

Laparoscopic Cholecystectomy for Chronic Cholecystitis in Jamaican Patients with Sickle Cell Disease: Preliminary Experience

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ABSTRACT

Laparoscopic cholecystectomy, with its advantages of reduced postoperative pain and shorter hospitalization is the accepted standard of care for patients with symptomatic cholelithiasis. A retrospective study was done to assess the outcome of laparoscopic cholecystectomy in patients with sickle cell disease, a group known for its high postoperative morbidity. The study sample comprised of patients seen at the University Hospital of the West Indies during the period 1999 to 2004. Twelve patients were females and four were males. Their mean age was 28.5 years (range 13–43 years). Fifteen underwent elective cholecystectomy for recurrent episodes of cholecystitis while one patient required an emergency procedure. All patients underwent endoscopic retrograde cholangiopancreatography, which successfully removed common bile duct stones which were present in 25% of the cases. There were four conversions to open cholecystectomy as a result of obscure anatomy due to scarring and adhesions. The duration of surgery ranged from 70–150 minutes. Six patients developed postoperative complications, four of whom had acute chest syndrome. This resulted in death in one patient. The mean postoperative hospitalization period was 5.5 days. This report indicates that patients with sickle cell disease remain a high risk group with the potential for significant morbidity even when subjected to minimal access surgery.

Colecistectomía Laparoscópica para la Colecistitis Crónica en Pacientes Jamaicanos con Anemia Falciforme: una Experiencia Preliminar

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RESUMEN

La colecistectomía laparoscópica, que tiene como ventajas la reducción del dolor postoperatorio y del tiempo de hospitalización, es ahora la norma aceptada en la atención a pacientes con colelitiasis sintomática. Se realizó un estudio retrospectivo a fin de evaluar el resultado clínico de la colecistectomía laparoscópica en pacientes que padecen la enfermedad de células falciformes – un grupo caracterizado por una alta morbilidad postoperatoria. La muestra para el estudio comprendía pacientes atendidos en el Hospital Universitario de West Indies durante el período de 1999 a 2004. Doce pacientes fueron hembras y cuatro varones. Su edad media fue de 28.5 años (rango 13-43 años). Quince fueron sometidos a una colecistectomía electiva debido a episodios recurrentes, en tanto que un paciente requirió un procedimiento de emergencia. A todos los pacientes se les practicó una colangiopancreatografía retrógrada endoscópica, eliminándose así con éxito piedras comunes en el conducto biliar presentes en el 25% de los casos. Hubo cuatro conversiones a la colecistectomía abierta, como resultado de una anatomía oscura debido a cicatrizaciones y adhesiones. El tiempo de duración de la cirugía fluctuó de 70 a 150 minutos. Seis pacientes desarrollaron complicaciones postoperatorias, cuatro de ellos con síndrome torácico agudo. Como resultado de ello se produjo la muerte de un paciente. El período postoperatorio medio fue de 5.5 días. Este reporte indica que los pacientes con anemia falciforme continúan siendo un grupo de alto riesgo, con un potencial de morbilidad significativo, incluso cuando son sometidos a cirugía de mínimo acceso.

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INTRODUCTION

Six of every 1000 Jamaican births have a clinically significant form of sickle cell disease (SCD) (1). This is linked to the West African heritage of the people who account for over 90% of the population. Gallstone prevalence in Jamaican patients with SCD ranges from 9% in children to 83% in adults (2). Laparoscopic cholecystectomy (LC) is now the standard of care for patients with symptomatic gallstones (3, 4). The Jamaican experience with biliary surgery in sickle cell disease has been previously reported but these reports did not include cases treated laparoscopically (2, 5), a new therapeutic modality, introduced to Jamaica in 1993. We herein report the preliminary experience gained at the University Hospital of the West Indies (UHWI) while employing this modality of treatment for symptomatic gallstones in SCD.

METHODS

Data were collected from the case files of patients with known SCD who underwent LC at the UHWI between 1999 and 2004. Retrieved data included demographic and clinical data related to preoperative investigations, conduct of LC and postoperative complications. All patients were subjected to endoscopic retrograde cholangiopancreatography (ERCP) preoperatively to assess for common bile duct (CBD) stones. None received preoperative blood transfusion, in keeping with standard UHWI management protocol of simple transfusion only for patients with haemoglobin levels greater than 1g/dL below known steady state values (5).

