviews with six individuals diagnosed with gastro-entero-pancreatic NETs. Participants were purposively sampled from a tertiary UK NET centre. Interviews were conducted online, transcribed, and analysed using a framework approach supported by NVivo© software.
Results
Four key themes were identified: (1) Living with uncertainty regarding symptom origin, disease progression, and management; (2) Living with a NET, including the impact on everyday life and necessary adaptations; (3) Learning to self-manage, with emphasis on diet, treatment, and information-seeking; and (4) Feelings of gratitude as a coping mechanism. GI symptoms such as diarrhoea, urgency, and steatorrhoea were reported to be the most disruptive. Participants described using various strategies to regain control, often in the context of limited support and unmet information needs.
Conclusion
This study provides valuable insights into the lived experiences of people with NETs, particularly regarding malabsorption and nutritional difficulties. Findings highlight the importance of timely access to specialist support, person-centred information, and strategies that empower patients to self-manage. Addressing uncertainty and supporting psychological resilience should also be a key focus of care.
Key Words
Neuroendocrine tumours (NETs), Gastrointestinal symptoms, Malnutrition, Qualitative research, Patient experience, Diarrhoea, Quality of life
DOI: 10.1530/endoabs.114.P1

P2

Exploring the impact of dietary interventions for people with NETs: a scoping review

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Introduction
Neuroendocrine tumours (NETs) are rare, slow-growing malignancies, often arising in the gastrointestinal tract and pancreas. Disease- and treatment-related factors such as malabsorption, reduced oral intake, and metabolic disturbances contribute to malnutrition, sarcopenia, and micronutrient deficiencies, which adversely affect quality of life, treatment tolerance, and survival. There are no established evidence-based nutritional guidelines for this population.
Objective
To map existing evidence on dietary interventions for adults with NETs, describe the types and outcomes of interventions studied, and identify gaps to inform clinical practice and research.
Methods
Following the JBI methodology and Arksey & O'Malley framework, a comprehensive search of Web of Science, OVID Medline, CINAHL Plus, and PubMed was conducted in July 2023. Eligible studies included adults with NETs receiving any dietary intervention, such as dietary advice, supplementation, pancreatic enzyme replacement therapy (PERT), or enteral/parenteral nutrition. Outcomes including survival, nutritional status, weight, or biochemical markers were also included in the search terms. Studies in children, non-empirical literature, or those not specific to NETs were excluded. Screening was performed independently by two reviewers, with data charted and synthesised using descriptive and thematic analysis.
Results
From 463 records, six observational studies (n = 439 gastroenteropancreatic NET patients) were included, most from the UK. Interventions included vitamin/mineral supplementation, home parenteral nutrition (HPN), PERT, and adherence to a Mediterranean diet. Reported outcomes were survival, weight changes, nutritional status, and biochemical markers. HPN and PERT were associated with improved survival and nutritional parameters; vitamin D and B12 supplementation corrected deficiencies and improved bone health markers. Most studies were small (mean sample size 73), heterogeneous, and rarely used validated nutritional assessment tools. Evidence was limited to biomedical interventions, with no qualitative or patient-reported outcomes and little exploration of oral nutritional support or enteral feeding.
Conclusions
Dietary interventions in NETs show potential clinical benefits, but current evidence is sparse, small-scale, and methodologically limited. There is a need for dietitian-led research incorporating diverse NET subtypes, robust nutritional assessment, and mixed-methods designs to develop evidence-based nutrition care strategies.
Keywords
Neuroendocrine tumours; dietary intervention; nutrition; scoping review
DOI: 10.1530/endoabs.114.P2

P3

Sheffield teaching hospitals NHS foundation trust ENETS centre of excellence (ENETS COE) service evaluation of the inpatient 72-hour fasts for insulinoma: is continuous glucose monitoring the missing pre-test tool?

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Background
The 72-hour fast test remains the gold standard test for endogenous hyperinsulinism during observed prolonged fasting-induced hypoglycaemia. This service evaluation assessed the 72-hour fast test at an ENETS COE between February 2020 and November 2024. The aim was to explore a pre-test tool to select candidates for an observed inpatient 72-hour fast and optimise resource utilisation. We looked specifically at the use of continuous glucose monitoring (CGM) as a potential pre-test tool.
Methods
A retrospective service evaluation project was conducted involving 35 patients who underwent the observed inpatient 72-hour fasts. Data recorded included patient demographics, indication for fasting, use of CGM, occurrence of hypoglycaemic events, final diagnoses, adherence to protocol, documentation of results, and reasons for test termination.
Results
Among the 35 patients, 63% were female and 37% male. Continuous Glucose Monitoring (CGM) was not done in 8 patients out of the whole study population (23% of cases). 7 of these had no significant hypoglycaemia or diagnosed with insulinoma, and 1 confirmed insulinoma recurrence. Among the remaining 27 patients who underwent CGM monitoring (77%), 13 (48%) showed pseudo-hypoglycaemia, 11 (40%) had reactive hypoglycaemia, and only 1 was confirmed to have insulinoma. In addition, one case was attributed to adrenal insufficiency with suboptimal steroid dosing, and another developed hypoglycaemia during steroid weaning (PANDAS syndrome). The 72-hour fast completion rate was 66%, with 34% not completing due to hypoglycaemia (9%), self-discharge (2%), or non-specific symptoms (23%). Documentation quality was suboptimal, with over 70% of cases lacking protocol adherence, although discharge letters were completed for 68.5% of patients. This evaluation highlights that CGM provides valuable information for pre-test stratification. Many patients demonstrated pseudo- or reactive hypoglycaemia, suggesting that prolonged fasting may have been unnecessary for certain cases. Moreover, the adrenal insufficiency cas emphasises the importance of careful clinical assessment and specialist input before fasting test. A larger study is needed to corroborate our findings, but we recommend routine CGM before the 72-hour fast to improve diagnostic accuracy, reduce unnecessary admissions, and enhance patient safety, with fasting protocols restricted to specialist wards supported by trained staff.
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P4

De-novo versus transformed prostate neuroendocrine carcinoma: a population-based study of 1,326 patients

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Background
Prostate adenocarcinoma (AC) is a very common cancer worldwide, with an estimated 54,732 new cases in the UK (2022), and approximately 313,780 in the US (2025). Prostate neuroendocrine carcinoma (NEPC) can present as De-Novo (d-NEPC) or Transformed (t-NEPC) if preceded by AC. The population incidence and prognosis of these two types is unclear, with prior studies exploring small cohorts from single centres. To address this, we studied two large population-based cancer registries, NCRAS (UK) and SEER (US), to provide robust comparative analyses of survival outcomes in d-NEPC and t-NEPC.
Methods
A total of 433 and 893 patients with NEPC were extracted from NCRAS (2012-2021) and SEER (2012-2022) databases respectively. Histology sub-types included small cell, large cell and other neuroendocrine carcinomas. Patients were classified as d-NEPC and t-NEPC. Numerical variables were presented as medians and interquartile ranges (IQR). Kaplan-Meier (KM) plots were generated to assess their overall survival (OS) with their confidence intervals (CI).
Results
The median age was 72 (IQR 66-78) and 71 (IQR 64-78) years in NCRAS and SEER respectively. t-NEPC represented 10.4% in NCRAS versus 15.9% in SEER. Small cell carcinoma was the commonest subtype (79.7% NCRAS, 74.7% SEER). Median time to transformation was 52.7 months (IQR 30.80-97.70) in NCRAS and 60 months (IQR 24.0-120.0) in SEER. In NCRAS, 60-month OS was 6.9% (CI: 4.6-10.5) and 4.4% (CI: 1.1-17.2) for d-NEPC and t-NEPC respectively. Similarly, in SEER, 60-month OS was 8% (CI: 5.9-10.7) versus 3% (CI: 0.9-9.7) for d-NEPC and t-NEPC respectively. KM plots demonstrated that t-NEPC showed worse OS than d-NEPC across both cohorts. There was no statistically significant difference in OS between histology subtypes in both cohorts.
Conclusion
This large population-based study demonstrated that transformed neuroendocrine prostate carcinoma can occur many years after prostate adenocarcinoma and is associated with significantly worse overall survival when compared to De-Novo patients. This was consistent across two independent national registries. Overall survival did not differ significantly by histological subtype. These findings emphasise the importance of considering transformation as this may change therapeutic options.

