

Summary

Management of pancreatic stump in laparoscopic distal pancreatectomy

Pancreatic fistula is a major postoperative complication after pancreatic resection. One of the main risk factors of developing the pancreatic fistula after distal pancreatectomy is the method employed for the management of the pancreatic remnant. Manual suture of the pancreatic remnant has been shown to be superior over other techniques. However, this technique is not feasible in laparoscopic approach.

The aim of the work is to analyze the rate of pancreatic fistula in a group of patients with open distal pancreatectomy. In the experimental part of the work to test a novel method for reinforcing pancreatic remnant on a porcine model and to compare this novel method with method routinely used - transection of the pancreas with a stapler. Then to introduce the laparoscopic distal pancreatic resection to human medicine.

In the experimental part, laparoscopic distal pancreatectomy with spleen and splenic vessels preservation was performed in ten female domestic pigs. The experimental animals were divided into two groups. In the first group the pancreas was transected using a standard device, an EndoGIA Universal Stapler, whereas in the second group, the pancreas was transected using a Ligasure device and the pancreatic remnant was reinforced with hydrogel sealant Pleuraseal. The process of healing of the pancreatic remnant was evaluated in three categories: 1) clinical postoperative course, including weight change, 2) macroscopic findings at the surgical revision 14 days after the laparoscopic operation, 3) microscopic findings at the resection line of the pancreatic remnant.

Clinical postoperative course was uneventful in both groups, all animals gained weight. No differences were observed in pancreatic remnant healing between the groups, and only minor microscopic alterations of the healing process were found.

The novel technique using Ligasure transection reinforced by the hydrogel sealant Pleuraseal is feasible and safe technique, which seems to be comparable with the standard transection technique using stapler.

Based on the experience with the experimental work, we introduced the laparoscopic distal pancreatectomy to the human medicine. It is technically very demanding procedure which requires advanced laparoscopic skills as well as experience with open pancreatic resections.