APCU 36 PRELIMINARY FINDING OF ORCUS: A HOME-BASED CARDIAC REHABILITATION APPLICATION FOR STABLE ISCHAEMIC HEART DISEASE

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Introduction Cardiac rehabilitation is a structured program provided to patients with major cardiovascular diseases, shown to enhance functional capacity, reduce morbidity and mortality rate worldwide. However, in Malaysia, the availability of such programs is limited due to disparities in healthcare access. This led to our objective of testing a newly developed AI-based home health monitoring cardiac rehabilitation application (ORCUS) designed to improve patients' functional status.

Methods This was a prospective study conducted on patients with stable ischaemic heart disease patients at Sultan Ahmad Shah Medical Centre @ IIUM. The inclusion criteria were patients over 18 years old, owner of an Android smartphone, and literate in using applications. Patients were excluded if they were dependent on activities of daily living (ADLs) or unable to adhere to a daily exercise regime. After obtaining consent, baseline demographic details were collected, and patients were instructed on the exercise regime through the ORCUS application. Subsequently, patients underwent functional assessments, including an exercise stress test and 6-minute walking test, which repeated at 8 weeks after completing 56 activities with ORCUS.

Results A total of 10 patients were analysed with 90% of them were male (n = 9), median age of 51 years (IQR 47 – 63) and most of them were unstable angina, 60% (n = 6), with STEMI of 30% (n = 3), managed with revascularization, 60% (n = 6). For the functional assessments, an increase average SpO2 during 6-minute walking test (6MWT) was recorded after completing the activities in ORCUS, with a median of 96.5% (IQR 96 – 97) compared to a median 98% (IQR 97 – 98), $p < 0.05$, together with increment of baseline SpO2 with a median of 97% (IQR 96.2 – 98) compared to a median 99% (IQR 97 – 99), $p = 0.01$. In term of exercise stress test (EST), an increase in total time during stress test was recorded with a median of 10 mins (IQR 7.5 – 11.1) compared to a median of 10.2 mins (IQR 9.3 – 13.2), $p = 0.04$ and reduction of baseline heart rate prior EST with a median of 75 bpm (IQR 65 – 82) compared to a median of 67 bpm (IQR 60 – 72), $p = 0.04$.

Conclusion As conclusion, the home-based cardiac rehabilitation application has shown effectiveness in enhancing patients' functional status especially with 6MWT and EST. However, as the study is still ongoing, additional data is needed to fully evaluate the feasibility of ORCUS for patients with stable ischaemic heart disease.

APCU 37 LEFT ATRIAL MYXOMA WITH FEEDING VESSEL FROM LEFT CIRCUMFLEX ARTERY

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Introduction Atrial myxoma is the most common benign primary cardiac tumour with 75% of myxoma originates from left atrium. It comprises of 50–85% of all primary cardiac tumour and incidence of 0.03% in general population. We present a case of giant left atrial myxoma with feeding vessel from left circumflex artery.

Case presentation A 69-year-old lady came to our centre to perform a routine echocardiogram due to mild symptom of shortness of breath. She has underlying hypertension, atrial fibrillation on warfarin therapy and previous history of mitral valve repair in 2005. Echocardiogram revealed LVEF 58%, enlarged left atrium with diameter of 67mm, mass seen at left atrium attached to interatrial septum with diameter 42 mm × 35 mm. Mechanical MVR opened well with no valves regurgitation noted. Cardiac MRI showed left atrial myxoma mass, diameter 50mm × 43mm and heterogenous component of haemorrhage, hemosiderin with calcification and fibrosis within. Severe left atrial enlargement and severe dilated left ventricle noted as well. Elective coronary angiogram subsequently arranged for coronary artery disease assessment. Coronary angiogram revealed large feeding vessel from left circumflex artery communicating with contrast staining over left atrial myxoma. Referral to cardiothoracic surgery done, decision was made for surgical removal of left atrial myxoma.

Discussion The clinical diagnosis of cardiac myxoma is often challenging because of its non-specific symptoms and signs. It can cause serious morbidity such as sudden cardiac death and systemic emboli if not treated promptly. Surgery remained the definitive treatment for this condition.

Conclusion Rare neovascularization originating from either right coronary artery or the left circumflex artery was reported in a left atrial myxoma. We want to highlight the importance of coronary angiogram to help decide priority of surgery.

APCU 38 PREDICTIVE FACTORS FOR SEVERE ACUTE CORONARY SYNDROME (ACS) AMONG GOOD LDL ACHIEVERS: UNCOVERING HIDDEN RISKS

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Introduction The relationship between LDL cholesterol levels and atherosclerotic cardiovascular disease (ASCVD) is complex and non-linear. Recent studies suggest that achieving low LDL levels doesn't guarantee protection against acute coronary syndromes (ACS), with some patients experiencing severe clinical outcomes.

Objectives To identify potential predictors of severe clinical presentation and severe coronary artery disease among ACS patients with good LDL levels.

Methods This single-centre retrospective cohort study comprised 280 ACS patients divided into good LDL control (n=69) and poor LDL control (n=211). Demographic characteristics and lipid profiles were collected. Outcomes looked into the clinical ACS severity using the GRACE score, and angiographic severity based on the Gensini score.