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P5

Hemicolectomy or appendectomy for appendiceal neuroendocrine tumours sized 1-2 cm? a retrospective population-based study of 1,581 patients

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Background
Appendiceal neuroendocrine tumours (aNET) have a good prognosis and are commonly found at appendicectomy. aNET $>$ 2 cm has high recurrence rates, and thus, right hemicolectomy (RHC) is advised. However, aNET $<$ 1 cm generally does not recur. Management of aNET 1-2 cm is subject to debate. Nesti *et al* , 2023 suggested that RHC is not needed for tumours 1-2 cm in size, but long-term follow-up was needed.
Methods
This is a retrospective population-based study. A total of 1,304 adult patients with aNET 1-2 cm (diagnosed 2012-2022) who had appendectomy or RHC were extracted from the SEER database. Similarly, a total of 277 patients (diagnosed 2012-2021) were extracted from NCRAS database. Kaplan Meier (KM) plots for Overall survival (OS) and log-rank test (LR) were generated. Univariable and multivariable Cox regression for overall mortality were performed.
Results
In the SEER cohort, 997 and 307 patients underwent appendectomy and RHC, respectively. Median age, along with interquartile range (IQR), was 42.3 years (30.0-50.0) for appendectomy and 46.9 years (30.0-60.0) for RHC, respectively. Most patients were females (65.3%) and white patients (67.7%). Most patients had grade 1 (85.5%) aNET. Patients who underwent RHC had a higher proportion of N1 stage (18.9% vs. 2.9%) and M1 stage (2.6% vs 0.4%). The KM plot and LR test for OS showed no statistical difference between appendectomy and RHC ($P = 0.22$). A Fine-Gray competing risks model and KM plot with LR after propensity score matching showed the same result. In the NCRAS cohort, 162 and 115 patients underwent appendectomy and RHC, respectively. The median age, along with the IQR, was 39.5 years (25.2-57.0) for appendectomy and 51.0 years (36.0-70.0) for RHC, respectively. Patients who underwent RHC had a higher proportion of N1 stage (14.8%) and M1 stage (4.35%). The KM plot for OS showed no statistical difference between appendectomy and RHC ($P = 0.07$). Sex and race distribution were statistically not different between the two groups in NCRAS and SEER.
Conclusion
This study corroborates the findings of other recent smaller studies indicating that RHC may not be needed in aNET of 1-2 cm even with positive lymph nodes.

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P6

An update of the case controlled national pilot for liver transplantation in patients with neuroendocrine tumour (NETs) liver metastases between august 2021 and 31st july 2025

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Background
In 2020 the NHS Blood and Transplant authority and the Liver Advisory Group agreed to a pilot scheme to determine the benefits of liver transplantation for unresectable neuroendocrine tumour liver metastases. A national delivery framework was set up, through University Hospitals Birmingham (UHB), in mid-2021. It has been selecting patients for the pilot programme through a national multidisciplinary team meeting (nMDT) held once monthly. The nMDT provides oversight and expert guidance for selecting eligible patients who will benefit from entering the liver transplant pathway.
Aims
To demonstrate the work of the national pilot programme, in delivering the programme. Promoting awareness and education for other health care professionals, to improve access to liver transplantation for eligible patients across the United Kingdom (UK) and Ireland.
Methods
Data has been collated from the designated national liver transplant database.
Results
41 nMDT meetings
56 referrals to the nMDT from 18 centres
9 patients suitable for Liver Transplantation
25 patients potentially suitable for Liver Transplantation
22 patients not suitable for Liver Transplantation
8 patients received a Liver Transplant within the pilot programme
- 2 Male
- 6 Female
- Age range 44-64, mean age 53.4
- Grade 1-2 Well- differentiated NET
- 7 GI Primary
- 1 Pancreatic Primary

All 8 patients remain under active follow-up
Conclusion and Future Plans
A pilot study in the United Kingdom and Ireland is providing further evidence to determine the role of liver transplantation in NETs, by making strategic use of the combined expertise in NETs and liver transplantation that exists in the UK and Ireland. Required infrastructure has been developed to deliver a successful programme. This pilot places UK and Ireland at the forefront for developing international clinical trials in liver transplantation for the indication of neuroendocrine cancer, as well as other trials and research in this field. Ongoing robust data capture is being achieved. This will facilitate a comprehensive analysis, of the utility of liver transplantation in NETs.

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P7

Metastatic neuroendocrine tumour (NET) of the kidney: a case report

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Introduction
Neuroendocrine tumour of the kidney makeup less than 1% of all renal tumours. They pose a diagnostic challenge therefore pathological and immunohistological analysis are considered extremely important for attaining accurate diagnosis.
Case report
29-year-old male presented with sudden onset of severe abdominal pain and vomiting. He had no past medical history, his mother had gallstone pancreatitis. On examination there was mild tenderness in the left umbilical region and the biochemical workup revealed increased inflammatory markers. He underwent a CT scan of the abdomen and pelvis which revealed a mass arising from the lower pole of the left kidney measuring 66 X 59 X 80 mm. The lesion is of soft tissue and was less than 20 Hounsfield units. There were multiple lesions in the left para-aortic region. CT neck and thorax did not reveal any new lesions. His care was initially discussed at the urology MDT, the consensus was retroperitoneal lymphadenopathy with a left renal mass may present an atypical renal neoplasm or lymphoma. He underwent a CT-guided core biopsy of para-aortic lymph nodes. Histology revealed a well to moderately differentiated neuroendocrine tumour with Ki-67 of around 20%. Immuno histochemistry revealed positive staining for synaptophysin CD 56, AE1/3, negative for CK7, P504S, OCT3/4, PLAP, chromogranin A, WT1, Melan A, Serotinin. He underwent a nuclear medicine gallium 68 DOTATATE PET-CT, this revealed avid left renal mass associated with left renal hilar, para-aortic, aortocaval lymph nodes. There were numerous scattered avid bone metastasis throughout the visualised skeleton. MRI liver revealed a small cyst. These findings were discussed at the neuroendocrine (NET) tumour multi-disciplinary team meeting; as there were widespread metastasis, the renal lesion was deemed not amenable for surgical resection. He has been commenced on long-acting somatostatin analogues and reviewed by the oncologist. Oncologist have commenced him on CAPTEM (Capecitabine and Temozolomide) chemotherapy.
Discussion
Common presenting symptoms of renal NETs are back pain flank pain and haematuria. Immuno histochemistry and pathological examination or key players in diagnosis of the renal neuroendocrine tumours.

DOI: 10.1530/endoabs.114.P7

P8

Central mesenteric lymph node resection in stage 4 small intestine NET

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We present a series of 18 cases with central mesenteric node resection in stage 4 small intestine NET (SI NET) managed under the guidance of New Zealand's national NET multidisciplinary framework 2014-2025. This represents 80% of significant central node excision over this time (20% had surgery in other centres). These cases were a mix of (1) symptomatic, (2) approaching PRRT and (3) prophylactic. We followed the general strategy of resecting primaries and significant mesenteric node masses followed by appropriately timed PRRT as a standard management for stage 4 SI NET. Presence of ≥ 2 proximal uninvolved SMA branches was taken as a minimum requirement for resection. Staging of resected nodes in the classification of Ohrvall *et al*.(2000) was level 2: 9 cases; level 3: 8 cases; level 4: 1 case. 3 patients had concomitant duodenal resection. All patients left hospital independent on oral diet. 2 patients had right side cardiac valve replacements before abdominal surgery. 6 had PRRT at varying intervals. 2 had liver resection of limited and localised metastasis – we do not pursue major liver debulking unless for troublesome carcinoid syndrome or to facilitate PRRT to smaller lesions. One patient died 3 years after surgery with progressive disease, the remainder are alive 2-130 months post surgery. One patient had a subsequent abdominal operation for a SI perforation at 15 months but no other patients had later abdominal symptoms other than diarrhoea managed with typical medications. There is concern regarding PRRT in the presence of compromised SI – obstruction or vascular compromise – and it is not clear where the safety limits are. We show here that relatively aggressive mesenteric node resection is safe with good symptomatic outcome and can be followed by uncomplicated PRRT. A 'mesentery-sparing' surgical approach is important and does not appear to be widely known outside of NET centres. Internationally, curricula for training in General and Colorectal surgery typically have little coverage of SI NET surgery.

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P9

Demographic and clinical characteristics of patients undergoing surgery for pancreatic neuroendocrine tumours (PanNET): a retrospective population-based analysis of 11,934 patients comparing England and the USA

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Background
Pancreatic neuroendocrine tumours (PanNET) are rare but with increasing incidence. Surgical resection is the only potentially curative therapy for localized disease. Criteria for selection for surgery vary across different healthcare systems. This population-based study aimed to study the demographic and clinical characteristics of resected vs non-resected PanNET in NCRAS and SEER.
Methods
A total of 3,612 and 8,322 patients with PanNET were extracted from NCRAS (2012-2021) and SEER (2011-2022) databases respectively. Descriptive summary statistics were calculated for both cohorts stratified by receiving surgical resection. Statistical hypothesis tests were used to compare patients who did not receive resection (Group-1) and those who did (Group-2).
Results
In NCRAS, median age was 64-years. Most patients were males (54.3%), white (86.1%), living in urban areas (76.6%), had median size of 25 mm, T1 stage (22.6%), N0 stage (43.5%), M0 stage (45%), and Stage-group 4 (26.7%). Group-2 represented 43.2%. The most common procedures were partial pancreatectomy/-Whipple resection (88.9%). Group-2 was characterized by being of younger age, male sex, less advanced T-stage, N-stage, M-stage, and stage-group. In SEER, median age was 63-years. Most patients were males (55.0%), white (64.7%), living in metropolitan areas (90.6%), had median size of 24 mm, N0 stage (73.7%), M0 stage (78.4%), and Stage 1 (42.4%). Group-2 represented 59.0%. The most common procedures were partial pancreatectomy/Whipple resection (80.8%). Group-2 was characterized by being of younger age, male sex, smaller size, less advanced M-stage, stage-group, receiving less radiotherapy and chemotherapy.
Conclusion
NCRAS and SEER cohorts had similar demographic and clinical characteristics of PanNET. However, NCRAS had less stage-group 1, more stage-group 4 cases, and fewer resections when compared to SEER. This difference in resection rates is likely due to difference in stage at diagnosis and differences in healthcare systems. The most common resection was partial pancreatectomy/Whipple resection in both cohorts. Receiving surgery was associated with younger age, male sex, less advanced M-stage, stage-group in both cohorts.

