Surgical Therapy of Inflammatory Diseases of the Pancreas: from Resection to Organ Preservation

For a long time surgeons exercised remarkable reserve when dealing with the pancreas. They assigned a sort of noli me tangere warning to this organ they regarded as being hostile to surgery. Consequently, the preservation of the pancreas was not in jeopardy. Due to the particular features of the pancreas it took a long time before diseases of this organ could be diagnosed. Disturbed functions were diagnosed before morphological changes were detected. X-rays, scans, and endoscopic examination of the ducts finally made the pancreas "transparent". These advances, along with the increase in inflammatory and tumor diseases of the organ, which had been treated conservatively, increased the role of surgery.

Different organ-preserving and resection methods with different therapeutic goals have become established in the surgical management of inflammatory diseases of the pancreas. Standards (whether actual or assumed), including those applied to clinical studies, were adopted and then abandoned – which is no wonder, given such a morphologically and functionally unique organ as the pancreas.

Acute Pancreatitis

Acute pancreatitis is divided into mildly edematous and severely necrotizing forms, according to clinical and morphological criteria. The autodigestion of the pancreas continues to represent a catastrophe in the pathology of the abdominal cavity. Its fatal course was long considered unstoppable, the patient either failing to survive the early phase of the toxic shock or dying later from septic complications. Even though intensive care medicine managed to reduce the total mortality, severe forms with extensive necrosis and local complications were still fatal. The failure of conservative medicine
and the new understanding of the pathogenesis of acute pancreatitis led to a return to surgical management, which had its modest beginnings in the last century. For the necessarily strict indication for surgery the disease must be clinically staged. For this purpose a staging system was developed [10, 20]. Our Mainz classification system comprising three disease stages (mild/edematous, moderate/partially necrotizing, severe/extensively necrotizing) included ultrasonography and computed tomography (CT) early on to determine changes in the pancreatic parenchyma and thus to distinguish between the two major forms of disease [12]. Hence, the influence of imaging methods was crucial to the surgical management.

The time factor governs whether or not “early” surgery should be performed after treatment has failed; that is, during the first 7–10 days after necrosis has set in, but before life-threatening organ complications occur [11]. Early operation to remove the necroses of the organ and its vicinity ranges from simple removal of the necroses (digitoclasia, “as much as necessary, as little as possible”) to subtotal left resection. Many surgeons took a very aggressive approach in that they did not limit themselves to the necroses, but removed the entire organ including the duodenum, parts of the stomach, and extrahepatic bile ducts – a procedure I rejected as carrying too many risks [1]. Surgical zeal was soon curbed as it became easier to estimate the extent of the necrosis. It became evident – and was then confirmed by angio-CT – that a healthy parenchyma is preserved in the nucleus of the resection material. By removing only the necrosis this vital pancreatic tissue could be spared and thus the risk of overtreatment prevented.

Survival of the acute phase of necrotizing pancreatitis after successful intensive care, despite massive destruction of the parenchyma, depends on whether or not there is bacterial contamination of the necroses. Infected necrosis is thus an important prognostic factor in determining the course and the outcome of the disease. The diagnosis of infected necrosis by means of fine-needle aspiration is the decisive criterion for surgery, as well as for mandatory antibiotic treatment [4].

Infected necrosis in its postacute stage is characterized by demarcation, sequestration, liquefaction, and abscess formation. These findings lead to further deterioration and require “delayed” surgery [17], which consists of draining the abscesses, removing the necroses as radically as possible, and draining the abscess and necrosis cavities. Effective drainage and irrigation systems were developed to make sure of complete drainage to avoid having to perform repeat laparotomies. Necrectomy was combined with continuous bursa lavage [5], scheduled reoperation (staged reexploration) [22], or with open drainage [6]. The closed treatment seems to be superior to the open method.

The role of surgery in biliary pancreatitis to debride extrahepatic bile ducts lost importance to endoscopic therapy. This applied not only to the rare incarcerated papilla stone, but also to the severe forms of biliary