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CASEBOOK – GENERAL SURGERY

Abdominal Aortic Aneurysm in the High-Risk Patient

- The incidence of abdominal aortic aneurysm IS increasing as the population ages and more people are being diagnosed with this disease in their eight and ninth decades. In major vascular centers the mortality rate associated with elective repair in most patients is low (2 to 5%). A subset of patients (20 to 30%) may be classified as high surgical risk based on concomitant medical illnesses usually associated with aging. In these patients the indications for, as well as the approach to repair of infrarenal aortic aneurysms has to be modified. The decision to operate remains a delicate balance of risk and benefit. The factors that influence this balance and modifications in surgical approach are reviewed.

Adhesive small bowel obstruction: trial of non-operative management?

- The most common cause Of small bowel obstruction has changed from obstructed inguinal hernia in the early decades of this century to post operative intraabdominal adhesions in the latter decades (McEntee G, 1987). There is a place for initial non-operative management in patients with small bowel obstruction secondary to post operative adhesions as in some series up to 80% will resolve without surgery. The decision for surgery versus continued conservative management often faces the general surgeon and in cases of incomplete obstruction may be a difficult one to make. A definite, scientifically based approach to these patients is necessary in order to optimize outcome for the patient and to avoid inconsistency and vacillation in their management.

Management of Common Bile Duct Stones

- Arguably, no area of general surgery has been more dramatically transformed in the last two decades by technological advancements, as that of biliary surgery for calculus disease. Formerly, the treatment of symptomatic common bile duct stones (CBDS) was by open choledochotomy and common bile duct (CBD) exploration using a variety of stone retrieval instruments. After open choledochotomy, the options available were to either close the duct primarily, leave a T-tube drain insitu or to perform a choledochoduodenostomy or choledochojejunostomy. When re-operating for retained duct stones access may be gained to the common bile duct via a transduodenal sphincteroplasty, especially if adhesions making direct access to the CBD difficult and hazardous. The introduction of endoscopic sphincterotomy, shock wave lithotripsy, laparoscopic and interventional radiological techniques have multiplied the options as well as blurred the distinctions as to what constitutes optimal management. Studies using the newer techniques have demonstrated significant learning curves factors

influencing their effectiveness. What constitutes optimal management has to take into account not only the latest scientific evidence from the many emerging studies, but also the level of locally available expertise with these techniques. During the period at our local hospital when the two cases presented below were managed, neither endoscopic nor laparoscopic techniques for accessing the common bile duct were available. This simplified the choices, but as in all biliary surgery, there is a low tolerance for error.

Deep Venous Thrombosis in the Surgical Patient a place for Caval Filters?

- Deep vein thrombosis (DVT) IS a common and often-overlooked complication in the hospitalized surgical patient, which if ineffectively managed may result in significant suffering or death. It is estimated that in the United States of America more patients die from pulmonary embolism (PE) than from breast cancer. The cause of mortality is massive pulmonary thromboembolism and a major aim is to prevent this from occurring. Prevention is the best policy, but when DVT is diagnosed, anticoagulation is the standard treatment. Morbidity may be significant as up to 25% of patients develop a postthrombotic syndrome. Unfractionated heparin followed by oral anticoagulants for three to six months prevents pulmonary embolism in 95% of patients with proximal deep-vein thrombosis. The generally accepted indications for venacaval filter placement are restricted to contraindications to, or failure of, anticoagulant therapy. Caval interruption with intracaval filters became available in the early 1970's, and best figures suggest a 95% protection rate from pulmonary embolism. The detection and treatment of DVT in the surgical patient is reviewed and the indications and use of IVC filters discussed.

Laparoscopic Cholecystectomy

- The North American gold-standard technique in 1998 for surgically removing the gallbladder in symptomatic gallstone disease is laparoscopic cholecystectomy (LC). This situation has developed in less than a decade since its introduction in 1988. This revolution caused by laparoscopic surgery has been made possible by the tremendous advances in instrumentation that have taken place since 1986(Bhojru S, 1995). The majority of cholecystectomies done in Jamaica in 1998 are still done using the open approach. This is probably due to the unavailability of the equipment and expertise for LC in most hospitals. The trend towards laparoscopic cholecystectomy will undoubtedly continue, as there are a number of documented benefits of this procedure over open cholecystectomy (OC). In adopting this method of cholecystectomy one has to be aware of the need for proper training of surgeons as there is a significant learning curve affecting complications.

