

Combined Needlescopic Cholecystectomy and Laparoscopic Splenectomy for the Treatment of Thalassaemic Splenomegaly and Cholelithiasis

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Summary

Gallstone disease is a common association in patients with haematological splenomegaly. When indicated, simultaneous splenectomy and cholecystectomy should be performed and traditionally this is accomplished by open surgery. We report a 17 year old thalassaemic girl with splenomegaly complicated by gallstone pancreatitis. We treated her with a combination of needlescopic cholecystectomy and laparoscopic splenectomy as well as delivering the huge spleen via a pfannenstiel incision to hide the scar. We believe this technique is an acceptable alternative mainly for rapid delivery of the spleen and to minimize visible scars hence improving cosmesis.

Key Words: Haematological splenomegaly, Splenectomy, Cholecystectomy, Laparoscopy

Case Report

A 17 year old Malay girl was diagnosed to have β -thalassaemia minor when she was 9 years of age. She required blood transfusion two to three times a year. Both parents are asymptomatic thalassaemia carriers. Her two older sisters are also thalassaemic and already had their spleens removed.

She presented in September 2001 with intermittent epigastric pain of few days duration accompanied by vomiting. There was no jaundice. The serum amylase was normal however, ultrasound of the abdomen showed multiple gallstones and an enlarged spleen measuring 15.5cm in its longest

diameter. She recovered well with conservative treatment and was discharged. She returned 6 months later in March 2002 with severe epigastric pain and vomiting. Serum amylase was elevated to 1244 U/L (Normal < 100 U/L) and she was treated as gallstone pancreatitis. Again, her symptoms improved with conservative management.

Six weeks later an ERCP was performed which revealed multiple gallstones with normal caliber biliary tree. A sphincterotomy was carried out and a balloon catheter was trawled in the common bile duct, however no stones were retrieved. She was then subjected to surgery where both the gall bladder and the enlarged spleen were removed by the laparoscopic method.

This article was accepted: 10 January 2003

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CASE REPORT

Operative Technique

Under general anaesthesia, the patient was placed supine with a sand bag placed under the left scapula region. A 10mm subumbilical incision was made and the trocar was inserted by the open method. Pneumoperitoneum was created in the usual manner with CO₂ insufflation. The laparoscope was passed through this 10mm port. Three 3mm ports were inserted, one at the epigastrium while the other two in the right hypochondrial region below the subcostal margin. Needleoscopic cholecystectomy was performed in the usual manner with the cystic duct and artery divided between clips. The 10mm laparoscope was changed to a 3mm scope whenever the 10mm port was required for a 10mm multifire clip applicator. The gallbladder was then delivered via the 10mm subumbilical port. The two lateral 3mm ports were closed. Two 5mm ports were inserted - one in the left pararectal region and the other midway between the xiphisternum and the umbilicus. Through the 3mm port in the epigastrium, the stomach was retracted cephalad. An atraumatic grasper and a harmonic scalpel (Ethicon Endosurgery, Inc. USA) were used for dissection via the two 5mm ports. The lesser sac was opened and the short gastric vessels were divided. The splenic artery was exposed at the upper border of the pancreatic tail and divided between clips. The splenic hilum was then dissected clipping and dividing the tributaries of the splenic vein. The whole spleen was then released of its peritoneal attachment. No occult accessory spleen was noted. A pfannestial incision measuring about 7cm was made and the spleen was delivered out through this wound. The huge spleen weighed 650gm. The estimated blood loss was about 100 - 150mls and the total operative time was 4 hrs 30 mins. The patient made an uneventful recovery and was discharged well after 5 days.

Discussion

Laparoscopic splenectomy and cholecystectomy have been performed worldwide and considered safe and effective. Miniaturization in laparoscopic surgery has led to many procedures including

cholecystectomy being performed using instruments with diameters of 3mm or less, a technique named as needleoscopic surgery¹. In our case, we combined needleoscopic cholecystectomy and laparoscopic splenectomy to treat the patient's problems of gallstone pancreatitis and thalassaemic splenomegaly. We also removed the spleen via a pfannestial incision to allow the patient to have a scar that could be hidden.