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P10

Chemotherapy use and its effect on overall survival in gastroenteropancreatic neuroendocrine neoplasms (GEP-NEN): a population based study of 63,911 patients

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Background
Chemotherapy regimens in GEP-NEN (including neuroendocrine tumours (GEP-NET) and neuroendocrine carcinoma (GEP-NEC)) are not standardized with uncertain outcomes. The available evidence is from small studies. This study aimed to compare chemotherapy use and overall survival (OS) in patients with GEP-NEN from NCRAS and SEER.
Methods
A total of 15,266 and 48,645 patients with GEP-NEN were extracted from NCRAS and SEER respectively. Kaplan-Meier (KM) plots, Univariable and Multivariable Cox Regression (MCR) models were generated to study the effect of chemotherapy on OS. Machine learning (ML) model was developed to predict the factors associated with receiving chemotherapy in SEER.
Results
In NCRAS, 10%, 4.7% and 35% of GEP-NEN, GEP-NET, and GEP-NEC received chemotherapy. For GEP-NEC who received chemotherapy, median age

was 64-years. Most were males (63.1%), white (89.7%), living in urban areas (79.7%), had colorectal-NEC (40.3%) and stage 4 (67.0%). A total of 56 and 44 different chemotherapy regimens were used in NEC and NET respectively. The most common regimen was Cisplatin/Carboplatin/Etoposide (24.5%) and Capecitabine/Temozolomide (1.2%) in NEC and NET respectively. In SEER, 8.9%, 3.6% and 28.5% of GEP-NEN, GEP-NET, and GEP-NEC received chemotherapy. For GEP-NEC who received chemotherapy, median age was 61-years. Most were males (60.0%), white (65.4%), living in metropolitan areas (89.0%), had pancreatic-NEC (40.3%), with median size of 48-mm and distant stage (77.3%). In both cohorts, KM plots showed worse unadjusted OS with chemotherapy in overall, NET, and NEC cohorts. In NCRAS, MCR showed that chemotherapy is associated with worse OS in GEP-NEN and better OS in GEP-NEC. In SEER, MCR showed that chemotherapy is not statistically significant in relation to OS in GEP-NEN. However, it was associated with better OS in GEP-NEC. ML showed the most important factors associated with receiving chemotherapy are advanced grade, advanced stage, larger primary tumour, liver metastasis, NEC morphology and younger age.

Conclusion

Chemotherapy is more frequent in GEP-NEC than GEP-NET but overall, surprisingly few GEP-NEC received this treatment. Adjusted analyses may suggest chemotherapy offers some benefit in GEP-NEC only. A variety of chemotherapy regimens were used. This variability highlights the need for improved standardization to enhance outcomes.

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P11

Haematological toxicity after peptide receptor radionuclide therapy in neuroendocrine tumours - a 10 year experience from south wales

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Background

Peptide Receptor Radionuclide Therapy (PRRT) is an approved second- or third-line treatment for advanced metastatic neuroendocrine tumours (NETs). While generally well tolerated, PRRT can cause toxicities, particularly haematological, including bone marrow suppression and malignancies. The underlying risk factors remain unclear.

Methods

Our study was a single-centre, retrospective observational analysis of patients with histologically confirmed NETs who received PRRT from 2015 to 2024. Patients were reviewed at the South Wales NET Multidisciplinary Team meeting and referred for PRRT at the Royal Free Hospital in London where they received PRRT with ^{177}Lu-DOTATATE at a dose of 7.477 GBq/cycle, administered every 10 to 12 weeks for up to four to six cycles. Toxicity was assessed using Common Terminology Criteria for Adverse Events (CTCAE) version 5.0, focusing on persistent haematological dysfunction (PHD) and Serious Adverse Events (SAEs) 3 to 5 resulting in hospitalization or death. We analysed haematological changes from baseline to two years post-PRRT (Wilcoxon Rank Test) and identified predictors of PHD through logistic regression, using GraphPad Prism version 10.0.0.

Results

Seventy-four patients received at least one PRRT cycle; 68% had midgut primaries and 55% were grade 1. Four cycles were given to 59 patients (80%), whereas 13 (18%) received 5 or 6 cycles. SAEs occurred in 21 patients (28.4%): gastrointestinal (7; 9.4%), renal (6; 8.1%), and haematological (5; 6.8%) including bone marrow suppression ($n = 3$) and AML ($n = 2$). Median time from last PRRT to toxicity was 60 days (gastrointestinal), 37.5 days (renal), and 180 days (haematological). Significant changes occurred in haemoglobin ($P < 0.001$, $n = 36$), MCV ($P = 0.006$, $n = 31$), lymphocytes ($P < 0.001$, $n = 40$) and platelets ($P = 0.001$, $n = 34$) at two years post-PRRT. Three patients (4%) developed bone marrow failure leading to discontinuation, and 20 (27%) had PHD. Regression analysis identified tumour grade ($P = 0.004$) and bone metastases ($P = 0.010$) as significant predictors of haematological toxicity.

Conclusion

Higher-grade (2&3) NETs and bone metastases are significantly associated with delayed haematological toxicity following PRRT. Previous treatments were not contributory. Vigilant monitoring of high-risk patients is essential to optimise long-term outcomes.

Keywords

Haematological toxicity, Peptide Receptor Radionuclide Therapy (PRRT), Neuroendocrine Tumours (NETs)

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P12

Evaluation of the real-world use of hormone replacement therapy (HRT) in women with neuroendocrine cancers in sheffield teaching hospitals european neuroendocrine tumour centre of excellence

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Introduction

In 2023, Gov.UK reported that around 15% of women aged 45-64 were prescribed HRT. The use of HRT in women with neuroendocrine tumors (NETs) remains uncertain, due to limited data available. Here we evaluated the use of HRT in women with NETs in the perimenopausal and menopausal age and to assess its association with tumour grade, stage and biomarkers.

Methodology

A retrospective review of the Sheffield NET database was performed on women aged 40-64 diagnosed with NETs, with ongoing follow-up in 2025. Data included demographics, tumor site, stage, grade, biomarker levels (chromogranin A, 5-HIAA), HRT prescriptions, and prescribers. Data analysis was conducted using SPSS.

Results

A total of 190 women aged 40-65 (mean age 56.5) were identified. The most common neuroendocrine tumor (NET) subtype was small bowel NET (27.4%), followed by pancreatic NET (26.3%) and appendiceal NET (12.6%). Of these, 42.9% ($n = 76$) were stage 1, and 28.2% ($n = 50$) were stage 4. Over half of the stage 4 cases (56%, $n = 28$) involved small bowel NETs, while pulmonary NETs accounted for most stage 1 cases (22.4%). Regarding grading, 67.7% ($n = 109$) had Grade 1 disease, with the pancreas as the primary site in 23.8% ($n = 26$). Overall, 36 (19%) patients were on HRT, mainly transdermal estrogen (75%) and vaginal estrogen (22.2%). Only 7.7% of small bowel NET patients received HRT, despite being the most common subgroup. No significant correlation was found between HRT use and disease stage ($P = 0.49$), grade, or biomarkers chromogranin A and 5-HIAA ($P = 0.24$ and $P = 0.69$).

Conclusion

Compared to the general population, HRT use was higher in women with NET in our cohort. The grade and the stage did not correlate with HRT prescription. This may be due to the perceived as having symptom overlap of Carcinoid syndrome and vasomotor symptoms. However, these results were limited due to small sample size. This highlights the need to implement further studies on HRT prescription in women with NET, which would further assist in developing guidance on HRT use in this complex population.

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P13

Clinical risk factors for micronutrient deficiencies in patients with gastroenteropancreatic neuroendocrine tumours: a real-world evaluation

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Background

Micronutrient deficiencies are an under-recognised complication in the long-term management of patients with gastroenteropancreatic neuroendocrine tumours (GEP-NETs). Despite plausible mechanisms for malabsorption, there is a limited real-world data on prevalence or evidence-based risk stratification to guide routine nutritional screening. We aimed to evaluate the prevalence of key micronutrient deficiencies and identify clinical predictors of deficiency in a specialist NET cohort.

Methods

We conducted a retrospective analysis of prospectively collected data from the South Wales NET service (2014-2024). Patients with confirmed GEP-NETs with at least one recorded serum micronutrient were included. Assessed parameters included vitamin B12, fat-soluble vitamins (A, D, and E), and trace elements (zinc, copper, selenium). Patients were stratified by steatorrhoea, somatostatin analogue (SSA) therapy, and prior ileal resection or right hemicolectomy.

