Letter

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Severe Eventration of Left Diaphragm Causing Displacement of the Heart Towards Right Side

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Abstract

Diaphragmatic eventration (DE) is the abnormal elevation of an area or whole hemidiaphragm due to an absence of muscle or nerve attribute while preserving its physiological function. The problem can be genetic or acquired, hence presenting in both the paediatric and adult population. Diaphragm eventration can end up being a significant problem triggering serious respiratory distress as well as can end up being fatal if left untreated.

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Abbreviations: DE: Diaphragmatic Eventration; HFrEF: Heart failure with reduced ejection fraction; HFU: Heart Failure Unit; LBBB: Left bundle branch block; FBC: Full blood count; LUQ: Left upper quadrant; GP: General practitioner; CT: Computed Tomography; MRI: Magnetic resonance imaging.

Background

A 51 years old male attended heart failure unit (HFU) with background of chronic heart failure (HF). He was diagnosed with HF with reduced ejection portion (HFrEF) 10 years ago and also had actually been taking optimum medical treatment and had been asymptomatic. He denied shortness of breath on exertion, he had no orthopnoea or paroxysmal nocturnal dyspnoea. His physical exam showed no signs of congestion, his BP was 131/77mmHg and heart rate was 70.

He had an echo four years ago and his ejection fraction (EF) had improved to 52%. His ECG showed old LBBB with QRS of 128 ms. His full blood count (FBC) was within normal limits and he had normal renal functions tests. His NT-proBNP was less than 50 pg/ml. His medications included ramipril 10 mg, eplerenone 37.5 mg, nebivolol 5 mg and furosemide 20 mg once a day.

He had moved from Zimbabwe and was working in Ireland as nurse in a tertiary care hospital for last 20 years. He tells me that he was very fit man and used to go to the gym on regular basis. He used to lift heavy weights and used to do heavy exercises at the gym. When he was in his twenties he used to get sharp pain in left upper quadrant (LUQ). The onset of the pain was sudden and would improve when he would lie on his right side. He went to see many doctors and they would treat him for gastritis and he also had Oesophago-Gastro-Duodenoscopy (OGD) which did not show inflammation. When he moved to Ireland and went to see a GP. He had a chest X-Ray and was reported as “chronic elevation of left hemidiaphragm”.

Two years later, his LUQ pain got worse and was referred to accident emergency department for further management. His electrocardiogram showed left bundle branch block and he was admitted to coronary care unit. He had coronary angiogram which showed non-obstructive coronaries. He had an echocardiogram and showed EF of 35% and was confirmed by cardiac MRI. He was diagnosed as HFrEF with unknown aetiology. He was discharged home with follow up in HFU.

He kept complaining of LUQ pain for the following two years and used simple analgesia to get some relief. He went to ~his GP and brough him some literature regarding diaphragmatic hernia being common in his country of birth. His GP referred him to a local hospital for a chest X-ray and his chest X-Ray was reported as severe elevation of left diaphragm. He was admitted under cardiothoracic team. He had CT Thorax and showed left elevated diaphragm and there was no herniation of abdominal content and there was slight displacement of his heart towards right side. He had a procedure called left diaphragm plication. His breathing and chest pain improved. He was discharged home on simple analgesia. He was followed up in cardiothoracic outpatients for next few years and was subsequently discharged from clinic as he

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remained stable for the following years. He is being followed up in HFU for chronic heart failure management.

This case demonstrate that eventration of diaphragm is a rare phenomenon and can cause life threatening complications leading to respiratory failure and in this case it had lead to the displacement of the heart towards right side. In adult careful evaluation is advised and surgical correction is required in severe eventration [1,2].

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