Background: Thyroid gland may be manipulated during tracheostomy. Although uncommon, this may result in potentially life-threatening thyroid storm especially in patients with underlying thyroidal illness. Plasmapheresis maybe used as a treatment modality for these patients.

Clinical Case: A 65-year-old Hispanic male was admitted to the hospital for acute exacerbation of heart failure and pneumonia. Medical history was significant for atrial fibrillation. He had been on amiodarone for 2 years, which was discontinued 2 months ago when he was diagnosed with amiodarone induced thyrotoxicosis (AIT). He was never started on any treatment for AIT. Lab work on admission was significant for undetectable TSH, fT4 of 4.4 ng/ml (RR: 0.8-1.5 ng/ml) and fT3 of 4pg/ml (RR: 2.2- 4.0 pg/ml). TSH receptor antibody was negative. Thyroid ultrasound showed mildly atrophic gland with no nodules. Methimazole, cholestyramine and hydrocortisone were initiated, and TFTs were trending down. Hospital course was complicated by cardio-respiratory failure requiring mechanical ventilation. After a short-term improvement in his clinical status, patient underwent percutaneous tracheotomy due to failure to wean from mechanical ventilation. On POD1, he was found to be tachycardic and febrile with Burch-Wartofsky score of 55, which was highly suggestive of thyroid storm. fT4 was >8ng/ml and fT3 was 11.4pg/ml. He did not respond to maximal doses of thionamides, steroids and b-blocker. Thyroidectomy was considered, but patient was deemed to be high risk for any surgical intervention. Plasmapheresis was initiated for 5 days. TPT started trending down and patient improved clinically. On POD 14, fT4 was 2.1ng/ml, fT3 was 3.8 pg/ml.

Conclusion: This case highlights a rare complication of tracheostomy in a patient with known history of AIT. Studies have shown that there can be a significant increase in serum thyroid hormone levels after tracheostomy, even in euthyroid patients. There may even be a role of performing tracheostomy with thyroidectomy in non-euthyroidal patients. Use of plasmapheresis for thyroid storm is recommended by American Society of Apheresis when first line medical therapy fails. It may particularly effective in AIT as amiodarone and its active metabolite are highly bound to plasma proteins. To our knowledge, this is the first case of thyroid storm with a history of AIT, which was precipitated by tracheostomy, and successfully treated with plasmapheresis.