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ABSTRACTS

Abstracts for Free Paper Session:

CARDIAC IMAGING

Variable Clinical Presentations of Left Atrial Myxoma in Malaysia: A Case Series

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Introduction and Purpose: Cardiac myxoma is the most common primary tumour of the heart; often missed due to non-specific symptoms. It may lead to disastrous outcome if it is not treated in a symptomatic patient. Transthoracic echocardiogram (TTE) is the usual imaging modality for establishing the diagnosis.
Methods: We reviewed the different types of presentations and outcomes of patients presented to Sarawak General Hospital, Malaysia with myxoma in 2015.
Results: Case One: A 67-year-old gentleman, initially treated as bronchial asthma, referred to our centre for worsening shortness of breath despite being treated for one week. Chest X-ray (CXR) was unremarkable. Further work-up with TTE showed left atrial mass suggestive of myxoma measuring 4.3 cm x 3.8 cm. Case Two: A 38-year-old lady, with history of ischemic stroke, presented with sudden unilateral limb weakness and fever. No significant neurological deficit but peripheral vasculitic lesions were noted. She was initially investigated for infective endocarditis with embolic event. However, repeated TTE in our centre showed left atrial mass suggestive of myxoma, measuring 2.1 cm x 2.7 cm. Case Three: A 73-year-old previously healthy woman, presented with worsening reduced effort tolerance over the past one month. Examination was suggestive of left heart failure; consistent with CXR findings. Initial TTE showed atrial mass (1.4 cm x 7.2 cm) causing mitral valve obstruction and pulmonary hypertension.
Discussion/Conclusion: The diagnosis of atrial myxoma can be ambiguous and may be easily missed, especially when the different clinical presentations are suggestive of other diagnoses. TTE is investigation of choice for diagnosing myxoma in symptomatic patients. Early surgical intervention is warranted for better outcome. Our review showed all tumour excisions were successful and histopathological examinations confirmed myxoma. Although myxoma is histopathologically benign, they can lead to serious complications e.g. embolism and intracardiac obstruction.

Targeted Delivery of Hydrogen Sulfide by Ultrasound Mediated Microbubble Destruction Alleviates Myocardial Ischemia-reperfusion Injury

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Background: Hydrogen sulfide (H_2S) is an attractive agent for myocardial ischemia-reperfusion injury, however, systemic delivery of H_2S may cause unwanted side effects. Ultrasound mediated microbubble destruction has become a promising tool for organ specific delivery of bioactive substance. We hypothesized that intravenous administration of microbubbles encapsulating H_2S gas combined with ultrasound exposure permit local release of H_2S and alleviates myocardial ischemic-reperfusion injury.
Methods: We developed and characterized microbubbles carrying hydrogen sulfide (hs-MB) with different H_2S/C_3F_8 ratios (4/0, 3/1, 2/2, 1/3, 0/4) and determined the optimal ratio. Release of H_2S trigger by ultrasound was investigated in vitro. In a rodent model of myocardial ischemia-reperfusion injury, hs-MB were administered intravenously with ultrasound applied over the heart. Infarct size was determined by evans blue and TTC staining. Left ventricular structure and function was assessed by echocardiography.
Results: The H_2S/C_3F_8 ratio of 2/2 was found to be an optimal ratio to prepare stable hs-MB with higher H_2S loading capability. The concentration of the hs-MB decreased while the dissolved H_2S increased significantly after exposure to ultrasound. Ultrasound targeted hs-MB destruction limited the extent of myocardial injury and preserved left ventricular function. No significant hemodynamic changes were observed during ultrasound mediated hs-MB destruction.
Conclusions: Delivery of H_2S by ultrasound mediated microbubble destruction limits the extent of myocardial ischemia-reperfusion injury. This may provide a noninvasive strategy for targeted delivery of a therapeutic gas to protect myocardial injury from ischemia-reperfusion, avoiding systemic side effects.