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Case Report

Rare Complication of Covid 19 in A Child

Sanjeev Sabale[1], Rajesh Bagtharia[2], Geeta Subramanian[3] and Jeewan Rawal[3]*

[1]*Paediatric Department, King's College Hospital NHS Foundation Trust, UK*

[2]*Department of Paediatrics, Barking Havering, and Redbridge Hospitals NHS Trust, UK*

[3]*Consultant Paediatrician, Barking Havering, and Redbridge Hospitals NHS Trust, UK*

***Corresponding author:** Jeewal Rawal, Consultant Paediatrician, Barking Havering, and Redbridge Hospitals NHS Trust, UK

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Case Report

A 15-year-old boy was presented to the emergency department, with one day history of severe respiratory distress, blood-stained sputum, and right sided chest pain. He had been a healthy child previously, with no history of ill health except mild infection with Covid-19, 2 weeks prior to presentation. He was not vaccinated against Covid-19 virus. On examination, he was tachypneic and tachycardic and hypoxic with initial oxygen saturations of 88% in room air. He was afebrile and normotensive. He was in pain with a high pain score. He had moderate work of breathing, was alert and noted to be obese. On chest auscultation breath sounds were reduced on both sides with bilateral expiratory wheeze. Cardiovascular, abdominal and CNS examination were unremarkable.

Investigations Revealed the Following

a) WCC (13.0 x108 / L), CRP (37mg/dl), troponin (19 ng/l), normal clotting, a normal chest x-ray, and ECG with sinus tachycardia.

b) He was managed with high flow oxygen, burst therapy with salbutamol and ipratropium nebulisers, oral steroids like in acute asthma with antibiotic cover. He was given morphine for his intense chest pain.

c) There was no improvement in his general condition as he continued to have respiratory distress.

d) He was still in considerable chest pain which was out of proportion to his respiratory distress despite morphine administration.

Questions

1. What are the differential diagnoses?
2. What is the most likely diagnosis?
3. What investigations if any would you do to get a diagnosis?
4. What are the findings in CTPA? (Figure1a)
5. How would you manage this case?
6. What additional investigations would you consider in this case?
7. What is the likely cause of this condition?

Answers

1. This case presented as acute respiratory distress, chest pain and hypoxia which are the symptoms of most chest related conditions like [1].

Acute Asthma, Tracheitis, Pneumonia, Pleuritis, Pneumothorax, Pleural effusion, Pulmonary Embolism, Chest crisis in sickle cell disease, Acute Pericarditis, Chest. Trauma, Diabetic ketoacidosis.

2. Pulmonary embolism was the most likely diagnosis. Severe chest pain and haemoptysis are important clues with no response to burst therapy for Asthma. Normal X- Ray of chest ruled out pneumothorax, pleural effusion, and pneumonia. A normal ECG made cardiac causes less likely.

3. He was severely hypoxic and wheezy. He was treated for acute asthma but showed poor response. He was in severe pain needing opioid analgesia which is unusual in acute asthma. Therefore, a decision was made to rule out PE. An urgent CTPA was arranged which was the most appropriate investigation [2]. The D dimer was abnormally high - >35mg/L (0.0-0.5mg/L).

Figure 1b reveals:

Filling defect in main pulmonary artery (yellow arrows1), Filling defect in left pulmonary artery (yellow arrows2), Filling defect in right pulmonary artery (yellow arrows3), Confirming a large volume bilateral pulmonary embolus.

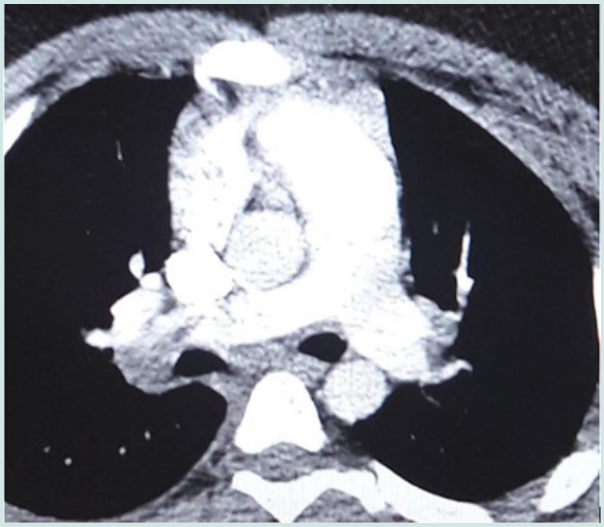

Figure 1A

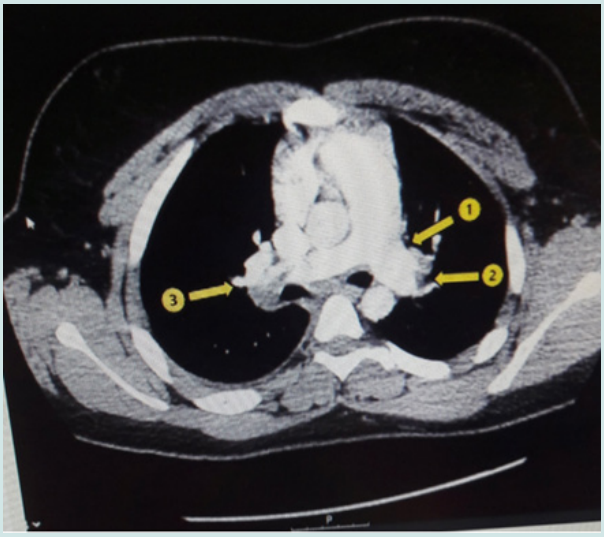

Figure 1B

5. After initial assessment and stabilisation with ABCDE, the case was discussed with tertiary specialists. He was put on subcutaneous Enoxiparin 100 mg twice a day. He was transferred to PICU for main pulmonary artery thrombolysis via directed catheter followed by heparin transfusion. He was stepped down from intensive care and started on twice daily Dalteparin which was subsequently converted to oral anticoagulants – Rivaroxaban for 6 months.

a) Doppler studies of leg veins were reported normal ruling out deep vein thrombosis.

b) Cardiac ECHO helps to define cardiac extension of the thrombus, right ventricular strain, and dysfunction as was in our case.

c) Thrombophilia screen, ANA, Connective Tissue Disease antibodies were normal.

6. In children with COVID-19 infection, thromboembolic complications are exceptional but reported [4,5] more frequent in hospitalized children unlike in our case [6]. We believe COVID -19 infection triggered Pulmonary Embolism in our patient. The thrombophilia screen was negative. To the best of our knowledge, this is a rare case of paediatric pulmonary embolism following COVID-19 infection in Britain which did not require intensive care treatment.

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