Multivariate logistic regression identified the independent predictors of deficiency.
Results
Among 342 patients (53% male, median age 67.5), midgut NETs were the most common (51%), with 60% low grade, and 53% metastatic at diagnosis. Ileal resection or right hemicolectomy was documented in 54.2%, and 53% received SSA. Steatorrhoea was present in 101 patients.
Deficiency rates (amongst those tested) were:
- Vitamin B12: 42.5%
- Fat-soluble vitamins (A, D, E): 46.4%
- Trace elements (Zn, Cu, Se): 30.4%

Multivariate analysis identified steatorrhoea as an independent predictor of fat-soluble vitamin deficiency (OR = 2.14; 95% CI = 1.07-4.27; $P = 0.032$). Steatorrhoea itself was strongly associated with SSA use (OR = 6.98; $P < 0.001$) and ileal resection/right hemicolectomy (OR = 5.11; $P < 0.001$). Ileal resection/right hemicolectomy was also independently associated with B12 deficiency (OR = 1.74; 95%CI 1.05-290; $P = 0.033$).
Conclusion
In one of the largest single-centre NET cohorts globally, we demonstrate a high prevalence of micronutrient deficiencies. Simple clinical indicators, such as steatorrhoea and prior ileal resection, may offer more robust risk prediction than SSA exposure alone. These findings support a shift towards targeted micronutrient screening protocols to personalise nutritional monitoring, and improve long-term care in GEP-NETs.
Key words
Neuroendocrine tumours, micronutrients, nutrition, steatorrhoea, somatostatin analogues, ileal resection.

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P14

A novel activating somatic EPAS1 variant in the hypoxia signalling pathway in a patient with paraganglioma and sickle cell disease

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Introduction
Phaeochromocytomas and paragangliomas (PPGLs) are neoplasms which arise from chromaffin cells of neural crest origin. Up to 40% patients with PPGLs harbour germline pathogenic variants (PVs), with somatic PVs identified in 30–45% cases. *EPAS1* gain-of-function mutations drive aberrant activation of hypoxia signalling pathways and have been reported in both sporadic and syndromic PPGLs, such as in the Pacak–Zhuang syndrome, and in patients with chronic hypoxic conditions such as cyanotic congenital heart disease. Sickle cell disease (SCD), characterised by recurrent hypoxic episodes, may similarly predispose to these mutations. This case describes a novel *EPAS1* variant identified in a patient with sickle cell disease and a paraganglioma.
Case
A 33-year-old Afro-Caribbean woman with SCD presented with left flank pain. She had a history of frequent SCD-associated hospital admission since childhood, with episodes of vaso-occlusive crises and acute chest syndromes, and chronic anaemia (Hb 73 g/l). She had been on hydroxycarbamide, which she took inconsistently. Routine imaging incidentally revealed a right-sided retrocaval soft tissue mass. Functional imaging with ^{18}F-FDG PET showed intense uptake, but a ^{68}Ga-DOTATATE PET scan was negative. Histology demonstrated a paraganglioma (chromogranin, synaptophysin, S100, GATA3 and SDHB-positive; Ki-67 $<1\%$). Somatic mutation analysis identified a novel likely-pathogenic *EPAS1* variant (Exon 12, c.1594T > G, p.Tyr532Asp; VAF 39.9%). She was referred for surgical removal of the mass, but declined, and opted for surveillance as she was asymptomatic. She also opted against further diagnostic workup with plasma metanephrines and germline mutation studies
Discussion
Endothelial PAS domain-containing protein 1 (EPAS1), encoded by the *EPAS1* gene, is also known as Hypoxia-Inducible Factor 2-α (HIF-2α), a HIF subunit of transcription complex HIF-2. At normal oxygen concentrations, HIF-α are subject to proteasomal degradation by prolyl hydroxylation. In hypoxic conditions, stable HIF- α subunits form dimer complexes promoting angiogenesis and cell proliferative activity. This case illustrates a clinically relevant association between SCD and an *EPAS1*-driven paraganglioma, and supports an emerging hypothesis that chronic hypoxia creates a selective environment favouring gain-of-function mutations in the clonal expansion of EPAS1-mutated cells. The identified p.Tyr532Asp variant lies within the hydroxylation domain and likely mediates constitutive HIF pathway activation, driving tumorigenesis. Prior series have shown a high prevalence of *EPAS1* mutations in PPGLs associated with chronic hypoxaemia, including patients with haemoglobinopathies. Awareness of this link is essential for early recognition and genetic characterisation in younger patients presenting with PPGLs.

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P15

Real-world survival outcomes following lutetium-177 dotatate PRRT in gastroenteropancreatic neuroendocrine tumours: a 138-patient UK experience

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Purpose
Lutetium-177 Dotatate peptide receptor radionuclide therapy (PRRT) is an established option for advanced neuroendocrine tumours (NETs). The NETTER-1 trial demonstrated clear progression-free survival (PFS) and overall survival (OS) advantage in midgut NETs, while the NETTER-2 study suggests potential benefit from earlier use of PRRT in higher-grade disease. However, trial populations often exclude many patients seen in routine practice. Real-world evidence across larger, unselected UK populations is therefore essential to confirm outcomes and inform clinical decision-making. We present OS and PFS outcomes from one of the largest UK single-centre PRRT audits to date.
Methods
Data was collected from 138 patients with well-differentiated, unresectable/metastatic gastroenteropancreatic NETs who received Lutetium-177 Dotatate between August 2018 and June 2025 in the North East and North Cumbria. Baseline demographics, tumour grade and primary site of disease were collected. OS and PFS were measured from PRRT initiation using Kaplan–Meier analysis.
Results
A total of 138 patients were included (36 grade 1, 102 grade 2). Median OS for the population was 51.8 months (Figure 1). Median OS was not reached for grade 1 (58.3% alive at 52.3 months). Grade 2 had a median OS of 49.2 months (Figure 2). Median PFS for the population was 45.2 months (Figure 3). For grade 1, median PFS was not reached (55.4% without progression at 45.2 months). Grade 2 had a median PFS of 35.6 months (Figure 4). A total of 103 (74.6%) had gastrointestinal primaries and 35 (25.4%) had pancreatic primaries, with no significant survival differences between groups. Twenty (14.5%) discontinued treatment: 5 due to progression, 5 haematological toxicity (2 pancytopenia, 3 thrombocytopenia), 3 renal toxicity, 2 gastrointestinal toxicity (diarrhoea, enteropathy), 3 reduced fitness, and 2 patient-related factors (relocation, non-compliance).
Conclusion
This large regional dataset demonstrates that Lutetium-177 Dotatate achieves survival outcomes in routine UK practice mirroring those seen in clinical trials. These results provide reassurance that PRRT is safe and effective in the NICE-approved patient population. As new trials such as NETTER-2 explore earlier integration of PRRT, our findings provide an essential benchmark of outcomes under current NICE-approved pathways, reinforcing its safety and efficacy across unselected patients.

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P16

Treatment of patients with low-grade neuroendocrine tumours: the impact of conventional chemotherapy on progression-free survival in low-grade gastroenteropancreatic neuroendocrine tumours

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Background
GEP-NETs are increasingly diagnosed; chemotherapy remains established in high-grade, but its efficacy in low-grade is unclear.
Objectives
This study aimed to evaluate the impact of conventional chemotherapy on progression-free survival (PFS) in patients with low-grade (G1) GEP-NETs and to compare outcomes by tumour grade, primary site, and treatment regimen.

Methods
A retrospective cohort analysis was performed at St Bartholomew's Hospital. Of 532 patients in the institutional NET database, 86 (16.2%, 95% CI: 13.0–19.3%) met inclusion criteria, defined as patients treated with first-line systemic chemotherapy between 2016–2024 who remained under active follow-up. Three patients were excluded due to incomplete or off-protocol records, leaving 83 eligible for analysis. Patients were stratified by WHO grade (G1–G3), Ki-67 index, primary site, and regimen. Among these, 18 patients (21.7%, 95% CI: 13.1–30.3%) had histologically confirmed G1 NETs (Ki-67 <3%). Kaplan–Meier curves were used to evaluate PFS.
Results
The cohort consisted of 22% G1, 31% G2, and 47% G3 NETs. Within the G1 group, 16 patients had GEP-NETs (eight pancreatic, eight gastrointestinal) and two were non-GEP (pulmonary and orbital). At baseline, 77.8% presented with metastatic disease. Median PFS in the G1 cohort was 43.7 months (95% CI: 33.1–54.3). Gastrointestinal NETs achieved the longest PFS (42.0 months), followed by pancreatic NETs (26.0 months), while non-GEP NETs had the poorest outcomes (3.4 months). Capecitabine/temozolomide (CAPTEM) demonstrated numerically superior PFS (~40 months) compared to other regimens (~20 months). Across all grades, PFS decreased with higher grade: 43.7 months (G1), 31.0 months (G2), and 13.9 months (G3).
Conclusion
Conventional chemotherapy can provide durable disease control in carefully selected patients with low-grade, well-differentiated GEP-NETs, especially gastrointestinal primaries treated with CAPTEM. By contrast, non-GEP NETs exhibited aggressive behaviour despite low Ki-67 indices. These findings align with published evidence, including trials such as E2211, which demonstrated CAPTEM activity in pancreatic NETs with median PFS of ~23 months, and retrospective series reporting PFS of 12–21 months across NET subtypes. Our observation of prolonged PFS in G1 tumours, particularly gastrointestinal primaries, suggests chemotherapy may have an under-recognised role in this setting. Further prospective evaluation is warranted.

