Laparoscopic Splenectomy in Children with Sickle Cell Disease

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Background: Many children with Sickle Cell Disease (SCD) might experience severe sickle cell crises due to splenic complications. These include hypersplenism, acute splenic sequestration, splenic abscess and massive splenic infarction. Splenectomy is indicated to decrease the rate of recurrence of complications and the associated morbidity and mortality. The laparoscopic approach has proved to be associated with a better outcome. Many laparoscopic techniques were implemented for the removal of the spleen, especially when it is enlarged and fragile.

Objective: To evaluate laparoscopic assisted splenectomy technique and outcome in 51 children with SCD.

Design: A Retrospective Review.

Setting: Department of Pediatric Surgery, Salmaniya Medical Complex, Bahrain.

Method: Fifty-one children who had laparoscopic assisted splenectomy with a small inguinal incision from January 2002 to December 2014 were reviewed.

Result: Fifty-one children had laparoscopic assisted splenectomy for either hypersplenism 42 (82.4%) or acute splenic sequestration 9 (17.6%); 32 (63%) males and 19 (37%) females. The age range was 6 to 14 years, a mean age of 9.8. Only one (1.9%) case required conversion to open procedure due to excessive bleeding. Only 7 (13.7%) were admitted in the ICU following the procedure. The mean length of hospital stay was four days; the measured decrease in the HBS was 38%, preoperative fever was seen in 16 (31%), and there was no mortality.

Conclusion: Laparoscopic splenectomy with a left inguinal incision is a safe and effective approach in children with SCD.


Sickle Cell Disease (SCD) is a common genetic hematological disorder. The spleen is one of the early organs to be affected by SCD. Early in life, splenomegaly occurs, and with repeated vaso-occlusion and infarctions, auto splenectomy would follow; although splenomegaly could persist in some patients. Acute splenic sequestration, hypersplenism, splenic abscess and massive splenic infarction are serious SCD complications. Treatment could be either conservative with repeat transfusions or surgical. Splenectomy is indicated due to the high risk of recurrence and increased morbidity and mortality of some of the above-mentioned complications.

The laparoscopic approach has been compared to open approach in multiple studies in children with SCD as well as other hematologic disorders, and has proven to be superior to the open approach. It has the advantages of decreased pain, shorter hospital stay, fewer complications, faster return to normal activities and better cosmetic outcome. Several techniques were practiced for laparoscopic splenectomy in children, some of which had been tried in SCD children because they require a rigorous management from their caregivers.

The aim of this study is to evaluate laparoscopic splenectomy technique and outcome in 51 children with SCD.

METHOD

Fifty-one patients who had laparoscopic splenectomy for SCD from January 2002 to December 2014 were reviewed. The age, sex, weight, indication for splenectomy, Sickle Hemoglobin percentage (HBS%) on admission and preoperatively, operative time, intraoperative complications, splenic weight, ICU admission, the length of hospital stay and conversion to open approach were documented. The inclusion criteria were patients with SCD below the age of 15, splenic complication, hypersplenism or acute sequestration. The following patients were excluded: adults or patients with other hematological disorders and patients needing concomitant cholecystectomy.

The diagnosis of SCD was based on Hemogoblin (HB) electrophoresis. Indications for splenectomy were either acute splenic sequestration or hypersplenism. Acute splenic sequestration crisis was defined as acute enlargement of the