# Amiodarone Induced Pleuritis: A Case Report

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## Background

Amiodarone is a class III antiarrhythmic used for a variety of cardiac dysrhythmias. Amiodarone usage is frequently limited by adverse events including pulmonary, thyroid, liver and skin toxicity. Amiodarone induced pulmonary disease can present as interstitial pneumonitis, organising pneumonia, pulmonary nodules or pleural effusion[1]. We present the case of a 75 year old man who presented with pleuritic chest pain and pleural effusions on two occasions, and was subsequently diagnosed with amiodarone related pulmonary disease. Amiodarone was not suspected as the cause of his symptoms until after the third time it was introduced.

## Methods

The patient's clinical notes and test results were reviewed from both admissions. A comprehensive literature review of amiodarone pulmonary toxicity was completed using Pubmed.

## Case Report

A 75-year-old man was brought in by ambulance with severe central pleuritic chest pain that started on waking up that morning without any associated cough, dyspnoea or fever. The pain did not radiate and was associated with nausea, but no vomiting. The patient had no previous history of collapse, chest pain, or exertional dyspnoea.

Past medical history was significant for atrial fibrillation with implantable cardioverter in situ, myocardial infarction, lifelong tobacco smoking, prostate adenocarcinoma with bone and lymph node metastases, and osteoporosis. . His medications at that time consisted of Amiodarone, Bisoprolol, Apixaban, Pravastatin, Tamsulosin, Calcichew D3, Decapeptyl, Zopiclone and Zolendronate.

On assessment he had a slightly elevated temperature of 37.8 degrees, and a mild tachycardia. Examination revealed crepitations bibasally and left sided dullness. . ECG showed normal sinus rhythm and was not suggestive of pericarditis. Bloods showed a mild neutrophilia of 8.3 x $10^9$/L, a mildly elevated LDH of 250 IU/L, a troponin level of 6 ng/L, and an elevated CRP to 34mg/L. Blood cultures at day 2 of hospital stay showed no growth Chest x-ray showed bilateral pleural effusions left greater than right. Due to the pleuritic pain and the patient's known cancer history pulmonary embolism was suspected. He underwent CT pulmonary angiography, which revealed moderate left sided effusion, trace right sided pleural effusion, bibasal atelectasis, and no evidence of pulmonary embolism or lymphadenopathy (See figure 1.). The patient was admitted and started on co-amoxiclav IV for a presumed community acquired pneumonia and his regular medicines were included. He was prescribed amiodarone 100mg twice weekly as he told the admitting doctor that that was how he took it. Over this admission the patient had a CTPa, serial ECGs and troponins, and an echocardiogram.

None of these investigations revealed significant abnormalities. Tap of the left sided pleural effusion revealed an LDH level of 142 IU/L, protein 37 g/L, glucose 5.2 mmol/L, a white cell count of 390/µL and a red cell count of 4200/µL. 9 days into the hospital stay he self-discharged Amiodarone was continued at OD dose on discharge. Four days later the patient was readmitted with recurrence of the pleuritic chest pain, an elevated CRP of 302 mg/L, and persistent pleural effusions. Amiodarone was missed from his regular medications on this admission, co-amoxiclav was reintroduced to cover for infection, and his inflammatory markers continued to fall with this therapy.

Investigations showed a negative connective tissue disease screen, a rheumatoid factor within the normal range, a negative myeloperoxidase and proteinase antibodies out-ruling vasculitic disease. A trans-oesophageal echocardiogram was performed on day 7 of his admission and had shown normal cardiac structure with mild mitral and pulmonary regurgitation, with no vegetations seen within. On day 10 of this admission amiodarone's absence from his regular medications was noted and restarted. Within 24 hours his CRP had risen from 49 to 236mg/L.

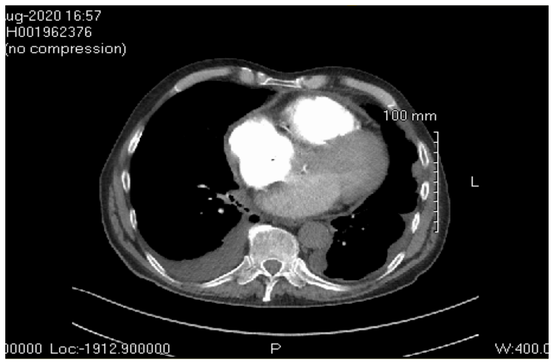


**Figure 1.** CT scan of the thorax on day 4 of the second admission showing pleural effusions and no pulmonary emboli or interstitial pathology.

The patient experienced worsening symptoms comprised of chest pain, shortness of breath and became hypotensive. At this point amiodarone was suspected as the driver of his inflammatory response and was discontinued with initiation of Prednisolone 40mg once daily. He was discharged the following day. Seen at clinic one week later he had no recurrence of chest pain, and his CRP had fallen to 16mg/L.

## Discussion

In retrospect there was a clear trend of CRP rise and symptom relapse when amiodarone was given on both admissions (figure 1.) Amiodarone pulmonary toxicity is well described in the literature and may present as interstitial lung disease, organising pneumonia, pulmonary nodules or pleural effusion. Amiodarone toxicity in tissue is due to the formation of lipophilic islets of amiodarone in tissue which then causes local tissue inflammation. This is also accounts for the drug's long half-life. This case is unusual due to the chronic use of amiodarone, with acute flares of CRP when the amiodarone was reintroduced on two occasions. This may be consistent with inflammation from a shorter acting excipient in the tablet formulation, or acute flares with rise in serum amiodarone levels.

## Conclusion

Amiodarone induced pleuritis may occur many years after initial use, and with low doses of amiodarone. Corticosteroid treatment may be beneficial[1,2].

### References

1. Podstawka, A., Mosiewicz, J. and Myśliński, W., 2004. Pulmonary complications in amiodarone treatment. Ann Univ Mariae Curie Sklodowska Med, 59(2), pp.172-7.
2. Uong, V., Nugent, K., Alalawi, R. and Raj, R., 2010. Amiodarone-Induced Loculated Pleural Effusion: Case Report and Review of the Literature. Pharmacotherapy, 30(2), pp.218-218.