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P17

Real-world outcomes of capecitabine and temozolomide in neuroendocrine tumours: a single-institution experience

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Background
Systemic treatment options for metastatic neuroendocrine tumours (NETs) remain limited. The combination of Capecitabine and Temozolomide (CAPTEM) has shown efficacy in pancreatic NETs (PanNETs), but data in small bowel NETs and pulmonary carcinoids are limited. We reviewed our institutional experience with CAPTEM across NET subtypes.
Methods
We retrospectively reviewed records of NET patients treated with CAPTEM from January 2022 to August 2025. Descriptive statistics were used to summarise demographics, disease, and treatment-related information. The treatment regime consisted of capecitabine 1000 mg/m^2 orally twice daily on days 1–14, combined with temozolomide 200 mg/m^2 once daily on days 10–14 of a 28-day cycle. Progression-free survival (PFS) was defined as the interval from treatment initiation to disease progression or last follow-up without progression. The data cut-off date was August 30, 2025.
Results
Fifteen patients were identified; 53% female and the median age was 69 years (range 53–78). Tumour grades were 53% grade 2, 26.7% grade 1, and 20% well-differentiated grade 3. Primary tumour sites included pancreas (40%), small bowel (33.3%), lung/thymus (20%), and rectum (6.7%); 40% were functional tumours. CAPTEM was given as first-line therapy in 20% of cases, second-line in 13.3%, third-line in 60%, and fourth-line in 13.3%; 53.3% had prior peptide receptor radionuclide therapy (PRRT). Median treatment duration was 9 months. At 6 months, 80% of patients had stable disease. Median progression-free survival was 9 months overall and 17 months in PanNETs. Reported toxicities included fatigue (grade 1 in 85%, grade 3 in 15%) and gastrointestinal events (grade 1 diarrhoea and nausea in 40%). Diarrhoea was more common in patients with functional NET. Dose reductions were required in 80% of patients. All patients tested negative for DPD deficiency. No significant hematologic toxicity was observed, including in those with prior PRRT.
Conclusion
In this real-world cohort, CAPTEM was well tolerated and demonstrated durable activity in NETs, with particularly favourable outcomes in PanNETs. Importantly, both efficacy and safety were maintained in heavily pretreated patients, including patients who had prior PRRT.

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P18

Case report: palliative radiotherapy in subcutaneous metastases from a neuroendocrine carcinoma

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Introduction
Palliative radiotherapy is an important treatment modality for patients with metastatic neuroendocrine tumours which has often been used to improve symptoms from bone and nodal metastases. We describe the effective use of palliative radiotherapy for subcutaneous metastases in a patient with large cell neuroendocrine carcinoma.
Case Presentation
A 67-year-old presented to the Head and Neck service with a 6-year history of progressive dysphagia. Clinical examination revealed multiple skin lesions on the torso and a flexible nasendoscopy identified an abnormal epiglottis. Both areas were biopsied. Skin biopsy was positive for TTF-1, chromogranin A and CD56. Ki67 was 20% with a large cell morphology. Diagnosis of metastatic large cell neuroendocrine carcinoma is favoured. Both left and right epiglottis were biopsied with chronic inflammation seen, no evidence of malignancy. Gallium 68 DOTATOC scan and FDG PET CT scan both recorded activity in the epiglottis and multiple subcutaneous nodules. August 2020 - Completed 3 cycles of carboplatin and Etoposide. Progressive disease on CT scan upon completion of treatment. October 2020 - Painful right flank and back lesions. 20Gy in 5 fractions radiotherapy delivered with good clinical response. Started monthly SSA injections alongside this. April 2021 - Completed 8 cycles of CAPTEM with stable disease on CT scan. January 2022 – New enlarging cervical and SCF nodes. 20Gy in 5 fractions delivered to left neck including epiglottis with good response demonstrated both clinically and radiologically. Between 2022 – 2024 – Further palliative radiotherapy (8Gy single fractions) delivered to painful areas in left thigh and right axilla achieving clinical benefit. Otherwise well and clinically stable during this period. September 2024 – presented with neurological signs and found to have a solitary malignant brain tumour. He deteriorated rapidly and died in November 2024.
Conclusion
There is clear benefit in using palliative radiotherapy in addition to systemic anti-cancer therapies in the management of cutaneous metastatic large cell neuroendocrine tumours to provide local control and symptomatic benefit.

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P19

Real world outcomes for patients with high grade neuroendocrine neoplasms at Guy's Cancer Centre

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Background
High grade neuroendocrine neoplasms (NENs) are a heterogenous group, including G3 neuroendocrine tumours (NETs), neuroendocrine carcinomas (NECs), and mixed neuroendocrine and non-neuroendocrine neoplasms (MiNENs). There is currently limited evidence for the optimal management of high grade NENs, particularly for MiNENs. This study aims to describe the real-world management and outcomes for patients with high grade NENs at a large NHS cancer centre in London (UK).
Methods
Adults with high grade NENs seen at Guy's Cancer Centre between 2017-2023 were included. Data was collected using the Research Electronic Data Capture (REDCap) platform. The study received ethical approval from Guy's Cancer Cohort (Ref 23/NW/0105).

Results
Seventy-six patients were included; comprising 23 G3 NETs, 43 NECs (18 small cell, 10 large cell, 15 not specified), and 10 MiNENs. Gastrointestinal (GI) NENs were most common (72.4%) and most presented with metastatic disease (69.7%). The mean age was 60, the majority male (51.3%), of White ethnicity (64.5%), and performance status 0-1 (60.6%). Amongst G3 NETs ($n = 23$), the majority were observed in GI sites (73.9%) with Ki67 <55% (82.6%). Palliative chemotherapy was most common in the first line (39.1%), followed by curative surgery (30.4%), and somatostatin analogues (8.7%). Best supportive care (BSC) was received by 13.0%. Median overall survival (mOS) for the G3 NET cohort was 33.4 months (95CI 6.7-65.8). Of the NECs ($n = 43$), 67.4% affected GI sites. The most frequent first-line treatment was palliative chemotherapy (44.2%), of which most received platinum-etoposide (P-E), and curative surgery (16.3%). BSC occurred in 16.3% of patients. The mOS for the NEC cohort was 8.4 months (95CI 5.2-14.0). Of the MiNENs ($n = 10$), almost all were GI (90%). All received treatment; 40% receiving palliative chemotherapy (20% P-E, 10% CAPTEM, 10% Other) in the first line. Prognosis was lowest amongst the MiNEN cohort, with mOS of 4.4 months (95CI 1.6-15.3). Finally, molecular profiling data has been collected within this real-world database, with ongoing analyses exploring associations with treatment patterns and outcomes.
Conclusion
This real-world study showed poor survival for NECs and MiNENs compared to G3 NENs. Precise histological categorisation is essential to inform optimal treatment and maximise outcomes.

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P20

Avoidable consequences of nutritional deficiencies: a case series of vitamin deficiencies secondary to neuroendocrine tumours and their treatment

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We present a series of patients with Neuroendocrine Tumours (NETs) highlighting potential nutritional deficiencies in this patient group.
Case-1
Mr.B, a 59-year-old gentleman, with well-differentiated, Grade-2, metastatic NET and carcinoid-syndrome diagnosed in August-2023. He had a history of heavy alcohol use. He started treatment with Sandostatin-Analogues (SAs) but struggled due to low sub-cutaneous fat, switching to Octreotide continuous infusion. At clinic review, he was non-compliant with treatment, becoming depressed, paranoid and confused. On examination he had a dry, scaly, erythematous rash over the dorsum of his hands. Pellagra (Vitamin-B3 deficiency) was suspected. Mr.B was treated with Pabrinex followed by Vitamin-B Co-Strong. His confusion improved.
Case-2
Mr.A, a 68-year-old gentleman was diagnosed in 2014 with metastatic, well-differentiated, Grade-1, small-bowel NET being treated with SAs for 3-years with stable disease. He had bile acid diarrhoea from previous ileocaecal resection and cholecystectomy and was prescribed cholestyramine. He started noticing blurring of vision particularly in low light conditions. Vitamin-A levels were checked and found to be low. He was started on Vitamin-A supplements and vision improved.
Case-3
Mrs.K, a 57-year-old woman with Grade-2, metastatic, mid-gut NET diagnosed in September-2021 and treated with SAs for 3-years with stable disease. Mrs.K, however, was experiencing progressively worsening steatorrhoea. Routine blood tests were taken for fat-soluble vitamins and showed low Vitamin-K. On direct questioning, patient reported easy bruising. Diet modification was initially tried, but Vitamin-K supplements were required.
Discussion
Pancreatic enzyme insufficiency is a common adverse-effect of SAs. This, in turn, can reduce absorption of fat-soluble vitamins such as Vitamins A,D,E and K. Patients at risk may experience steatorrhoea secondary to their SAs. The concurrent prolonged use of bile-acid sequestrants may further exacerbate fat soluble vitamin deficiency by disrupting fat-soluble vitamin absorption. These cases highlights the importance of managing steatorrhoea with pancreatic enzyme replacement and monitoring fat soluble vitamin levels so deficiencies can be detected early. Carcinoid-syndrome can also lead to nutritional deficiencies. Tryptophan is diverted for serotonin production instead of nicotinic acid leading to Vitamin-B3 deficiency. Patients with a history of alcohol excess are at particular risk due to associated malnutrition and impaired niacin metabolism.

