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Clinical Observations in Patient with Triple Laparoscopic Surgery for Gastric Carcinoma, Chronic Calculus Cholecystitis, and Bilateral Incomplete Direct Inguinal Hernia at a Tertiary Hospital in Bangladesh

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Abstract **Case Report**

Background: Laparoscopic cholecystectomy is now the gold standard approach for treating cholelithiasis. Compared to open surgery, triple laparoscopy, which addresses stomach carcinoma alongside chronic calculus cholecystitis and bilateral direct incomplete inguinal hernia, may offer enhanced effectiveness and convenience for patients. This study aimed to evaluate the clinical findings of patients with stomach carcinoma, chronic calculus cholecystitis, and bilateral direct incomplete inguinal hernia who underwent triple laparoscopic surgery. But the application of triple laparoscopic surgery is very rare. In this study, we have disseminated the clinical findings of a 70 year's male patient who underwent triple laparoscopic surgery for the management of stomach carcinoma with chronic calculus cholecystitis and bilateral direct incomplete inguinal hernia. This case study was conducted in the Department of General & Laparoscopic Surgery, Evercare Hospital, Dhaka, Bangladesh during the period from *26 August 2020 to* 5 September 2020. As the clinical data, the mean (±SD) values of 3 post-operative readings were accumulated to minimize the possible error. W*e can* conclude that electrolyte status may remain normal in such patients but, dry mouth, vomiting, abdominal distension, poor appetite, poor sleep soundly and loose stools may be considered as some very common symptoms for such cases. Triple laparoscopic surgery is an effective treatment procedure in the management of stomach carcinoma with chronic calculus cholecystitis and bilateral direct incomplete inguinal hernia.

Keywords: Clinical findings, Stomach carcinoma, Calculus cholecystitis, Bilateral direct hernia, Triple laparoscopy.

1. INTRODUCTION

Bilateral direct incomplete inguinal hernia presents a frequent challenge in general surgery, often accompanied by significant complications [1]. Globally, inguinal hernias account for approximately 75% of all abdominal wall hernias, with bilateral direct incomplete inguinal hernia repair ranking as a common surgical procedure [2, 3]. It represents 10%- 15% of all surgical interventions and stands as the second most prevalent surgery following appendicectomy [4]. It is estimated that over 20 million inguinal hernia repairs are performed annually worldwide [5]. In the context of gastric cancer, the role of laparoscopy is rapidly evolving, particularly in the United States. Previous studies have highlighted the operative and postoperative advantages of laparoscopic gastrectomy (LG) for patients [6- 8]. Preliminary data suggests that LG yields mortality and morbidity rates similar to those of traditional open approaches for gastric cancer management [9, 10]. Globally, cholecystitis affects one-third of women and one-fifth of men, with approximately half of these cases exhibiting symptoms [11]. Gall bladder diseases do not discriminate by age and are more prevalent in individuals in their third, fourth, and fifth decades of life [12]. The advent of laparoscopic cholecystectomy in the 1980s has established it as the gold standard for treating cholelithiasis [13]. Its numerous advantages, including reduced postoperative pain, minimal surgical trauma, shorter hospital stays, improved cosmetic outcomes, lower wound infection rates, quicker resumption of daily activities, and cost-effectiveness, have solidified its popularity [14]. Laparoscopic cholecystectomy is among the most widely performed surgical procedures globally, with fewer than 15% of cholecystectomies performed via open cholecystectomy [15, 16]. To minimize the risk of structural damage during laparoscopic cholecystectomy, a comprehensive understanding of the porta hepatis and Calot's triangle anatomy is imperative before ligating

any structures [17]. Several preoperative factors have been identified as increasing the risk of conversion to open cholecystectomy, including male gender, advanced age, obesity, acute cholecystitis, elevated leukocyte counts, and a history of endoscopic retrograde cholangiopancreatography [18]. Preoperative assessment plays a pivotal role in predicting surgical challenges and the likelihood of conversion from laparoscopic to open cholecystectomy [19, 20]. While surgeon-related factors, patient characteristics, and equipment malfunctions can contribute to conversion in laparoscopic cholecystectomy, the most common cause is often attributed to the obscured Calot's triangle, unclear critical view of safety anatomy, or difficulties in dissection. Intraoperative complications such as bile duct injuries, bleeding, and intestinal perforations can also necessitate conversion [21, 22]. This study's primary objective was to assess the clinical, demographic and laboratory findings of patients with stomach carcinoma, chronic calculus cholecystitis, and bilateral direct incomplete inguinal hernia who underwent triple laparoscopic surgery.

