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Spleen injury in 52 years old female patient

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Abstract

Due to the rapid industrialization and urbanization spleen are at the top of the solid organ lists injured in blunt trauma abdomen. Motor vehicle accidents account for most of the cases of splenic injury. We reported a case of traumatized spleen which underwent laparoscopic splenectomy.

Keywords: Spleen, laparoscopic splenectomy, Motor vehicle accidents

Introduction

Although protected under the bony ribcage, the spleen remains the most commonly affected organ in blunt injury to the abdomen in all age groups. Due to the rapid industrialization and urbanization spleen are at the top of the solid organ lists injured in blunt trauma abdomen. Motor vehicle accidents account for most of the cases of splenic injury. Although protected under the bony ribcage, the spleen remains the most commonly affected organ in blunt injury to the abdomen in all age groups. Majority of cases with splenic injury are observed in the second and third decade of life, this being the most active period of life when movements in motor vehicles and outdoor works result in increased risk of trauma.

Surgical splenectomy has represented a key treatment option for benign hematological disorders, including immune thrombocytopenia (ITP), hemolytic anemias and particularly, thalassaemia. Improvements in surgical techniques, most notably the introduction of laparoscopic splenectomy in 1991, have greatly lowered the immediate risks of this procedure. However, a growing understanding of the role of the spleen, as well as the continuing emergence of data documenting the long- and short- term adverse events associated with splenectomy, require that the indication for this procedure is posed after more careful consideration of its relative merits and alternative treatments for the individual patient. It is now clear that the spleen is much less dispensable than was previously believed and that this organ, in addition to its blood- filtering functions, plays a pivotal role in innate and adaptive immunity.

All surgeons involved in emergency care, especially, whether rural or urban, must keep up-to-date on issues regarding splenic injury diagnosis, splenic salvage techniques, indications for both non-operative treatment and potential complications arising from both operative splenectomy and non-operative management of this important organ. Associated injuries to other organs, uncontrolled hemorrhage contribute significantly to morbidity and mortality. We reported a case of traumatized spleen which underwent laparoscopic splenectomy.

Case report

A 52 years old female patient brought to the department of emergency with history of trauma. History revealed that patient met with accident and got severe injuries in abdomen. Ringer's lactate is infused for resuscitation. Specific examination of the abdomen was done with special reference to tenderness, guarding and rigidity and bowel sounds. X-ray erect abdomen and plain X-ray of other parts of the body was taken. Emergency ultrasound of the abdomen and pelvic cavity of the patient was done using ultrasound machine 3.5 Mhz curvilinear transducers with the patient in the supine position by a radiologist.

Patient was operated by midline incision. Hemoperitoneum evacuated by suction apparatus and injury evacuated. Grading of spleen injury assessed according to grading system given by American Association for the surgery of trauma splenic injury scale (1994 revision) and recorded.

Spleen was mobilized after incising all ligamentous attachments and then short gastric vessels are ligated splenic artery and vein are double ligated, hemostasis secured well, peritoneal cavity washed with normal saline, drain kept in the splenic bed and abdomen closed after examining liver, stomach, small, and large bowel and mesentery.

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Induction doses of intravenous antibiotics was given. The antibiotics were continued in the post-operative period and are used until the patients are discharged. Patients are allowed on an oral diet from 2nd or 3rd post-operative day if uncomplicated. The prognosis was good.

Discussion

The spleen consists of three compartments, namely (i) the red pulp, a meshwork of splenic cords and venous sinuses, (ii) the white pulp, a reticular structure consisting of the peri-arteriolar lymphoid sheath (PALS) and follicles that surround central arterioles, and (iii) the marginal zone, which is located between the red and white pulp, outside the mantle layer of the lymphatic follicles [5].

Briefly, the red pulp functions as a blood filter, removing foreign material, including blood-borne micro-organisms, and aged and damaged erythrocytes, while providing a storage site for iron, erythrocytes and platelets [6]. Its role in adaptive and innate immunity includes phagocytosis of antibody-coated cells or microorganisms; synthesis of immunoglobulin M by memory B cells; and production of the opsonins properdin and tuftsin. Opsonized bacteria are readily removed by macrophages within the spleen and liver, but poorly opsonized bacteria, such as encapsulated species, can be cleared only by the spleen [7]. We reported a case of traumatized spleen which underwent laparoscopic splenectomy.

Venkanna *et al.* [8] found incidence of splenic trauma in 25.2%. It is clear from above data that a maximum number of patients are in the age group of 21–30 years (38%). Mean age of presentation is 28.45 years (8–60 years). There is no single patient aged >60 years. Sex incidence 88% of patients (44) are males and 12% of patients (6/50) are females. So the male female ratio is 7.33. Lapse Time of Injury and Admission Lapse time of injury and admission varied from 30 min to 78 h and the patient ho injured after 78 h following injury does not remember the incidence of injury. It is clear that 58% of patients (29/50) presented within 8 h after injury. The lapse time of surgery after the admission of the patient is varying from 30 min to 11 h 25 min. 4% of patients (2/50) are operated within 1 h that was in 30 min. One patient, who was operated after 11 h and 25 min after admission, did not respond to resuscitation. The maximum number of patients presented with injury is due to road traffic accidents 74% (37/50).

We found that spleen was injured during road traffic accident which is the main reason for abdomen and spleen injury. Goletti *et al.* [9] found patient between 4 and 82 years, mean age 27.5 years. Road traffic accidents causing blunt trauma accounted for 74% of patients (37/50). 8% of patients (4/50) presented with injury due to wall collapse and 8% of patients (4/50) presented with injury due to fall from height (such as tree and building roof). Bullock cart as a cause of injury is seen in 10% of patients (5/50). This figure correlates with studies shown by Ahmed 46.66%.

Perioperative complications of splenectomy include complications of general anaesthesia, bleeding and thrombosis, as well as postoperative pain, pneumonia and atelectasis, wound/other infection and ileus. The increasing use of minimally invasive laparoscopic techniques, together with refinements in optics, camera technology and instrumentation, have greatly reduced peri-surgical complications and also shortened hospitalization and

convalescence times compared with conventional open splenectomy.

Conclusion

Authors reported a case of spleen injury which was managed successfully with laparoscopic splenectomy.

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