First Documented Case of Massive Pulmonary Embolism and Massive Ilio-Femoral Deep Venous Thrombosis Treated Simultaneously

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Citation: Bedi HS, Singh JD, Arora V, Luthra L, Vyas Y (2022) First Documented Case of Massive Pulmonary Embolism and Massive Ilio-Femoral Deep Venous Thrombosis Treated Simultaneously. J Surg 7: 1490 DOI: 10.29011/2575-9760.001490

Received Date: 01 April, 2022; Accepted Date: 19 April, 2022; Published Date: 25 April, 2022

Abstract

Deep Venous Thrombosis (DVT) and Pulmonary Embolism (PE) cause major morbidity and mortality. A PE develops from a DVT. Surprisingly there are very few reports of a DVT and a PE being documented together, and there are no reports of a simultaneous treatment of both by a CDT. We report such a case where a patient presented to us with proximal ilio-femoral DVT and massive PE. She successfully underwent an emergency simultaneous CDT of both pathologies.

Keywords: Deep Venous Thrombosis; Pulmonary Embolism

Case Report

A 46 year old female presented to an outside hospital with acute left leg swelling. She was an operated case of cancer breast presently on Tamoxifen. On examination and on investigation with Duplex and CT venography she was found to have left sided DVT extending up to the iliac vein – the IVC was free (Figure 1). She was started on Low Molecular Weight Heparin (LMWH) and Rivaroxaban. Within 3 hours of diagnosis and start of therapy - she developed dyspnea and collapsed. She was successfully resuscitated. A CT pulmonary angiogram revealed a massive main pulmonary artery (MPA) PE (Figure 2). She was referred to our centre on moderate inotropes. On assessment at admission she was noted to be hypotensive (BP < 90mm Hg on adequate inotropes) and had ECG and echo findings of RV strain. Her Trop I and BnP levels were raised. She underwent an Emergency Catheter Directed Thrombolysis (CDT) through a sheath and catheter via the left popliteal vein and a CDT of the PE via a catheter from the right femoral vein (Figure 3) . Recombinant Tissue Plasminogen Activator - Reteplase (Abbott) was used. A spray bolus of 3 mg each was given at both sites followed by 1 mg/hour over 24 hours...
by an infusion pump. Unfractionated heparin was given in both sheaths at 500 units/hour. An IVC filter was thought of but not deployed in view of an already present PE and plan to treat by CDT. Her PA pressure was ¾ systemic. A pig tail catheter was used to fragment the clot in the MPA and tPA started by a multihole Cragg-McNammara catheter (Figure 4). The iliac vein clot was also fragmented and tPA started via a separate Cragg McNammara catheter. In between aspiration of clots was also done from both sides (Figure 5).

Figure 1: A CT venogram showing the Deep Venous Thrombosis (DVT) in the femoral and iliac veins. The IVC is free of clots.

Figure 2: A CT pulmonary angiogram showing the Pulmonary Embolus (PE) in the main pulmonary artery.

Figure 3: Separate sheaths in the left femoral vein (F) and right popliteal vein (P).

Figure 4: Showing the spray effect via the multiple holes (white arrows) of the Cragg-McNammara catheter.
the efficacy of CDT specifically for acute iliofemoral DVT. The American Heart Association (AHA) recommends CDT for first-line treatment of carefully selected patients with acute ilio-femoral DVT (<21 days within onset of symptoms), limb-threatening compromise, and/or rapid thrombus extension or symptomatic progression despite anticoagulation [2]. The Society of Interventional Radiology (SIR) also has similar recommendations [11]. Currently, CDT is a class 2C recommendation by the American College of Chest Physicians for the management of acute PE associated with hypotension and who have contraindications to thrombolysis, failed thrombolysis, or shock that is likely to cause death before systemic thrombolysis can take effect (eg, within hours), and if appropriate expertise and resources are available [8,12]. This includes massive and intermediate-high submassive risk groups. So CDT is a recommended for selected cases of DVT and PE. There are not many cases of documented DVT and PE detected concurrently, probably because the DVT clot has already embolised and is no longer visible on imaging. Surprisingly there is no case reported of a simultaneous CDT of a DVT and a PE in the same patient.

Conclusion

We present a first documented case of successful simultaneous CDT of a massive PE and a massive ilio-femoral proximal DVT with 1 year follow up.

References

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