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Cautery

The development of the cautery in the first part of the past century made the most significant contribution to surgical patient care. The cautery was developed by Bovie and Cushing to heat tissue and control bleeding during operative procedures. The cautery uses electricity to generate heat and as such follows the path of least resistance always seeking to return to an electron reservoir like the ground. The most common current use by electrosurgery generators (cautery) in the operating room is alternating current (AC). Two most common types of cautery use in the operating room are the monopolar and bipolar. Monopolar cautery concentrates greater current, creates more tissue heat, hence produces greater coagulation and charring than bipolar cautery. Electrosurgical generators can produce current in three different modes: cut, fulguration and dessication. With minimal settings in the generator the cut mode can produce a clean tissue cut similarly to the scalpel with the advantage of minimal surrounding hemostasis. Tissue fulguration is obtained with the coagulation mode in the generator producing a greater area of charring than cut. Using either the cut or coagulation mode in the generator you can produce tissue desiccation. The real issue of patient burning safety was ameliorated with the use of patient return electrodes employing a contact quality monitoring split pad system whereby an interrogation current constantly monitors the quality of the contact between patient and return electrode.

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Pseudomyxoma Peritonei

Pseudomyxoma peritonei (PMP) is a condition characterized by mucinous ascites and implants throughout the abdominal peritoneal cavity. Most patients develop pseudomyxoma peritonei after rupture of a low grade mucinous adenocarcinoma tumor of the appendix. Other less likely pathogenetic sites include ovary and pancreas. PMP is a disease of MUC2-expressing goblet cells. Diffuse peritoneal spread occurs in most patients with pseudomyxoma peritonei while distant metastasis are infrequent. Management of PMP consist of extensive cytoreductive surgery and peri-operative intraperitoneal radioisotopes

and/or hyperthermic chemotherapy. Adverse predictors of patient survival included weight loss, abdominal distention, use of systemic chemotherapy, diffuse disease, and invasion of other organs. Intraperitoneal chemotherapy and radioisotopes are effective in prolonging the recurrence time of symptomatic PMP. Prognostic factors for survival included the completeness of cytoreduction, the histopathological character of the appendix malignancy, and the extent of previous surgical interventions. Tumor marker CA19.9 is useful in evaluating therapy and a prognostic factor for predicting recurrent disease in PMP.

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Vascular Access Complications

Central venous access in children is a necessity for drawing blood, administering blood products and chemotherapeutic agents, and providing parenteral nutrition. Access through the various sites such as the internal and external jugular veins, subclavian and saphenous vein can be plague of complications. Immediate complications at the time of the procedure includes failure to achieve successful access, pleural laceration with pneumothorax development, laceration of the vein with hemothorax, shock, and extravascular placement of the catheter leading to infection, airway compression and pericardial tamponade. Unless you do the procedure fluoroscopically, it is imperative to obtain a chest film immediately after central venous access to confirm adequate position of the catheter and check for the abovementioned complications. Complications associated with long term vascular access include infection (local or systemic bacteremia), occlusion of the catheter, and chronic erosion of the catheter through the wall of the vessel with extravasation. Deep venous thrombosis can occur due to nidus deposition of fibrin. Catheter breakage with embolization is another complication of long standing access.

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