2. CASE PRESENTATION

Our study subject was a male patient with gastric carcinoma, chronic calculus cholecystitis and bilateral direct incomplete inguinal hernia who underwent triple laparoscopic surgery. The age of the participants was 70 years. His appearance was normal and his nutritional status was good. Anemia, jaundice, clubbing or dehydration was absent. Diabetes mellitus (DM) and ischemic heart disease (IHD) were 2 comorbidities in him. As the histologic type adenocarcinoma and as the pathologic staging primary tumor was identified in this case. In assessing the red blood cell status of the participant, we observed that the mean values, red cell distribution width (RDW-SD), red cell distribution width (RDW-CV) and WBC count were within the normal ranges. The granulocytes of WBC levels of neutrophils (68.5 ±6.4), lymphocytes (19.2±3.6) and monocytes (6.5±0.7) were found abnormal. Besides, as the mean absolute values of granulocytes of WBC, monocytes (0.7±0.2) and eosinophils (0.1±0.1) were abnormal. All the mean electrolyte statuses were in the normal range.

Table 1: General information of the patient

Characteristics	Description
Age	70 years
Gender	Male
Co-morbidity	DM, IHD
Appearance	Normal
Nutritional status	Good
Anemia	Absent
Jaundice	Absent
Clubbing	Absent
Dehydration	Absent
Inspection	Normal in shape, not distended, umbilicus-central
Palpation	Soft, nontender, No ascites, no organomegaly
Percussion	Tympanic
Auscultation	Bowel sound present

Table 2: Microscopic description of the patient

Characteristics	Description
Histologic type	Adenocarcinoma
Lauren Classification	Intestinal
WHO Classification	Tubular cohesive carcinoma
Histologic grade	Moderately differentiated (Grade 2)
Microscopic extension	Tumor invades muscularis propria
Proximal resection margin	Uninvolved
Distal resection margin	Uninvolved
Omental margin	Uninvolved
No. of LN examined	4
No. of LN showing metastasis	2
Extra nodal extension	Present
Lymph vascular invasion	Present
Perineural invasion	Not identified
Tumor necrosis	Absent
Findings	Primary tumor

Table 3: Red blood cell status of the participant

Characteristics	Unit	Mean ±SD
Haemoglobin (HB)	gm/dl	9.8 ±3.1
RBC count	$10^{\wedge 12}$/L	4.3 ±0.2
Packed cell volume (PCV)	%	32.4 ±4.7
Mean corpuscular volume (MCV)	fl	76.7 ±11.4
Mean corpuscular hemoglobin (MCH)	pg	21.3 ±3.6
Mean corpuscular hemoglobin concentration (MCHC)	%	42.5 ±7.1
Red cell distribution width (RDW-SD)	fl	42.8 ±6.5
Red cell distribution width (RDW-CV)	%	13.2 ±2.9
WBC count	10^9/L	7.8 ±1.2

Mean value had been considered on different date wise investigation test.

Table 4: Status of granulocytes of WBC of the participant

Characteristics	Unit	Mean ±SD
Neutrophils	%	68.5 ±6.4
Lymphocytes	%	19.2 ±3.6
Monocytes	%	6.5 ±0.7
Eosinophils	%	2.1 ±0.1
Basophils	%	0.1 ±0.1

Mean value had been considered on different date wise investigation test.

