CASE REPORTS

Massive Reactionary Haemorrhage Due to Superior Mesenteric Artery Blowout Following Laparoscopic Biopsy of Retroperitoneal Mass - A Case Report

Rathnaweera W.S.[1], Galketiya K.B.[2]
[1]*Teaching Hospital, Peradeniya.*
[2]*Department of Surgery, Faculty of Medicine, Peradeniya.*

Abstract

Thermal injury on vascular walls can result in delayed rupture of vessels. This can be a cause of life threatening reactionary haemorrhage. Increasing use of energy devices in laparoscopic surgeries can rarely result in such events which may have devastating consequences. Careful usage of these heat generating energy sources can prevent such incidences and prompt resuscitation and haemorrhage control are lifesaving. We present a case report of a severe haemorrhage from blow out of superior mesenteric artery following laparoscopic para-aortic lymph node biopsy.

Introduction

Intra-abdominal hemorrhage is a common cause of hypovolemic shock in the post-operative period following abdominal surgeries.[1,2] Delay in resuscitation and control of bleeding can be life threatening. Reactionary haemorrhage following laparoscopic abdominal surgeries can be due to several causes which were not seen in open surgical era such as opening up of bleeders which had been concealed by the tamponade effect of pneumoperitoneum, slipped clips and effects of thermal injury on vessel walls.[1,2] We report a case of life threatening reactionary intra abdominal bleeding after laparoscopic biopsy of an abdominal mass, possibly due to thermal effects on arterial wall.

Case History

A 40 year old male presented with intermittent left sided upper abdominal pain radiating to back for 3 months duration. Examination revealed a non tender vague mass in the left hypochondriac region. His ultrasound scan showed 3.4 cm x 4.1 cm sized Para-aortic mass related to the pancreas. Contrast enhanced computer tompgraphy CECT of the abdomen revealed a lymph node mass inferior to the pancreatic tail adjacent to left renal artery and superior mesenteric artery. No other masses or evidence of a primary lesion was seen and the possible diagnosis was a lymphoma.. Patient underwent laparoscopic lymph node biopsy in right lateral position, with a

camera port and 4 working ports. Splenic flexure and the descending colon were mobilized exposing the retroperitoneum. Left kidney, renal vein, renal artery, aorta, superior mesenteric artery and the tail of the pancreas were defined by dissection with ultrasonic dissector and bipolar diathermy forceps. The intended biopsy from the soft tissue mass was performed, haemostasis was confirmed. No drains were placed. By the evening of the same day, the patient was mobilized and started on oral feeding. Pain was managed with oral paracetamol and diclofenac sodium. The patient was planned to be discharged home after 48 hours. At 36 hours from initial surgery he suddenly got severe abdominal pain and distension with hypovolaemic shock. Immediate crystalloid infusion, blood transfusion and exploratory laparotomy were performed. A 3.5 l haemoperitoneum from a blowout of superior mesenteric artery about 1 cm from its origin was identified. Initial control was achieved with compression and later with vascular clamps. A 50% arterial wall blow out was noted and repaired with 6/0 polypropylene and complete control of haemorrhage was achieved.

Patient was managed in the intensive care unit ICU for 3 days with transfusion of blood and blood products, during his hospital stay he acquired a pneumonia which required intra venous antibiotics and ultrasound guided drainage of pleural effusion. He recovered completely and was started on normal diet on day 3 and discharged on 18th day from initial surgery.

Operative photograph of the area of dissection
L RA = Left renal artery,
SMA = superior mesenteric artery

Discussion

Laparoscopy is an excellent minimal access tool for biopsy of retroperitoneal tissue as it avoids the morbidity of otherwise required large abdominal incisions. However it has its own complications like in this case. Extensive use of energy devices which generate heat can result in rare complications such as lateral thermal damage to surrounding structures like what our patient had.

Dissections in the retroperitoneum and in the para-aortic region were carried out using ultrasonic and bipolar diathermy devices. The active blade can reach up to 80 degrees Celsius which can desiccate tissues even at a short range of distance. Adventitial desiccation of the SMA during the dissection might have weaken the arterial wall and resulted in blowout due to its relatively high pressure. Due to retroperitoneal dissection, the tamponade effect of retoperitoneum is lost which resulted in sudden bleed in to the peritoneal cavity. It is unlikely that pneumoperitoneum of 12 cm H_2O had masked otherwise overt arterial bleeding

during the operation. Being aware of possible reactionary bleeding like this, prompt resuscitation and intervention are lifesaving.

Literature about these possible effects of ultrasonic and bipolar devices is scarce[3]. Further study about tissue effects of these new energy devices need to be taken in to attention, even though these types of incidences are rare.

Conclusions

Laparoscopy is an excellent minimal access tool for abdominal surgery however the increasing use of energy devices can have their own complications. The tissue effects of ultrasonic devices and diathermy devices need further attention and studies to understand and prevent post-operative catastrophes.

References

1. Robin Kaushik, Bleeding complications in laparoscopic cholecystectomy: Incidence, mechanisms, prevention and management, J Minim Access Surg. 2010 Jul-Sep; 6(3): 59-65.
2. Mark Erian,, MD, Glenda Mc Laren, Akram Khalil; Reactionary Hemorrhage in Gynecological Surgery;JSLS. 2008 Jan-Mar; 12(1): 81-84.
3. Ganesh Sankaranarayanan, Rajeswara R. Resapu, Daniel B. Jones, Steven Schwaitzberg, Suvranu De; Common Uses and Cited Complications of Energy in Surge;Surg Endosc. 2013 Sep; 27(9): 3056-3072.ry