

Intestinal Obstruction - Complication Of Intra Aortic Balloon

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Summary

An unusual case of intestinal obstruction is described. Intra aortic balloon ruptured in a patient resulting in gas leak. The gas embolised mesenteric arteries resulting in severe abdominal pain and absence of bowel sounds. Removal of the balloon reversed the clinical condition completely.

Key Words

IABP Rupture, Intestinal obstruction.

Introduction

Since the first description of intra-aortic balloon pump (IABP) by Mouloupoulos¹ and the early clinical use by Kantrowitz², its clinical credibility has enormously increased. It is now commonly considered as the first line of mechanical assistance to a failing left ventricle. Rupture of IABP is a rare event and can lead to significant gas embolism. We describe an unusual complication of balloon rupture where the leaking gas embolised in the mesenteric arteries and led to acute abdominal pain followed by ileus. On recognising the rupture, balloon was immediately removed. Clinical condition of the patient reversed back gradually.

Case History

Sixty two years old female was admitted in our unit as a terminal case of dilated cardiomyopathy, in florid congestive failure, on massive pharmacologic inotropic support. She was on the cardiac transplant waiting list. After ten days a suitable donor was found and she had a successful heart transplant. To wean her from bypass, again inotropic help and intra-aortic balloon pump was needed. The balloon (Aeries

Medical Size 8 French 40 cc gas volume) was introduced percutaneously through left femoral artery by Seldinger technique and placed in the descending thoracic aorta distal to the left subclavian artery, ballooning one in one. She remained stable on this.

On the third post-operative day the balloon was switched on to one in two. On the sixth post-operative day repeated gas leak alarms appeared in the balloon console. All the connections were checked over and again. Soon the patient developed severe abdominal pain which progressively became worse. Narcotic analgesics had very little effect. Examination revealed soft and generally tender abdomen with absent bowel sounds. Lateral decubitus x-ray was essentially normal. About half an hour later blood appeared in the gas line and the balloon was removed immediately. Patient was re-examined shortly after removal of the balloon, she had improved considerably, pain had subsided completely, and the bowel sounds became audible again. In retrospect it is established that the gas leak from the balloon was embolising in the mesenteric arteries giving rise to ischaemic pain and as the balloon was removed, further embolisation stopped. Helium already present in the vessels probably got absorbed and the patient recovered. She was discharged from the hospital in due course and is regularly being followed up as an out-patient after two years.

Comments

Intra-aortic balloon is used in conjunction with

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pharmacologic inotropic therapy in an effort to achieve haemodynamic stability. Optimum balloon function achieves diastolic augmentation of blood pressure, thereby increasing the coronary arterial blood flow and reducing the afterload, hence improving myocardial contractility.

The morbidity associated with IABP counterpulsation is between 1.8-15%^{3,4}. Limb ischaemia is the commonest complication. In a recent study of 6856 adult cases⁵ 72 patients had some complication, 69 of them were related to limb ischaemia. Reported incidence of IABP rupture is between 0.14-1.6%^{6,7}. The possible explanations forwarded are either some injury to the balloon itself during insertion or prolonged contact with or abrasion against an atheromatous plaque in the aorta.

Helium gas embolism due to balloon rupture has been described before by Frederiksen⁸. In his patient the leaking gas embolised the cerebral vessels leading to total flaccidity and loss of all voluntary functions. Hyperbaric oxygen therapy was instituted and eventually the patient recovered. In our case probably the amount of gas leak was small and because the balloon inflation was stopped immediately that the symptoms subsided quite early.

We conclude by saying that IABP is an important and useful assisting device for a failing left ventricle, but the complications of its use can be serious. Higher awareness and greater suspicion helps in dealing with the simple complications which can otherwise lead to detrimental outcome.

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