Results Despite achieving their LDL targets, patients with good LDL control had similar coronary artery disease severity to those with poor LDL control. The median Gensini scores were 23.5 (interquartile range 35) in the good LDL group

and 24.0 (interquartile range 33) in the poor LDL group, with no significant difference (p=0.88). Furthermore, the clinical severity of ACS was worse in the good LDL group, as evidenced by a higher mean GRACE score (149.7 ± 41.1 vs. 137.1 ± 38.4, p=0.02). Among those with good LDC control, logistic regression analysis identified age (OR: 1.06, 95% CI: 1.01–1.11) and chronic kidney disease (OR: 9.14, 95% CI: 1.08–77.70) as potential predictors of severe ACS.

Discussion These findings suggest that low LDL cholesterol levels may not always correlate with reduced ASCVD risk, possibly due to underlying chronic diseases, increased inflammation, and the presence of highly atherogenic cholesterol particles. Crucially, however, the paradoxical association between good LDL control and poor clinical outcomes in ACS patients warrants further investigation.

Conclusion This study highlights the need for a deeper understanding of the mechanisms linking low LDL cholesterol to severe ACS. Furthermore, the findings raise concerns about the sufficiency of LDL as a sole target for ASCVD prevention, emphasizing the potential role of inflammation and other lipid parameters in patient risk stratification.

APCU 39 ORBITAL ATHERECTOMY IN A CALCIFIED RIGHT CORONARY ARTERY: RETRIEVAL OF THE ENTRAPPED CROWN

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Introduction The orbital atherectomy system (OAS) is a device used to ablate calcified coronary lesions during percutaneous coronary interventions (PCI). Optimal calcified plaque modification facilitates optimal stent placement and expansion. Nevertheless, its utility carries an uncommon risk of crown entrapment which may require a snare or an invasive surgery for its retrieval. This report describes a successful case of retrieving an entrapped diamond crown, which is detached from its wire, using a microcatheter.

Case Presentation A 60-year-old gentleman with a non-ST elevation myocardial infarction underwent coronary angioplasty for a severely calcified right coronary artery with diffuse stenosis. Amplatz Left 1 (AL 1) was engaged and the lesion was prepared using the Diamondback 360 Orbital Atherectomy System. The atherectomy was performed at 80,000 rpm with progressive escalation up to 120,000 rpm, at which point the system experienced an abrupt halt. Withdrawal of the crown results in a breakage that separates the crown from the atherectomy system leading to crown entrapment. Angiography revealed a sealed perforation in the target lesion. Due to the unavailability of a snare, a FineCross microcatheter was advanced over the OAS traction wire toward the trapped crown. The crown was successfully captured and retrieved as it adhered to the microcatheter. Final angiography showed a concealed perforation with TIMI 2 flow.

Discussion Coronary artery calcification emerges as a sequela in the genesis of atherosclerotic plaque. Its emergence is contributed by several factors such as advanced age, diabetes mellitus, hypertension, and chronic kidney disease. The two distinct types of calcifications are vascular intimal and medial calcifications, with the former being more commonly found. Owing to the risk of major adverse cardiovascular events contributed by the presence of moderate to severe coronary artery calcifications, an orbital atherectomy has been introduced as a calcified plaque modifying device before coronary stent implantation. Equipped with a diamond coated crown, it rotates over its guidewire in a centrifugal pattern, crushing the calcified plaque. Breakage of the device component accounts for 40% of the complications, entrapment of device occurs in 8% of cases, and breakage with subsequent entrapment of the device pieces represents 0.4% of its complications.

Conclusion Crown entrapment is a serious consequence of atherectomy that requires a suitable device for its retrieval.

APCU 40 DE WINTER SYNDROME: A RARE BUT FATAL ENTITY OFTEN MISSED

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Introduction The de Winter Syndrome is an electrocardiogram pattern that is highly suggestive of acute occlusion of left anterior descending artery (LAD). It often presents a diagnostic challenge due to its uncommon electrocardiogram pattern which may lead to a catastrophic complication such as cardiovascular mortality. Hence, we present a case of de Winter syndrome, in which angiogram confirmed an acute occlusion of left anterior descending artery.

Case Presentation A 41-year-old gentleman, active smoker with no known medical illness previously, presented to us with sudden onset central chest pain which occurred while resting. It was described as heaviness in nature and non-radiating, associated with giddiness and nausea during the event. His ECG showed upsloping ST segment depression at the J point at V2-V6 with peaked T wave. There is also a 1 mm ST elevation in lead aVR. Subsequent ECG in ED showed no evolvement into ST elevation pattern. His troponin level was raised. We diagnosed him as de Winter Syndrome and planned for primary percutaneous intervention (PCI). Unfortunately, we were unable to proceed with PCI due to service unavailability. Subsequently, ECG in the ward showed evolvement into Wellens pattern. Angiogram on day 5 of admission confirmed 90% occlusion of the mid LAD and a stent was successfully inserted into the mid LAD. Subsequently the patient was discharge well after cardiac rehabilitation in our cardiac care unit.

Discussion De Winter pattern accounts for about 2% of patient with LAD occlusion. The ECG patterns in de Winter syndrome are upsloping ST segment depression at the J point in lead V1–V6, peaked T waves and 1–2 mm ST elevation in lead aVR. A few theories proposed as underlying aetiology such as anatomical variant, existing collateral blood supply and lack of sarcolemma ATP-sensitive potassium (KATP) channels.