



SUCCESSFUL PERCUTANEOUS RETRIEVAL OF BROKEN THROMBOSUCTION CATHETER (THROMBUSTER II) DURING PRIMARY ANGIOPLASTY.

Cardiology

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ABSTRACT

INTRODUCTION : With advent of new technology and advancement of coronary hardwares ,now a days primary angioplasty became first line of treatment in patients with acute myocardial infarction .However with increasing complexity of lesion and some time high thrombus burden multiple devices used to complete the procedure successfully . Any device used during intervention may lead to its own complication ,like broken wire , broken balloon ,dislodged stent which may need urgent surgical removal otherwise leads to coronary thrombosis, myocardial infarction, stroke, perforation and rarely sudden death . Various nonsurgical methods have been proposed for the retrieval of broken guidewire , balloon and stent but not always effective . We describe a case for retrieval of broken thrombosuction catheter (Thrombuster II) used during primary angioplasty for suction of thrombus from coronary artery .

KEYWORDS

Balloon trapping ,Primary angioplasty, Thrombuster II ,

Case Report :

A 67 year old female with history of severe chest pain from last 8 hours came in cardiac emergency. Her ECG show ST elevation in V1 to V6 with reciprocal changes in 2, 3, aVf. ECHO show hypokinetic LAD territory with LVEF of 30 percent .In view of acute Anterior wall myocardial infarction (AWMI) she was urgent taken to coronary angiography and primary angioplasty .

Right side transradial access with 6 F sheath was taken and coronary angiography done which revealed blocked LAD from ostium (Fig 1). After that for primary angioplasty XB 3.5 (Cordis Comp) 6 French Guiding catheter was engaged to left coronary system , LAD lesion crossed with Pilot 50 (Abbot Vasc) angioplasty wire and stenting was done with 2.75x 43 mm Pronova XR stent (Vascular concept) . Post stent no flow in distal vessel (Fig 2). In view of thrombus at distal vessel , Thrombuster II (Kaneka Corporation) was used for thrombus aspiration , after thrombosuction when I tried to withdraw Thrombuster II it not came out ,initially it look like wire stuck with tip of catheter so I withdraw angioplasty wire first and it came out smoothly , but when I tried to pull Thrombuster II, it stuck strongly in coronary artery and when little more force applied, proximal part of Thrombuster II catheter came out, outside of vessel .At this stage single radio opaque marker seen in coronary artery (Fig 3) which is present at tip of Thrombuster II catheter but proximal extent of catheter is unknown .Now its very difficult what to do next , In view of try to release from wall of coronary artery different angioplasty wires was tried to pass across tip of Thrombuster II, but nothing go beyond radiopaque marker (tip of Thrombuster II). By that time condition of patient became unstable, and at this stage only option left is to send for urgent surgery because proximal extent of broken Thrombuster II is unknown and percutaneous retrieval look impossible . When dyes injected ,string like dye filled structure (Fig 4) which is broken Thrombuster II and its proximal portion extension inside guide catheter visualised . After confirmation of proximal shaft inside guiding catheter it was planned to used Balloon trapping technique . 3x20 mm Sapphire NC (Orbus Neich Medical)coronary angioplasty balloon advance to tip of guiding catheter and inflated at 16 ATM so it trap shaft of Broken Thrombuster II strongly , two marker of balloon shaft seen at tip of guiding catheter (Fig 5) .Now whole assembly of guiding catheter with trapped Thrombuster II and inflated balloon inside guide catheter, pulled as a single unit . Thrombuster II came outside coronary artery with trapping balloon as a single unit and radiopaque marker inside coronary artery also not seen (Fig 6) . It was surprise to see outside that long portion of shaft of Thrombuster II was broken and was left inside which was retrieved (Fig 7) . After that procedure complete with post dilation of deformed previously implanted stent and additional 3x 12mm Stent at proximal part of previously implanted stent with overlap .Post procedure good result (Fig 8) and patient was discharge after 3 days with total asymptomatic condition and come in follow up regularly.



Fig 1. Blocked LAD .



Fig 2 .LAD after stent



Fig 3.Radiopaque (Thrombuster II tip) mark in coronary artery



Fig 4. Visualisation of shaft of broken Thrombuster II, with dye inside broken shaft.

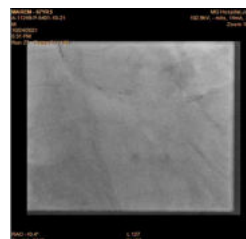


Fig 5 Balloon with its 2 marker in guide catheter used for trapping .

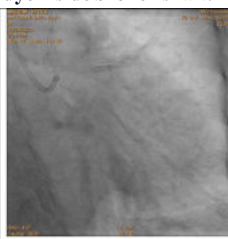


Fig 6. Thrombuster II removed, No radiopaque mark left inside coronary artery.



Fig 7.Broken Thrombuster II outside body of patient.

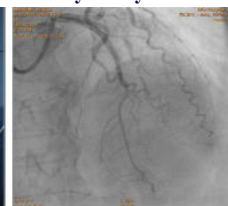


Fig 8. After completion excellent Result .

DISCUSSION.

Broken and retained angioplasty hardwares are rare complication during coronary angioplasty, when this happens it often causes panic in the cath lab and can test the nerves of even the most experienced interventional cardiologist. Estimated incidence varies from 0.1 % to 0.1% -0.8%¹. Urgent surgery is considered as last resort, but percutaneous retrieval techniques include multiple guidewires, snares, forceps and balloon assisted retrieval^{2,3,4} can be useful but unpredictable and sometime became even more dangerous. There is no evidence based approach and most of the time retrieval technique is individualized based on available hardware and operator preference. In this case Thrombuster II was used because of presence of thrombus at distal edge of stent⁵ and reason for getting broken from shaft is kink (pushing hard due to tortuosity) and reusability. Once it is broken it is necessary to withdraw urgently via percutaneously or send for urgent surgery because proximal part can block Lcx due to thrombus formation and it may hang in aorta. For balloon trapping technique for 6 F guide usually 2 mm balloon diameter recommended but I used 3 mm balloon at 16 ATM for more pressure on broken Thrombuster II and strong catch to Thrombuster II because, if it gets slipped from guide only option left is to send for urgent surgery.

To my knowledge prior to this case only two prior case reports of broken Thrombosuction catheter retrieval, one to Export catheter (Medtronic inc);⁶ and next Thrombuster II catheter (Kaneka Corporation);⁷. In both cases Thrombosuction catheter was only used and coronary artery not stented; in contrary to this case where thrombosuction catheter was used after stent implantation and balloon trapping technique was used for successful retrieval.

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