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P21

Late relapse of gastroenteropancreatic neuroendocrine tumours after curative resection: royal marsden experience

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Background
Gastroenteropancreatic neuroendocrine tumours (GEP-NETs) are slow-growing malignancies with rising incidence. Surgery offers the best chance of cure for localised, well-differentiated tumours, but late relapse can occur. Current guidelines recommend surveillance for lifelong, yet evidence supporting extended follow-up is limited, and relapse pattern beyond 5 years remains unclear.
Methods
We retrospectively reviewed patients with localised, well-differentiated GEP-NETs who were diagnosed between 2010 and 2015 and underwent curative resection at Royal Marsden hospital. Clinicopathologic and follow-up data were collected from medical records. Late relapse was defined as recurrence ≥ 5 years post-surgery. Descriptive statistics were used to summarise baseline characteristics and relapse patterns.
Results
Among 120 patients (median age 56 years, 52% female), primary sites were jejunum/ileum (23%), appendix (22%), pancreas (19%), and other (36%). Most were WHO grade 1–2 (93%) and node-positive (33%). During a median follow-up of 8.0 years, 6 patients (5%) developed late relapse at a median of 7.9 years (range 4.9–10.9). Late relapse was most often observed in patients with small intestinal primaries (83%). Most relapsed tumours were grade 1 (83%) and almost all were stage III at diagnosis (83%). The liver was the most frequent site (67%) relapse. Serum chromogranin A was elevated in 83% of relapsed cases. At the last follow-up, 5 patients were alive with disease, and 1 had died of disease.
Conclusion
Late relapse occurred in approximately 5% of GEP-NET patients after curative resection, most commonly in the liver. These findings support extending surveillance beyond 5 years, particularly for patients with small intestinal primaries. The frequent elevation of serum chromogranin A at relapse supports its use in follow-up strategies.

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P22

Recurrence of cyclical ACTH-dependent cushing's syndrome secondary to thymic NET

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Abstract P21

Late Relapse Cases

Case	Primary Site	Grade	Stage	Nodal Status	Time to Relapse (yr)	Sites of Relapse	Serum CgA at Relapse	Treatment at Relapse
1	Ileum	G1	III	N+	5.2	Liver, node	Normal	SSA
2	Ileum	G2	II	N0	6.4	Liver, peritoneum	Elevated	SSA
3	Duodenum	G1	III	N+	8.8	Liver, peritoneum	Elevated	SSA
4	Ileum	G1	III	N+	7.0	Liver, node	Elevated	Observation
5	Appendix	G1	III	N0	20.5	Node	Elevated	SSA
6	Ileum	G1	III	N+	9.9	Peritoneum	Elevated	Observation

We present the case of a 34-year old female presenting with intermittent episodes of fatigue, proximal muscle weakness, facial swelling and poor concentration, only evident in the winter months. After many negative tests, the testing for Cushing's syndrome eventually became positive, a few years after initial symptoms. CT revealed a 25mm thymic mass and bulky adrenals. Pituitary MRI showed an ill-defined mass. An IPSS confirmed a peripheral source of ACTH, Nuclear medicine octreotide scanning confirmed a (non-avid) 25mm thymic nodule, likely the source of ectopic ACTH production. Following resection of the thymoma, cortisol levels were low (26nmol/l; ACTH < 5ng/l), thus our patient required hydrocortisone until adrenal recovery (6 months). MEN screening was negative. Histopathology revealed a well-differentiated grade 1 thymic NET, Ki67 5%. Follow-up imaging and biochemistry for the first 9 years showed no disease recurrence with no symptoms. 9-years post operation, she reported low mood, fatigue, postural dizziness and bloating. ONDST again showed full suppression of cortisol. Subsequent cross-sectional imaging demonstrated two new, indeterminate, soft tissue nodules. Gallium-68 PET Dotatate scan showed no avid lesions. ONDST a year later still showed full suppression of cortisol. Repeat MRI though showed interval growth, raising concern for disease recurrence. The patient then reported worsening fatigue and new weight gain. Given symptom recurrence and MRI findings, an ONDST was repeated, now showing slightly unsuppressed (76nmol/l) cortisol, which along with the radiological findings, suggested Cushing's syndrome recurrence. Subsequent testing showed increasing cortisol excess. She further developed early morning waking, facial puffiness, abdominal bloating and hirsutism. Repeat Gallium 68-Dotatate scan showed a mildly avid mediastinal lesions; the primary tumour in 2015 was not octreotide avid. Our patient underwent a right thoracotomy resection. Histopathology revealed atypical carcinoid NET (Ki67 was variable, approximately 5% but up to a maximum of 20% in small hotspots). She has biochemical remission of Cushing's syndrome post operatively with prolonged adrenal suppression. Our case highlights the challenges of recurrence of cyclical Cushing's syndrome many years post initial presentation. The symptoms and radiological findings predated the biochemical confirmation of Cushing's syndrome and should be highlighted for follow up pathways.

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P23

Special considerations in patients with neuroendocrine tumours referred for PRRT

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Background
Peptide receptor radionuclide therapy (PRRT) is well-established for patients with gastroenteropancreatic neuroendocrine tumours (GEP-NET). At our centre there has been an increase in referrals for complex patients who are higher risk for complications, or who require special considerations for therapy. We aimed to review the characteristics of such patients at our centre.
Methods
A single centre prospective study of patients discussed at our NET MDM who were recommended for PRRT between October 2023 to October 2024 was conducted. Data collected included patient and tumour characteristics, complications, initial response and presence of special considerations. Special considerations included requirement for corticosteroids at the time of therapy, measured GFR (mGFR) prior to proceeding (patients with eGFR <70 ml/ml/1.73m^2), requirement for inpatient admission, presence of carcinoid syndrome (CS) or carcinoid heart disease (CHD).
Results
76 patients had MDM outcome recommending PRRT. 36 patients were included after excluding trials ($n = 5$), patients referred to other centres for treatment ($n = 24$) and patients who chose alternative therapies ($n = 9$). Median age was 66, 53% male. 61% of tumours originated from the small bowel, 47.2% were grade 2, with a median tumour grade 5.9%. Median time from diagnosis was 24.7 months, and in 83% of patients PRRT was second line systemic therapy after somatostatin analogues. 15 patients had special considerations; 4 required mGFR, 8 corticosteroids, 3 inpatient admission, 14 CS and 1 CHD. 29 patients completed 4 cycles. Not completing therapy was due to side effects in 2 patients, 2 due to progressive disease (PD), 3 from complications. 71.4% not completing therapy had special considerations. Initial response in 29 patients who completed 4 cycles, 51.7% had stable disease (SD), 34.5% had partial response (PR) and 3.4% had PD. For 13 patients with ≥ 6 months follow-up 76.9% still had SD. Median PFS was 34.2 months with follow-up of 40 months. Of 6 patients who died, 66.7% had not completed 4 cycles and 83% had special considerations.
Conclusions
In our cohort, patients with special considerations were less likely to complete therapy and more likely to experience complications. Those with special considerations who did complete therapy had SD at initial follow-up.

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P24

Copy number analysis through shallow whole genome sequencing of cell free DNA for neuroendocrine neoplasia monitoring

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Introduction
The clinical application of circulating tumour DNA (ctDNA) monitoring in neuroendocrine neoplasms (NENs) remain underexplored compared to malignancies such as breast, colorectal and lung. Here, we attempt to profile copy number alterations (CNAs) in cell free DNA (cfDNA) as a potential biomarker in NENs.
Methods
cfDNA was extracted from 4 mL of plasma using a semi-automated MagMAX™ Cell-Free DNA Isolation Kit with KingFisher™ Flex Magnetic Particle Processor. cfDNA quantity and integrity were assessed with the Agilent 4200 TapeStation System, enabling fragment size profiling and quantification. Shallow whole genome sequencing (sWGS) was performed with the ReproSeq PGS kit, and data were analysed with the ichorCNA pipeline to estimate tumour fraction and detect copy number alterations (CNAs).
Results
cfDNA was isolated from serial plasma samples from 11 patients: 7 with sporadic NENs (2–5 samples each), 4 with germline mutations (1–2 samples each), and totalling 33 plasma samples. cfDNA yields across patients were generally low (mean ~297 pg/μL), but fragment profiles indicated preserved cfDNA integrity. Fragment analysis consistently revealed a dominant peak representing mononucleosomal fragments, alongside a secondary peak indicative of dinucleosomal DNA. This confirmed high-quality cfDNA suitable for downstream analysis. CNA analysis through sWGS demonstrated flat genomic profiles across all samples, with no CNAs detectable, suggesting either the absence of ctDNA containing CNAs or lack of sensitivity to detect ctDNA in these samples by sWGS technique.
Discussion
sWGS did not identify CNAs indicating either the lack of CNA in cfDNA or ctDNA levels below the threshold of detection. Future studies should explore complementary approaches, including single nucleotide variant (SNV) analysis and DNA methylation profiling, to enhance detection sensitivity. A multi-omic liquid biopsy strategy may be necessary to establish the clinical value of cfDNA analysis in NENs.
Learning points
1. Multi-omic liquid biopsy approaches, including SNV and methylation profiling, warrant further evaluation.

