CONCLUSION

This case illustrates an uncommon pattern of ACC progression characterized by bone-dominant metastases in the absence of visceral disease. It also highlights the importance of reconsidering the initial histopathological diagnosis when clinical behavior is discordant. Vigilance for atypical metastatic patterns is warranted, even years after resection of an adrenal lesion initially classified as benign.

EP_A025

CONUNDRUM IN THE MANAGEMENT OF A RARE CAUSE OF CUSHING SYNDROME

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INTRODUCTION

Primary bilateral macronodular adrenal hyperplasia (PBMAH), characterized by bilateral adrenal macronodules >1 cm, is a rare genetic disease contributing to <2% of Cushing syndrome.

CASE

A 56-year-old male with underlying diabetes mellitus and hypertension presented with worsening proximal muscle weakness. Detailed neurological assessment was unremarkable. Re-assessment revealed more apparent cushingoid features, prompting referral to endocrinology. Basal cortisol was markedly elevated at 957 nmol/L (145.4–619.4 nmol/L). Unsuppressed cortisol after 1 mg overnight dexamethasone and low-dose dexamethasone test confirmed Cushing Syndrome. Suppressed adrenocorticotropic hormone (ACTH <0.33 pmol/L) suggested autonomous cortisol secretion from adrenal glands. Computed tomography adrenal reported massively enlarged hypodense multinodular adrenal glands of varying sizes. Oral ketoconazole, an adrenal steroidogenesis inhibitor, was initiated. Despite careful titration to keep serum cortisol 400–500 nmol/L, he experienced glucocorticoid withdrawal syndrome. Bilateral adrenalectomy was planned but deferred as he continued to lose weight despite persistent hypercortisolism. Extensive investigations were conducted for possible opportunistic infections or malignancy. His chest X-ray revealed a suspicious right lung cavity. Positive serum galactomannan and bronchial alveolar lavage galactomannan suggested pulmonary aspergillosis. Voriconazole was introduced, with drug-drug interaction judiciously addressed. He underwent bilateral adrenalectomy and required lifelong glucocorticoid and mineralocorticoid replacement. Histopathological report confirms bilateral macronodular adrenocortical disease. A referral to a genetic clinic was made to explore the potential hereditary basis.

CONCLUSION

PBMAH is a highly heterogeneous disease with variable presentation and a wide spectrum of hypercortisolism. Definitive management remained controversial and individualized. Multidisciplinary discussion is crucial, and genetic study is highly recommended for long-term prognostication and familial screening.

EP_A026

SYNERGIZING ARTIFICIAL INTELLIGENCE WITH CLINICIANS' EXPERTISE: TOWARDS PERSONALIZED PROACTIVE DIABETES CARE IN MALAYSIAN PRIMARY HEALTH CLINICS

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INTRODUCTION

Diabetes affects 15.6% of Malaysian adults and remains a leading cause of complications and mortality. Although locally developed artificial intelligence (AI) tools have shown strong technical performance, their integration with clinicians' decision-making in primary care remains fragmented. This perspective proposes a synergistic AI–clinician framework to deliver truly personalized proactive diabetes care.

METHODOLOGY

A multidisciplinary team designed a clinical workflow that integrates three validated Malaysian AI components: (1) LightGBM (LGBM) model trained on Malaysian National Diabetes Registry (MNDR) data for complication risk prediction, (2) DR.MATA AI retinopathy screening with automated triage, and (3) AI-enhanced mobile apps for real-time self-management. These layers feed into a single secure clinician dashboard. The framework was modelled using existing datasets (MNDR 2011–2021, NHMS 2023, DR.MATA validation cohort >14,000 images) and aligned with the National AI Roadmap 2021–2025 and the forthcoming National AI Action Plan 2026–2030.

RESULTS

The LightGBM model achieved ROC-AUC values of 0.84 (mortality), 0.71 (retinopathy/nephropathy), 0.66 (ischemic heart disease), and 0.74 (stroke). DR.MATA demonstrated

93.3% accuracy with automated triage. When integrated, modelling suggests the framework could reduce major complications by approximately 20–30% and unnecessary referrals by up to 35%. The system runs automatically upon opening the patient record, requiring no extra clinician steps.

CONCLUSION

Synergizing AI with clinicians' expertise offers a scalable solution for Malaysian primary health clinics. A 12-month national pilot is recommended to generate real-world evidence and inform the National AI Action Plan 2026–2030.

EP_A027

PREVALENCE OF DIABETIC PERIPHERAL NEUROPATHY AND ITS ASSOCIATION WITH SERUM NEURON-SPECIFIC ENOLASE AMONG TYPE 2 DIABETES MELLITUS PATIENTS

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INTRODUCTION

Diabetic peripheral neuropathy (DPN) is a common complication of type 2 diabetes mellitus (T2DM), with nerve conduction studies recognized as the diagnostic gold standard. Serum neuron-specific enolase (NSE) has been linked with DPN. This study aims to determine the prevalence of DPN among T2DM patients, evaluate clinical characteristics, and explore the relationship between NSE and DPN.

METHODOLOGY

A cross-sectional study was conducted at Universiti Teknologi MARA Specialist Centre Sungai Buloh and Hospital Al-Sultan Abdullah, involving patients aged 18–60 years, diagnosed with T2DM for more than 5 years (n = 132). All participants underwent anthropometric measurement, completed the Michigan Neuropathy Screening Instrument evaluation, and biochemical parameters, including lipid profile, hemoglobin A1c, and serum creatine and NSE. The diagnosis of DPN was made based on positive NCS findings. Logistic regression was used to identify factors associated with DPN.

RESULTS

The study population had a mean age of 60.16 ± 10.28 years and a mean duration of diabetes of 14.82 ± 6.66 years. The prevalence of DPN was 51.5% (n = 68). Serum NSE levels were significantly higher (p = 0.003) and independently associated with the presence of DPN (adjusted odds ratio [OR] 1.033, 95% confidence interval [CI] 1.009–1.058, p = 0.006). Participants with DPN were also more likely to be on insulin therapy (p = 0.040). In addition, retinopathy (adjusted OR 3.567, 95% CI 1.528–8.329, p = 0.013) and elevated Urine Albumin-to-Creatinine Ratio levels indicating albuminuria (adjusted OR 1.031, 95% CI 1.002–1.061, p = 0.037) were significantly associated with DPN.

CONCLUSION

More than half of the study population had DPN, which was significantly associated with both retinopathy and nephropathy, as well as with elevated serum NSE. This emphasizes the importance of early screening and highlights the role of NSE as a surrogate marker for neuropathy in diabetes.

EP_A028

RECURRENT DIABETIC KETOACIDOSIS: PREDICTORS AND CLINICAL OUTCOMES IN A 24-YEAR RETROSPECTIVE COHORT

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INTRODUCTION

Diabetic ketoacidosis (DKA) is a life-threatening complication associated with significant morbidity and healthcare burden. Despite advances in diabetes care, recurrent DKA remains common, often reflecting gaps in treatment adherence and patient education. Identifying predictors of recurrence is crucial for risk stratification and targeted intervention.

METHODOLOGY

We conducted a retrospective observational study of all adult DKA admissions to a tertiary centre between 2001 and 2025. Electronic medical records were reviewed for demographic data, biochemical parameters, precipitating factors, and clinical outcomes. DKA was defined using standard biochemical criteria. Recurrent DKA was defined as