

Case Report

Non operative management of a patient with splenic trauma with angioembolisation after delayed presentation

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ABSTRACT

Road traffic accidents are one of the most common causes of death in India. Those involved in RTA's frequently suffer from solid organ injury, spleen being the second most common organ involved. Splenic injuries are associated with great deal of mortality and morbidity. Splenic injuries were classically treated with splenectomy but there has been a paradigm shift to non-operative management in recent times leading to splenic salvage and preservation of function of the spleen. This report is about a lady who was managed successfully with angioembolization in spite of the fact that the patient presented late after RTA.

Keywords: Splenic injury, Non-operative management of splenic injury, Angioembolization of splenic artery

INTRODUCTION

Trauma is called the neglected disease of the modern society affecting the prime of youth.¹ Road traffic accidents are one of the most common causes of mortality and morbidity in India.² Those involved in RTA's frequently suffer from solid organ injury, spleen being the second most common organ involved. Splenic injuries are associated with great deal of mortality and morbidity. Splenic injuries were classically treated with splenectomy and splenorrhaphy, but there has been a paradigm shift to non-operative management in recent times leading to splenic salvage and preservation of function of the spleen.³ The non-operative management may be conservative management in high dependency unit in hemodynamically stable patients or interventional procedures like the splenic artery embolization.

CASE REPORT

This report is about a western lady who was managed successfully with angioembolization of the splenic artery in spite of the fact that the patient presented late to the tertiary centre.

48-year-old lady who met with a road traffic accident as she was riding pillion on a two-wheeler presented to our emergency department 48 hours after the incident with complaints of abdominal pain at 1 am. On examination the patient was conscious and oriented, pulse rate was 78 beats/min, blood pressure— 110/60 mm Hg, Spo2- 100% on room air, GCS (EVM- 456) 15/15. On examination abdomen was soft, there was no generalized tenderness or rigidity, no evidence of free fluid in the abdomen. However, the umbilicus showed a bluish discoloration suggestive of Cullen's sign. The bowel sounds were normally present.

After obtaining IV access, an ultrasound of the abdomen was taken which revealed splenic injury and moderate hemoperitoneum. This was followed up by a CECT of the abdomen and thorax which showed splenic injury with a large subcapsular hematoma with active bleed confined within splenic capsule from lower segmental vessel suggestive of a grade IV splenic injury and mild to moderate hemoperitoneum. There was also Grade I left renal injury, Left sided 4, 5, 6 rib fractures and minimal pleural effusion.

The hemoglobin on admission was 9.1 and within 3 hours of admission it fell to 7.8. The patient was transfused with 2 units of packed red cells. A consultation was sought from the surgical gastro team and interventional radiologist. the patient was taken up for angioembolization on the same day at 6 pm. Selective Splenic artery angiogram showed an abnormal blush with pseudoaneurysm and active extravasation involving a segmental branch in the lower pole of splenic artery. Lower pole Segmental splenic artery and the pseudo aneurysm were selectively embolized using coils and polyvinyl acrylate. Post procedure angiogram showed complete obliteration of blush in the affected vessels with complete cessation of bleeding.

Post procedure the patient was kept on strict bed rest and monitoring of the patient was done in the high dependency unit. Oral feeding was started on third day. The patient remained stable and clinically improved. On the 5th day after the procedure the patient developed cough with breathing difficulty with decreased air entry on left side. An ultrasound revealed gross left pleural effusion with a collapsed left lung and a tube thoracostomy was done and 2000 ml of serosanguinous fluid was drained. A check X-ray showed that the lung had expanded completely after the procedure.

On day 14 an ultrasound of the abdomen revealed significant decrease in size of splenic subcapsular hematoma and free fluid. Since the patient was symptom free and wanted to go to her country she was discharged.

DISCUSSION

Blunt abdominal injury occurs in approximately 20–30 % of all trauma patients. The spleen is the second most commonly injured organ in both blunt and penetrating abdominal trauma.^{4,5} Based on recent studies, as well as data from the American College of Surgeons National Trauma Data Bank, 10% to 15% of patients admitted with blunt splenic injury will undergo an urgent splenectomy within six hours of admission, primarily due to ongoing bleeding and haemorrhagic shock. The nonoperative management of blunt splenic injury has evolved over decades and includes multiple disciplines. Careful patient selection for nonoperative management should result in high rates of overall splenic salvage.⁶

Splenic injuries have classically been treated with surgery but there has been a paradigm shift in the treatment of splenic injuries. Non operative management (NOM) has come on in a big way and NOM can be taken up in centres which have surgeons, newer imaging modalities, interventional radiologists, good ICU's and a good support system. Serial clinical monitoring of patients with laboratory investigations and imaging are cornerstones of NOM.⁷ NOM ranges from observation and monitoring alone to angioembolization with the aim to preserve the spleen and its function.

According the American Association for the surgery of trauma (AAST) splenic injury is classified into Grade 1 to Grade 5.

In 1892 Riegner reported a splenectomy in a 14 year old construction worker who fell from a height and presented with abdominal pain, distention, tachycardia and oliguria. From then on splenectomy was performed for all splenic injuries for the next two generations. In 1952 King and Schumacker reported a syndrome of overwhelming post splenectomy infection (OPSI). Since then many studies have demonstrated the importance of the spleen in preventing infections especially with encapsulated organisms. OPSI occurs in about 0.6% in children and 0.3% of adults. Then came an era of preservation of the spleen ranging from intraoperative splenic salvage, splenorrhaphy to reimplantation of spleen.

Since Waranborough initiated non-operative management of splenic trauma in 1940 we have come a long way to a stage where non-operative management for blunt splenic injury has become the gold standard.⁸ Angioembolisation is considered a part of splenic NOM. It is indicated in hemodynamically stable patients of splenic injury grade 4, 5 and when there is an active bleed or obvious contrast blush on CT. Various materials can be used for splenic embolization such as metallic coils, haemostatic agents.⁹ While NOM like angioembolisation can be used in a selective niche of patients for splenic salvage. It can help in preserving the spleen and the complications associated with splenectomy.

NOM requires expertise of a trained team so it may not be feasible in all settings.

CONCLUSION

Road traffic accidents are very common and can lead to significant morbidity and mortality. Splenic injuries are quite common and can be lethal if timely intervention is not done. The management of splenic trauma in yesteryears was splenectomy. Splenectomy is associated with a lot of morbidity. Non operative management emerged as a result. In this case of ours we could successfully treat a patient with grade IV splenic injury with non-operative management by angioembolisation. For non-operative management to be carried out a dedicated team and infrastructure is a prerequisite. Non

operative management of splenic injuries is now becoming the norm but requires close monitoring and quick intervention when required, so it must only be taken up where a dedicated team of surgeon, radiologist and critical care specialist are available round the clock else emergency splenectomy should be considered.

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