RESULTS

Sixteen files were retrieved which form the basis of this retrospective study. Clinicopathological features of the study patients are illustrated in the Table. There were 12 females and 4 males comprising 14 SS genotype and two *S beta*

thalassaemia patients. The mean age was 28.5 years (range 13–43 years). Fifteen patients underwent elective cholecystectomy after multiple exacerbations of acute cholecystitis and one patient had emergency cholecystectomy. Elective cases had ERCP pre-operatively while the sole case of emergency cholecystectomy had ERCP performed postoperatively. This allowed CBD stones to be removed from four patients preoperatively (Cases 6, 10, 12 and 14). Obscure anatomy and adhesions in the region of Calot's triangle led to the abortion of four laparoscopic procedures converting them to open cholecystectomy. The duration of surgery ranged from 70–150 minutes with a mean of 108 minutes. There were four cases of life threatening postoperative acute chest syndrome (ACS) leading to demise in one. This patient (Case 12 in Table) developed fever, dyspnoea and leucocytosis 24 hours after LC. Despite aggressive chest physiotherapy, parenteral antibiotics and ventilatory support in the intensive care unit, her deterioration was progressive leading to demise on the sixth postoperative day. Her blood cultures grew no organism and post mortem chest findings confirmed ACS. One patient developed a painful crisis and one a wound infection. Postoperative hospitalization period ranged from one to 13 days (mean 5.5 days).

DISCUSSION

Laparoscopic cholecystectomy is now routine treatment for symptomatic gallstones in developed countries (3). Compared to open cholecystectomy, LC is accepted to improve postoperative respiratory performance, reduce postoperative pain, quicken patient mobilization and shorten hospital stay (4). In anticipation of these advantages being transferable to patients with SCD, LC has been promoted in these patients with many reporting low morbidity and better clinical outcomes than with open cholecystectomy (6–8). These reports are particularly welcomed because patients with SCD are

Table: Clinical features and outcome of LC in patients with SCD

Case	Age(yr)	Gender	Pre-op Hb	ERCP result	Successful LC	Duration of surgery (mins)	Complications
1	13	F	7.6	Normal	Yes	100	Nil
2	19	F	9.9	Normal	Yes	110	Nil
3	30	F	10.1	Normal	Yes	90	Nil
4	34	F	8.4	Normal	Yes	120	Nil
5	41	F	7.4	Dilated CBD	Converted	130	Nil
6	26	F	10.1	CBD stones	Yes	110	Nil
7	30	F	7.9	Normal	Converted	90	ACS
8	30	F	6.4	Normal	Converted	150	ACS
9	32	F	7.1	CBD stones	Yes	130	Nil
10	30	F	8.2	CBD stones	Yes	100	Wound infection
11	43	F	7.5	Normal	Yes	80	Painful crisis
12	32	F	7.6	CBD stones	Yes	120	ACS (ICU)
13	22	M	7.7	Normal	Yes	90	ACS (ICU)
14	13	M	7.9	CBD stones	Converted	120	Nil
15	16	M	8.1	Normal	Yes	70	Nil
16	25	M	7.4	Normal	Yes	120	Nil

CBD = common bile duct; ACS = acute chest syndrome; ICU = intensive care unit; Hb = haemoglobin.

known to have high levels of postoperative morbidity linked to their predisposition to ACS (5, 9). Not all have given LC in SCD unqualified support however since there have been reports of deaths due to ACS post LC (6) and Wales *et al* reported that LC did not decrease the incidence of ACS compared to the open approach (10). The fact that there were six cases of postoperative morbidity, including four with ACS, and a death indicates that LC is no panacea. It is recommended that measures known to reduce postoperative morbidity in SCD be employed in LC patients including avoidance of dehydration, adequate oxygenation, perioperative antibiotics and selective transfusion (11, 12).

Common bile duct stones known to be present in 30%–44% of Jamaican patients with SCD at cholecystectomy (5) are now extractable by preoperative ERCP, avoiding the need for intra-operative cholangiography at LC and removing the possibility of retained stones in the postoperative period (13, 14).

Conversion to open cholecystectomy in four of the 16 cases is above expectation. Conversion was reported in seven of 100 Jamaican patients subjected to LC in a previous study (15). This high conversion rate was linked to difficulties in defining anatomical relations at Calot's triangle caused by extensive scarring and inflammation. This was noticed particularly in patients who had had several previous hospitalizations due to acute exacerbations of cholecystitis. Identifying cases of early cholecystitis should lead to reduced conversion rates. Routine use of radioimino-acetic scans in symptomatic patients is one method that may assist in this objective.

This report on the early UHWI experience with LC in SCD mirrors very closely the first Jamaican report on open cholecystectomy in these patients (2) and points to what may be early stages on the learning curve with this modality. It also underlines the unique and unpredictable challenges posed by these patients with morbidity and mortality being high despite meticulous medical care. The authors hold the view that open cholecystectomy is still an acceptable option in SCD patients and support early conversion to an open

procedure if anatomy is obscure or dissection is difficult in the region of Calot's triangle, especially in patients with multiple prior admissions for cholecystitis.

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