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P25

Hypoglycaemia in later life: a case highlighting diagnostic and management challenges

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Insulinomas are rare functional pancreatic neuroendocrine tumours, with an incidence of 1–4 per million people per year. The median age at diagnosis is 50–55 years; cases in patients over 80 are exceptionally uncommon. We report a 91-year-old man presenting with recurrent early-morning episodes of confusion, dizziness, slurred speech, and disinhibition. These episodes appear to have

commenced following a COVID-19 illness. His first major episode resulted in a fall with a fracture of the ulna and documented hypoglycaemia, initially attributed to stroke and poor intake. His background medical history includes ischaemic heart disease, severe aortic stenosis with heart failure, angina, hypertension, epilepsy (absence seizures), and prior prostate cancer. Relevant medications include diltiazem, phenytoin and ramipril. His daughter later confirmed recurrent home glucose readings of ~2.2 mmol/l, often treated with honey. Approximately 2 years after the start of symptoms, he was admitted with vomiting, reduced responsiveness, and glucose was 1.8 mmol/l. supervised fast confirmed endogenous hyperinsulinemia (glucose 2.1 mmol/l, insulin 68 pmol/l, C-peptide 800 pmol/l, suppressed β-hydroxybutyrate, negative sulfonylurea screen). CT and MRI of pancreas demonstrated no specific lesion. No lesions were evident on a CT chest, abdomen and pelvis. A 68Ga-DOTATATE PET-CT localised an 8 mm avid lesion in the uncinate process adjacent to the superior mesenteric vein. Diazoxide (100 mg TDS) initially stabilised glycaemia but triggered fluid overload, leading to readmission. Octreotide 100 mg SC paradoxically worsened hypoglycaemia and was stopped. Low-dose diazoxide (50 mg BD) plus prednisolone (5 mg daily and 2.5 mg nocte) with dietary modification was initiated for him. Furosemide relieved fluid overload. Early-morning hypoglycaemia persisted. Given tumour proximity to the SMV and frailty, EUS ablation was not possible. Our case highlights the challenges in the diagnosis and management of an insulinoma in the elderly population. In this patient, age bias and attribution of early results to drug interference delayed a supervised fast, while symptoms resembling stroke and post-ictal seizures further clouded the diagnosis. Managing refractory insulinoma in the very elderly remains especially difficult. Our case also highlights the paradoxical hypoglycaemia with octreotide and the challenging side effects with diazoxide.

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P26

Relapse after resection of small bowel neuroendocrine tumours: frequency, time to relapse and post-relapse survival in a cohort of patients from the west yorkshire neuroendocrine tumour service. time to reconsider post-resection follow up?

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Introduction
The ileum and jejunum represent one of the commonest sites of neuroendocrine tumours (NET), around 15% of all NET in the UK. Around half of NETs at these sites have localised disease (stage 1-3) at diagnosis thus being candidates for curative resection. The European Neuroendocrine Tumour Society (ENETS) guidance on surveillance post resection of SI NET, recommend prolonged, and relatively intensive, imaging investigations, particularly within 5 years post-surgery. Analysis of retrospective data to determine patterns of relapse after SI NET resection might inform further development of follow-up schedules.
Methods
The West Yorkshire NET service regional MDT database was analysed for patients reviewed after resection of ileal and jejunal NET - January 2011 to December 2019. Electronic patient records were examined to determine patient and tumour characteristics and results of radiological and biochemical follow up investigations. Hospital and GP records were used to determine overall survival, patients remaining alive censored as of the date of last clinical appointment.
Results
83 patients were deemed eligible for analysis with 79 evaluable for relapse. Median patient age was 66 years (range 22-87) with 33% being 70 or older. AJCC tumour staging was: 12% stage 2; 88% stage 3. Tumour grade (ENETS/WHO): 1 = 67%; 2 = 29%; 3 = 4% 29 (37%) patients relapsed with 50 (63%) showing no relapse during follow up. 20 patients (24%) died during follow up, 6 patients of recurrent NET, 5 of other cancers. The median overall survival from date of surgery was 107 months (IQR = 73m – 135m). 5 year and 10 year relapse free survival was 64% and 44% respectively with overall survival at 5 year 84% and 10 year 69%.
Discussion
This retrospective analysis, with a variety of follow up schedules, shows that in a real world cohort of patients 66% did not relapse post resection and of those relapsing this was after 3 years in more than 50%. Review of factors potentially associated with early relapse or prolonged survival post relapse will be presented to determine their usefulness in further individualising follow-up.

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P27

Case review – successful management of highly complex NET patients depends on the skills of MDTs

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Introduction/Background
Neuroendocrine Tumour patients can be highly complex and challenging to manage. A high burden of disease with significant symptoms can lead to NET related diseases requiring intense long-term management.
Aims
To examine the course of treatment of one patient presenting with NET and several disease related issues. These required serial interventions. This could educate the management of such patients in the future.
Material and Methods
The electronic case notes of this patient were examined, with the patient's permission.
Results
The review showed that this individual had several NET related complications which presented a challenging treatment scenario. The patient was initially referred to us for PRRT. Imaging review suggested need for debulking liver surgery instead. During work up, a second primary lung NET was diagnosed, which was locally invasive and not operable. It also raised concerns for safe anaesthesia. Discussions between liver surgeons, liver anaesthetists and a thoracic surgeon agreed a plan for dealing any with bronchial NET related issues during anaesthesia for liver surgery. Work up for surgery however, demonstrated Carcinoid Heart Disease. Therefore, the patient required surgery for severe tricuspid regurgitation before liver surgery. A palliative approach was proposed. The patient's NET physician however thought the patient's issues were manageable through a stepwise approach, based on the patient's good health, potential for recovery and a clear understanding of the skills of the surgical teams. Valve surgery took place first (March 2024), then liver resection (February 2025). Throughout, lung function, severe pancreatic enzyme insufficiency, frailty and nutritional depletion required a full multidisciplinary approach to allow the surgeries to proceed. The patient is now recovered from surgeries, under regular review and monitoring with nutritional improvement with normal 5HIAA. The lung carcinoid remains in situ with residual liver disease.
Conclusions
The case demonstrates the importance of the patient's primary physician in delivering good outcomes. Their experience and skills in understanding the patient's needs, ability to cope with treatments and most of all the long-term collaborations built with other expert teams providing solutions for particular problems. The clinical skills and decision-making process, together with the availability of widespread expertise were crucial.

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P28

Parathyroidectomy in multiple endocrine neoplasia patients: cohort analysis of clinical outcomes

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Introduction
Primary hyperparathyroidism in Multiple Endocrine Neoplasia (MEN) syndromes presents surgical challenges due to multiglandular involvement and recurrence risk. Clinical guidelines recommend a minimum of subtotal parathyroidectomy for MEN1 patients, while MEN2A patients require selective removal of enlarged glands only, due to heterogeneous clinical manifestations. We analysed perioperative and long-term outcomes following parathyroidectomy in MEN patients treated at specialised tertiary referral centre.

Methods
We reviewed 9 MEN patients (7 MEN1, 2 MEN2A) who underwent parathyroidectomy, analysing patient characteristics, preoperative laboratory investigations, surgical techniques, and outcomes. The cohort was predominantly female (77.8%) with a mean age of 39.6 years.
Results
Nine patients (7 females, 2 males; median 40 years, range 24-51) with MEN1 ($n = 7$) or MEN2A ($n = 2$) underwent parathyroidectomy for hyperparathyroidism. Preoperative mean Parathyroid Hormone (15.3 pmol/l), calcium (2.80 mmol/l) met surgical criteria per established guidelines. Extensive parathyroid resection achieved complete biochemical normalisation (PTH 3.6 pmol/l, calcium 2.20 mmol/l) with 100% initial cure rate. Long-term outcomes demonstrated 12.5% recurrence and 25% permanent hypoparathyroidism rates, comparable to published international data (16-60% recurrence, up to 50% hypoparathyroidism), highlighting inherent complexity of managing hereditary hyperparathyroidism in MEN syndromes.
Conclusion
Parathyroidectomy effectively controls MEN-associated primary hyperparathyroidism, with extensive resection as standard treatment for MEN1 patients. Long-term outcomes show a 12.5% recurrence versus 25% permanent hypoparathyroidism. These results support current management approaches and emphasise need for individualised surgical strategies that balance cure rates with long-term disease control while minimising complications in this genetic syndrome

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P29

Outcomes of surgical resection for small bowel neuroendocrine tumors: a single-center recent experience

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Introduction
Small bowel neuroendocrine tumors (NETs) are rare neoplasms that often present with advanced or metastatic disease. Surgical resection remains the cornerstone of management, either with curative intent or for symptom control. However, real-world outcome data comparing these approaches remain limited.
Methods
We conducted a single center retrospective review of patients who underwent surgical resection for small bowel NETS between 2020 and 2025. A total of 161 patients were included and stratified into 2 groups, those who underwent surgery for curative intent and those operated on for symptom control. All patients underwent a post-operative 68Ga-DOTATATE PET/CT scan within 3 months. All procedures were performed by two colorectal consultant surgeons. Data were collected using institutional informatics and data management systems and analyzed with Excel.
Results
A total of 161 patients were included, with a median age of 65 years (IQR 15), and 59.6% were male. The mean postoperative hospital stay was 9 days. Of these, 95 patients (59%) underwent surgery with curative intent (Group 1), while the remaining 66 underwent non-curative procedures for symptom control (Group 2). In Group 1, 63/95 (66.3%) patients showed no residual or recurrent disease on post-operative 68Ga-DOTATATE PET/CT scan. At last follow-up, 60 remained disease free, while 3 developed recurrence. In this subgroup, the median time to recurrence was 39.4 months with a median disease-free survival (DFS) of 39 months. Among patients in Group 1 with residual/recurrent disease following the operation, 21 had stable disease (median PFS 24.7 months) and 10 developed progressive disease (median PFS 21.4 months). In Group 2, 36/66 (54.5%) patients exhibited progressive disease with a median PFS of 13.6 months, while 30 maintained stable disease with a median PFS of 26.7 months.
Conclusion
Curative surgery for small bowel NETs offers superior disease-free and progression-free outcomes compared with non-curative procedures, underscoring its role as the cornerstone of management whenever feasible. Further prospective studies are needed to validate these findings and identify the risk factors of recurrence/progression.