Table 5: Absolute values of granulocytes of WBC of participant

Characteristics	Unit	Mean ±SD
Neutrophils	$10^{\wedge 9}$	4.8 ±1.7
Lymphocytes	$10^{\wedge 9}$	1.3 ±0.6
Monocytes	$10^{\wedge 9}$	0.7 ±0.2
Eosinophils	$10^{\wedge 9}$	0.1 ±0.1
Basophils	$10^{\wedge 9}$	0.01 ±0.01
Platelet count	$10^{\wedge 9}$	241.3 ±23.4
Mean platelet volume (MPV)	fl	11.1 ±2.7
Platelet distribution width (PDW)	fl	12.9 ±2.4

Mean value had been considered on different date wise investigation test.

Table 6: Electrolyte status of the participant

Characteristics	Unit	Mean ±SD
Sodium (Na+)	m mol/L	137.5 ±22.7
Potassium (K+)	m mol/L	4.3 ±0.6
Chloride (Cl-)	m mol/L	99.8 ±19.4
Bicarbonate (HCO3-)	m mol/L	27.3 ±6.5

Mean value had been considered on different date wise investigation test.

4. DISCUSSION

Our study subject was a male patient with stomach carcinoma, chronic calculus cholecystitis and bilateral direct hernia who underwent triple laparoscopic surgery. The age of the participants was 70 years. In assessing the red blood cell status of the participant, we observed that the mean values, red cell distribution width (RDW-SD), red cell distribution width (RDW-CV) and WBC count were within the normal ranges. The granulocytes of WBC levels of neutrophils (68.5±6.4), lymphocytes (19.2±3.6) and monocytes (6.5 ±0.7) were found abnormal. Besides, as the mean absolute values of granulocytes of WBC, monocytes (0.7±0.2) and eosinophils (0.1±0.1) were abnormal. Worldwide, gastric cancer is the 3rd leading cause of cancer death and the 5th most common cancer [23]. Even though there is a steady decline in incidence and mortality during recent years, an estimated 1,000,000 patients were newly diagnosed and >783,000 patients died from gastric cancer in 2018 [24]. A recent study reported that the increasing rates of gastric cancer among people <50 years old might reverse the overall decline in the incidence of gastric cancer [25]. Until the year of 1994, Kitano first described the efficacy of laparoscopy gastrectomy in the case of only early-stage carcinoma in the antrum of the stomach [26]. Then, the employment of laparoscopy gastrectomy for gastric cancer has achieved rapid development and popularity in the past decades because of less blood loss, minimal invasion, less time of using analgesics and quicker recovery [27]. Another potential benefit of laparoscopic surgery is the capacity to observe the surgical field in magnified views, which could help surgeons with more meticulous dissection of lymph nodes that is important to the

patient's prognosis [28]. Previous studies reported a decreased number of harvested lymph nodes for gastric patients during LG compared with OG [29]. His appearance was normal and his nutritional status was good. Anemia, jaundice, clubbing or dehydration was absent. Diabetes mellitus (DM) and ischemic heart disease (IHD) were 2 comorbidities in him. As the histologic type adenocarcinoma and as the pathologic staging primary tumor was identified in this case. All the findings of this current study may be helpful in further similar studies.

5. CONCLUSION & RECOMMENDATION

In light of the findings from this study, several key conclusions can be drawn. Firstly, it appears that advanced age, particularly in males, may represent a significant risk factor for the confluence of stomach carcinoma, chronic calculus cholecystitis, and bilateral direct incomplete inguinal hernia. Additionally, our observations highlight that electrolyte imbalances are not a consistent feature in these patients. Instead, characteristic symptoms such as dry mouth, vomiting, abdominal pain, abdominal distension, poor appetite, weight loss, disrupted sleep patterns, and loose stools emerge as common clinical indicators for this multifaceted condition. Furthermore, our study underscores the effectiveness of triple laparoscopy as a viable treatment modality for individuals grappling with this complex amalgamation of medical issues.Triple laparoscopy is effective in the management of stomach carcinoma with chronic calculus cholecystitis and bilateral direct incomplete inguinal hernia. The preconception regarding the clinical status of such cases may be helpful for the surgeons in managing such cases by triple laparoscopic surgery. For getting more specific results, we would like to recommend conducting similar studies in several places.

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