Locally Recurrent Rectal Cancer

- Local recurrence rate for rectal cancer ranges between 2% and 32% in different series, averaging 12%. Locally recurrent rectal cancer poses a very challenging problem for both patient and surgeon. Most patients are not treated surgically and die slowly with isolated pelvic disease. Although more than 50% of these patients have disease that is technically amenable to surgical resection most cases of locally recurrent rectal cancers

are usually considered inoperable. It is important to achieve adequate primary surgical and adjuvant treatment in order to minimize the chances of this difficult problem arising. Some authors suggest that repeat resection combined with aggressive reconstruction, is beneficial in these patients with isolated local recurrence (Sagar PM, 1996). Others support the more conventional thinking that the prognosis of locally recurrent rectal cancer is dismal despite surgical resection (Bozzetti F, 1997). Despite this controversy the only hope for a cure at best and in many cases palliation at worst, is surgical resection. The extent of resection varies according to the location of the recurrence. A case of locally recurrent rectal cancer managed by surgical resection is presented and relevant literature is reviewed and discussed.

Obstructing Colon Cancer

- Malignant obstruction of the colon is most commonly due to a primary adenocarcinoma and Occurs more often on the left side of the colon than on the right. The optimal treatment of left-sided obstructing lesions is controversial whereas there is consensus on the treatment of cancer causing right sided and transverse colonic obstruction. Surgical treatment of obstructing left side colon cancer has undergone significant changes in the last few decades and continues to evolve. The classical approach to obstructing left sided colon cancer is the three-stage approach of proximal decompressing colostomy, followed by resection of the tumor, then later closure of the colostomy. This gave way in large part to the two-stage procedure of resection and end colostomy at the first operation followed by closure of colostomy later. The present trend is the transition to a single stage operation. The options are subtotal colectomy plus primary ileocolic/rectal anastomosis and segmental resection with on the table bowel irrigation and primary colocolic/rectal anastomosis. Some surgeons continue to favor the two-staged Hartmann's procedure for these difficult situations. Scientific evidence available for comparing these options is discussed.

Primary Hyperparathyroidism

- Parathyroid surgery is almost invariably undertaken to correct primary overproduction of parathyroid hormone by one or more of the parathyroid glands. Once considered an uncommon condition its incidence has risen significantly because of increased detection of mild and asymptomatic case. The clinical features of primary hyperparathyroidism vary in spectrum from being asymptomatic to severe hypercalcemia and its consequences of recurrent bilateral renal calculi, peptic ulcer disease, and pancreatitis. The causes of primary hyperparathyroidism include adenoma (single or multiple), hyperplasia, and rarely, carcinoma of the parathyroid gland. The objective of treatment is to permanently correct the hyperparathyroid state with one operation without causing hypoparathyroidism or recurrent laryngeal nerve injury and at the same time minimizes the duration, cost and cosmetic defect of the procedure. Recent development in preoperative localization techniques has facilitated successful unilateral exploration in the majority of cases where the pathology is in a single gland. The threshold for surgery has fallen significantly to include those patients who suffer very mild symptoms and may even be normocalcemic. With newer localization techniques and intraoperative

parathyroid hormone assays, the view that the most important factor in successful treatment is the availability of an experienced parathyroid surgeon may be questioned. Three cases of primary hyperparathyroidism are presented, and the questions of preoperative localization and unilateral neck exploration reviewed.

Perihepatic Packing in Liver Trauma

- Despite improvements in resuscitation and life support systems, mortality rates of approximately 30 per cent still occur in patients with complex liver injuries following blunt trauma. This is due largely to uncontrolled haemorrhage from major parenchymal, juxtahepatic venous injury or transfusion-induced coagulopathy (Feliciano, 1986). When judiciously used perihepatic packing for the control of bleeding can be a useful tool to help salvage some of these high-risk patients. This may be even more applicable in situations where the unavailability of crossmatched blood or blood products in adequate volumes adds a further constraint to this already difficult situation. Two cases managed by the author are presented and a discussion follows with reference to the relevant literature. A third case of a grade V liver injury with a poor outcome is presented for contrast and to demonstrate the problems associated with such cases made worse by inadequate amounts of available blood and blood products.

Peripheral Vascular Disease in the Diabetic Patient

- Chronic arterial insufficiency of the lower limb is a well-described complication of advanced atherosclerosis. This problem is further complicated in the diabetic patient because of the greater prevalence and severity of the process as well as associated peripheral neuropathy and impairment of the immune system. The misconception that diabetics suffer from small vessel occlusive disease has led to a nihilistic approach by some surgeons to the management of critical limb ischemia in these patients. The fact that the distribution of 'large vessel disease' is somewhat different in the diabetic patient has made the traditional femoropopliteal bypass technique less likely to correct the problem in a number of diabetics. This has led to the reinforcement of the pessimistic view that still exists among some surgeons. With the development of distal bypass techniques to vessels in the calf and foot, the limb salvage rate has improved dramatically. The current literature supports an approach to chronic arterial insufficiency in the diabetic patient that follows similar principles as in the case of the non-diabetic with an increased focus on the aggressive management of infection. When this is done, similar limb salvage rates may be expected as in the non-diabetic patient. A case is presented and critically reviewed.