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P30

Genetic susceptibility in metastatic adrenocortical carcinoma: a case-based insight

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Background
Adrenocortical carcinoma (ACC) is a rare, aggressive malignancy with an annual incidence of 1–2 per million and poor prognosis in advanced stages. Surgical resection is the only potentially curative treatment, but the benefit of debulking surgery in metastatic disease remains uncertain. ACC can also occur in hereditary cancer predisposition syndromes such as Li-Fraumeni, which are associated with central nervous system tumours including medulloblastoma.
Case presentation
A 39-year-old woman with a childhood history of medulloblastoma treated with surgery and radiotherapy presented with severe ACTH-independent Cushing's syndrome and androgen co-secretion. Imaging revealed a large right adrenal mass invading adjacent structures with pulmonary, pleural, bony, and nodal metastases. Cytology confirmed metastatic ACC. She was stabilised with metyrapone and hydrocortisone, then underwent open adrenalectomy with nephrectomy for debulking. Histology showed high-grade ACC (Ki67 30%, stage IV, R2 resection). Postoperatively, she developed malignant pleural effusions, pulmonary emboli, and functional decline. Restaging scans demonstrated rapid progression, systemic therapy was not appropriate, and she was transitioned to best supportive care.
Discussion
This case highlights the limited role of debulking surgery in advanced ACC, where morbidity may outweigh potential benefit in aggressive disease. The dual occurrence of medulloblastoma and ACC suggests possible germline predisposition, consistent with syndromes such as Li-Fraumeni. Genetic evaluation should be considered in such patients.
Conclusion
In advanced ACC, multidisciplinary decision-making is essential before undertaking debulking surgery. A prior history of CNS malignancy should prompt consideration of hereditary cancer predisposition syndromes.

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P31

Managing the crossroads of ectopic cushing's syndrome and sarcoidosis: a case report of multimodal therapeutic challenges

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We present the case of a 36-year-old man presenting with rapid onset of symptoms of Cushing's syndrome, including proximal myopathy, weight gain, new onset diabetes and hypertension, striae and bruising. He had elevated random cortisol of 1123 nmol/l, Midnight Salivary cortisol 30.1ng/ml (ref range <2.1 ng/ml) and Urine free cortisol 10,000nmol/ 24 hrs (ref range 0-486), ACTH 326ng/l (0-46), conforming ACTH dependent Cushing's syndrome. Pituitary MRI was normal. Inferior Petrosal sinus sampling ruled out pituitary cause for Cushing's. CT and FDG PET scan showed Bilateral adrenal hyperplasia and widespread pulmonary lymphadenopathy with fissural nodules, suggestive of sarcoidosis. No primary source was identified for ectopic Cushing's, and he underwent bilateral adrenalectomy due to progressive symptoms. He developed erythema nodosum and arthritis and was started on Mycophenolate mofetil. Ga 68-dotatate scan revealed RT-perihilar avid focus, presumed to be ACTH-secreting primary pulmonary tumour, with a hepatic focus suspicious for metastasis. Transbronchial biopsy and liver biopsy were nondiagnostic. Primary lung surgery and radiotherapy were felt to be high-risk with sarcoidosis. Imaging surveillance continued and patient started on Somatostatin analogue therapy. Following bilateral adrenalectomy, he developed worsening of sarcoidosis (assumed due to removal of endogenous steroids,). He was treated with prednisolone, and azathioprine initially but the sarcoidosis is progressing and infliximab is being planned. Repeat Ga 68-dotatate scan demonstrated liver metastasis progression, with ACTH 8180ng/l (0-46). One enlarging liver lesion was targeted for biopsy, which confirmed a well-differentiated (G2) Ki 15% NET, with possible GI-tract origin on immunoprofiling (positive for serotonin, negative for CDX2,TTF-1 and PAX80) In view of progression on SSA-therapy, PRRT has been considered, though a worsening renal function, precludes this treatment. Systemic therapy is being considered at present. This case illustrates challenging treatment of two conditions with, at times, opposing treatment needs. Uncontrolled Cushing's syndrome poses a significant risk to life and necessitated

bilateral adrenalectomy, which in turn worsened the outlook from sarcoidosis. Immunosuppressive therapy for Sarcoidosis has the potential to impact treatment of the neuroendocrine tumour. The concomitant presence of both conditions poses challenges for treatment optimisation and prioritisation and necessitates multi-modal and multidisciplinary treatment plans.

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AI-guided stratification of PRRT candidates: insights from current evidence and future directions

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Peptide receptor radionuclide therapy (PRRT) with ^{177}Lu-DOTATATE has significantly advanced the management of patients with progressive neuroendocrine tumours (NETs). The pivotal NETTER-1 trial demonstrated improved progression-free survival in midgut NETs, establishing PRRT as a standard of care (Strosberg *et al*., 2017). Despite this success, marked heterogeneity in treatment response and toxicity underscores the need for refined stratification strategies. This review synthesises current evidence on prognostic and predictive markers relevant to PRRT and evaluates the potential of artificial intelligence (AI) to enhance candidate selection. A systematic literature search was conducted in Pubmed, Emase and Web of Science for studies published beytween January/2025 and June/2025. Search terms included *PRRT, neuroendocrine tumours, biomarkers, somatostatin receptor imaging, Ki-67, chromogranin A and artificial intelligence*. After duplicate removals, 124 records were screened, of which 62 full-text articles were assess for eligibility. Following inclusion and exclusion criteria, 41 studies were retained for qualitative synthesis. Findings demonstrate the treatment outcomes may be influenced by somatostatin receptor (SSTR) PET/CT characteristics, circulating biomarkers such as chromogranin A and neuron-specific enolase, tumour proliferation index (Ki-67), and clinical staging (Oberg *et al*., 2015). However, current stratification methods lack validated frameworks capable of integrating these multimodal datasets. Emerging literature highlights the promise of AI and machine learning to address this limitation. AI-driven approaches have shown potential in integrating imaging and biomarker data to predict treatment response, toxicity, and survival outcomes across oncology, with implications for PRRT candidate selection (Topol, 2019). This review concludes that AI-guided stratification represents a promising step towards precision medicine in neuroendocrine oncology. Validation in retrospective cohorts, followed by prospective trials, will be essential to confirm reproducibility and clinical utility. The integration of multimodal biomarkers with predictive modelling could ultimately refine patient selection, optimise therapeutic benefit, and support efficient resource allocation in Nuclear Medicine.

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Ai to flag SSTR imaging patterns predictive of poor PRRT outcomes

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Non-response and early relapse after peptide receptor radionuclide therapy (PRRT) remain clinically significant in neuroendocrine tumours (NETs). Conventional PET metrics (e.g., SUV_{max}) incompletely capture tumour biology, whereas pre-treatment somatostatin receptor (SSTR) PET-CT radiomics and machine-learning (ML) may detect subtle phenotypes associated with poor outcomes. Early studies show that radiomic signatures and heterogeneity measures outperform single-voxel metrics for prognostication before PRRT (Laudicella *et al*., 2022; Wernet *et al*., 2019; Lee *et al*., 2023). We conducted a structured review to evaluate whether pre-treatment SSTR PET-CT radiomics/ML features (beyond SUV_{max}) predict non-response or early relapse after PRRT. Searches were performed in PubMed, Embase and Web of Science for articles published January/2005-September/2025 using combinations of: *neuroendocrine, PRRT, SSTR PET, DOTATATE/DOTATOC, radiomics, machine learning, response, progression*. After duplicate removal, 196 records were identified; 102 titles/abstracts were screened; 38 full texts were assessed; and 22 studies were included in the qualitative synthesis. Across included studies, radiomics consistently captured intra- and inter-lesional heterogeneity that correlated with progression-free survival (PFS) or objective response, frequently outperforming SUV_{max} alone. Notably, pre-treatment texture/shape features and lesion-aggregation strategies improved prediction of progression and non-response; heterogeneity indices predicted outcome independent of absolute uptake (Werner *et al*., 2019). Several investigations reported that **global tumour burden and low-uptake voxels (e.g., SUVmin) or volumetric metrics** yielded stronger prognostic value than SUVmax, aligning with the biological premise that resistant subclones drive early failure (Lee *et al*., 2023). Development cohorts using **68Ga-DOTATATE/-TOC radiomics** achieved promising discrimination for PRRT response, supporting feasibility of pre-treatment ML triage models (Laudicella *et al*., 2022). **Limitations** include small, single-centre datasets; heterogeneous acquisition/reconstruction; variable feature definitions; and limited external validation—factors that can inflate performance estimates and hinder clinical transferability. **Implications:** AI models trained on harmonised, multi-centre SSTR PET/CT with standardised radiomics pipelines could **flag patients at high risk of non-benefit**, improving selection and limiting unnecessary toxicity. **Next steps** should prioritise pre-registered analysis plans, external validation, integration with clinical/biomarker data, and decision-curve analyses to quantify net clinical utility.

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