Children with thalassaemia are often troubled by symptoms of severe anaemia associated with haemolytic crisis and jaundice. They require multiple and frequent blood transfusions so much so that splenectomy eventually becomes necessary. Some patients developed gallstones as a result of the haemolysis. Currently, laparoscopic splenectomy has emerged to be the gold standard in treating children with various haematologic disorders².

However, when both splenectomy and cholecystectomy is indicated, the conventional open surgery approach would require a long upper abdominal incision either vertically or horizontally. This invites all the disadvantages of a long incision namely severe post-operative pain, long period of recovery, prolonged hospital stay, potential wound complications and bad cosmetic results particularly for a growing child. Performing both procedures simultaneously and by the laparoscopic method saves the child from all these disadvantages as was done for our case.

In our patient, the associated gallstones had resulted in acute pancreatitis and therefore both the spleen and the gallbladder had to be removed. Cholecystectomy was performed first because of the very low conversion rate (1-3%) and less bleeding associated with this procedure. Excessive bleeding can occur during mobilization of the spleen especially for huge and congested spleen. This can obscure the surgical field should a cholecystectomy is to be followed. Furthermore, if conversion is required during splenectomy, then only a left subcostal incision is required.

A needleoscopic cholecystectomy using 3mm instruments was successfully carried out in our

case thus minimizing further the size of the wounds. Although there is probably no difference with regards to the postoperative pain between needlescopic and laparoscopic cholecystectomy, the cosmetic results are definitely better³. In our patient, the smaller holes would result in near invisible scars and would certainly be cosmetically acceptable for her.

Delivering out spleens following laparoscopic dissection is done by several methods. The classical described method is by placing the spleen in a large plastic bag and the spleen is then morcellated within the bag. The splenic tissues are then removed in pieces. They are several problems encountered particularly when the spleen is huge. The plastic bag has to be large, tough and puncture proof. It may not be easy to get a large plastic bag to open nicely within the abdomen particularly when the patient is a small child and the spleen is relatively huge. To ease a huge spleen into the bag may be very tricky, tedious and at times frustrating. Furthermore, to morcellate and remove the pieces of splenic tissues is time consuming and unnoticed accidental punctures of the plastic bag may lead to splenic autotransplantation.

We believe by delivering the spleen through a separate pfannenstiel incision solves a lot of issues. The incision is easy and quick to do and the peritoneal cavity is easily entered without muscle cutting. The spleen can be delivered out easily within seconds by prior placement of the huge spleen in the pelvis. A pfannenstiel incision is cosmetically appealing since majority of it will end up as a thin almost invisible scar along the skin

crease. It can also be easily hidden with the underwear and a female patient can still wear a bikini.

One might argue that many of the advantages of laparoscopic surgery are lost when an abdominal incision is incorporated in the procedure. This is true if the incision is made in the usual place as in the open surgery. However, one has to remember that the two most important advantages aimed at when performing concomitant laparoscopic splenectomy and cholecystectomy are namely avoiding long incisions and cosmesis. Using a specially designed spleen retrieval bag and a morcellator would certainly reduce incisions down to the minimum but at the expense of the disadvantages mentioned earlier. When not using the bag and the morcellator, then performing the cholecystectomy and splenectomy laparoscopically gives the advantage of making an incision not in the usual place but one that would serve the purpose of achieving a safe and rapid delivery of the huge spleen, a smaller and well tolerated wound with good healing and a resultant scar that is cosmetically superior. For the young and particularly female patients the pfannenstiel incision is ideal.

We have demonstrated that simultaneous needlescopic cholecystectomy and laparoscopic splenectomy is safe and effective for the management of thalasaemic splenomegaly associated with cholelithiasis. Employing the needlescopic technique plus removing the spleen via a pfannenstiel incision minimizes and avoids visible scars in exposed areas of the abdomen.

References

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