Pheochromocytoma

- Pheochromocytoma is an uncommon catecholamine-secreting tumor that arises from the chromaffin cells of the sympathoadrenal system. Treatment by surgical excision is usually curative and has improved significantly due to advances in preoperative localization and preoperative preparation of the patient. The surgical approach has also changed as a consequence of these advances. The mortality rate associated with these tumors has reduced significantly to the present level of less than 1% in some centers.

Malignant pheochromocytoma in a sickler is an extremely rare condition. Such a patient is presented and relevant literature reviewed.

Adult Rectal Prolapse

- Rectal prolapse is an uncommon condition that occurs at the extremes of age. In the pediatric population it is usually diagnosed by age 3yrs and there is an equal gender distribution. In the adult, it occurs most commonly after age 50yrs, and women comprise greater than 80% of these patients (Nivatvongs S, 1997). The exact incidence of this condition is unknown. There are a multitude of surgical procedures described for its treatment. As is usually the case when so many treatment options exist none is without significant disadvantages. The most commonly applied procedure at the University Hospital of the West Indies is the Thiersch procedure because of its relatively non-invasive nature, and the usually elderly frail patients. The failure rate of this procedure is high and most current surgical texts relegate this form of treatment to the history books. After recurrent failure of thiersch procedure in an elderly patient, a Ripstein rectopexy was done with good effect. This patient is presented and the literature on the topic discussed.

Traumatic Retroperitoneal Hematoma

- Retroperitoneal hematoma (RH) secondary to trauma is relatively common in major trauma centers. In most cases, the management of these patients is dictated in large part by concomitant injuries. The management of the RHs however, continues to be the source of some controversy. This is largely due to the varying nature of the injury causing the hematoma as well as the development of new techniques for imaging the retroperitoneal structures, and managing subsets of patients without surgery. Appropriate protocols for management of traumatic RH has to take into account the local availability of various facilities that are not universally available.

Severe Intra-abdominal Infection

- Severe Intra-abdominal Infection (IAI) may be defined as an infection of the peritoneal cavity that has exceeded the patient's ability to contain it leading to diffuse, persistent and frequently lethal forms of bacterial peritonitis. The general rules for managing these infections have long been known and includes. 1) Appropriate and early resuscitation of the patients cardiovascular and respiratory systems. 2) Surgical control of the infective process. 3) Administration of suitable antimicrobial therapy. 4) Continued postoperative support of major organ systems and provision of adequate nutrition if necessary. Significant variables that independently affect mortality in severe intra-abdominal sepsis are serum albumin level, APACHE II score on admission, and cardiovascular reserve. There are various surgical techniques and management principles that have been developed over the years in an effort to improve outcome. Aggressive surgical approaches include 1) Repeated/Planned re-laparotomies, 2) The open abdomen/Laparostomy technique and 3) The semiopen technique using prosthetic material for temporary abdominal closure. Despite these aggressive modalities

combined with powerful antimicrobials, intensive monitoring and organ system support, mortality remains high.

Portal Hypertension and Variceal Bleeding

- The only real cure for portal hypertension secondary to liver disease is liver transplantation and any other attempt to treat the problem is associated with transient benefits and/or significant complications. This statement may very well be argued from either side. Chandler's view (Chandler JG, 1993) is appropriate when he states that, "The history of the surgical treatment of portal hypertension is pockmarked by abbreviated observation of small series and sometimes resounding pessimism, but sporadic successes with refurbished by once abandoned procedures, have kept it going".
- The optimal treatment for bleeding esophageal varices has no single answer for all patients. There are still a lot of unanswered questions with regard to what constitutes optimal management. The most important a myriad of techniques, and occasional innovation factors in the effective management of this difficult problem is proper patient selection for the appropriate treatment option at the right time. Despite its detractors there still seems to be a place for porto systemic shunting in managing bleeding varices. The advocates of the various treatment options have their own biases, but there is a core of principles which most will support. A patient managed with a central porto systemic shunt is presented and discussed. The pros and cons of shunting procedures in these patients is reviewed.

Axillary Status in Breast cancer

(The case for sentinel lymph node biopsy)

- The most widely accepted options for the local regional treatment of curable breast cancer are modified radical mastectomy and breast conservation surgery (lumpectomy with axillary dissection plus breast radiotherapy). The most recent consensus statement of the National Institute of Health on the treatment of early-stage breast cancer support these options (NIH Consensus Statement Panel, 1990). Both include axillary dissection, which adds significantly to the morbidity, duration and cost of breast cancer treatment. The value of the axillary dissection is considered to be threefold,
 - 1) To provide prognostic information,
 - 2) To enhance local regional control,
 - 3) To Guide adjuvant treatment.

The gold standard for determining axillary status is total axillary lymph node dissection (TALND) also called axillary clearance. There is significant cost, morbidity and possible long-term complications associated with axillary clearance. There is consensus that axillary clearance does not benefit patients with a pathologically negative axilla. This position however has not been formally tested by prospective randomized trials, There arises a dilemma out of the need to accurately stage the axilla and at the same time avoid the cost and morbidity of an unnecessary axillary clearance. Various techniques have been devised in an attempt to achieve this and new ones are even now being developed. The technique of sentinel node biopsy that is emerging is favored by this author and is discussed. If accurate axillary staging can be obtained without axillary

clearance, then the latter can be reserved for node positive axillae. This would avoid the cost and morbidity of axillary clearance in up to 70% of patients With early breast cancer without compromising treatment.

Traumatic Arteriovenous Fistula

- An acquired arteriovenous fistula (A VF) is a relatively uncommon clinical entity compared with other forms of vascular pathology encountered by the vascular or general surgeon (Trout III HH, 1995). It is most commonly secondary to trauma and usually develops because of missed or inappropriately managed vascular injury. With the increasing popularity of non-operative management of penetrating abdominal and pelvic trauma (Velmahos GC, 1998), the incidence of central traumatic arteriovenous fistulas may arguably be expected to increase. Appropriate protocols for managing traumatic retroperitoneal hematomas need to be followed to reduce complications from occult vascular or organ injury (Feliciano DV, 1990). Major arteriovenous fistulas occurring in central locations carry significant morbidity and these worsen as the fistula matures and collaterals develop. The optimal surgical management of AVFs is direct excision of the fistula while maintaining vessel continuity by vascular repair or reconstruction. In difficult cases associated with large false aneurysms, endoaneurysmorrhaphy may be the best way to achieve this end. Compromise of this principle may lead to recurrence of the fistula or impairment of distal circulation. A case of a traumatic iliac AVF is presented which demonstrates some important lessons in the management of these challenging lesions.

The Rapunzel Syndrome: a special case of trichobezoar

- Trichobezoars are very uncommon problems that present to the surgeon relatively late in their natural history when they have attained a significant size large enough to become symptomatic. They usually present with vague abdominal symptoms, weight loss, and a long history of trichophagia. A very mobile epigastric mass may be found on examination and the diagnosis is usually confirmed by a barium meal radiograph. They may present with various complications two of which are seen in the case presented; 1) The Rapunzel Syndrome, and 2) Intussusception. Adequate treatment of trichobezoars usually requires laparotomy. Contrary to expectations based on the fact that the patients usually have some sort of psychiatric imbalance, the recurrence rate is quite low, especially in children.

The Solitary Thyroid Nodule

- Nodular thyroid disease is the most common reason why a patient presents to the thyroid surgeon. Management strategy of the solitary thyroid nodule has been significantly affected by the increased acceptance and proven accuracy and reliability of fine needle aspiration cytology (FNAC). Most thyroid surgeons presently use FNAC as the first line investigation in planning further management for the euthyroid patient. This strategy has reduced the number of unnecessary operations performed on the thyroid gland, and when appropriately used does not worsen patient outcome by missing malignant lesions. Proper technique in performing the aspiration is as important as the

expertise of the cytopathologist who interprets the slide. Understanding its limitations enhances overall safety and efficiency of the 'FNAC first' approach to the management of the solitary thyroid nodule.

Early Gastric Cancer

- Gastric cancer although declining in incidence in most areas of the world, continues to have a poor outcome despite advancements in treatment on a number of fronts. Radical surgery is the mainstay of treatment. Classical enbloc resection for cure includes part or all of the stomach and associated regional lymph nodes along with any adherent contiguous organ. The optimal extent of lymphadenectomy has been the subject of much debate and research. The Japanese routinely perform enbloc D2 lymphadenectomy, and have demonstrated improved results with this technique. Although their results are not consistently reproduced in the rest of the world, this aggressive approach is increasingly becoming accepted as the gold standard of surgical treatment. There is a dramatic difference in the outcome and prognosis of early gastric cancer (EGC) as compared to advanced gastric cancer. Significant proportions of EGCs are node negative and do not benefit from extended lymphadenopathy. An area of active debate is thus whether D2 dissection should be done for early gastric cancers routinely, or on a selective basis, or not at all. An avenue for significant improvement in outcome lies in enhancing early detection by adopting an aggressive policy of early endoscopy for patients with dyspeptic symptoms. A case of a prepyloric lesser curve EGC is presented with a rare but interesting postoperative complication. The current state of the management of EGC is reviewed.