To drain or not to drain in perforated peptic ulcer

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In their study, published in the current issue of the Journal of Experimental and Integrative Medicine, Ansari et al investigated the role of prophylactic abdominal drain usage in perforated peptic ulcer (PPU), a frequently performed surgical procedure in the emergency departments [1]. Surgical treatment of PPU has not changed much, i.e. primary closure of the perforation and careful cleansing of the abdominal cavity, since it was described by Johann von Mikulicz-Radecki (1850-1905)[2, 3].

There have been different applications related to drain usage and drain numbers in different centers. While a single drain (subhepatic) or two drains (subhepatic and pelvic) are placed usually, in case of perforation, the number of drains can reach to three or four (suprahepatic and splenic). Recently, the role of drain usage after abdominal surgeries have begun to be questioned and many surgical interventions that were accompanied with abdominal drains in the past (gastric resections, colon resection-anastomosis, liver surgery, splenectomy, etc) are now being carried out without drains.

The main reasons forcing surgeons to use drains are mostly the need for early detection of anastomotic leaks or bleeding and the need for the drainage of infected intra-abdominal collections. However, especially with the widespread use of computed tomography (CT) and ultrasonography, these complications can be detected easily. In addition, by the help of dynamic monitoring of patients, an intra-abdominal infection or abscess can be detected at an early stage. Studies show that drains do not reduce the risk of intra-abdominal infection; on the contrary, they increase the risk of wound infection [4, 5]. In a questionnaire carried out by Moshe Schein, 80 percent of the surgeons answered that they would not leave a drain after primary suture and omentoplasty [4]. In their study, Petrowsky et al concluded that the “omentum patch technique for perforated ulcer appears to be safe without prophylactic drainage, and routine drainage cannot be recommended” [6].

In the present work of Ansari et al [1], the specific group, excluded from the study (>2 cm perforation site, duration more than 72 hours after the onset of symptoms, patients with septic shock) constitutes the principal points to be discussed. But there are still questions to be answered: We wonder whether additional drains (pelvic, splenic, supra-hepatic, etc) alter the outcome of patients with abdominal sepsis or not, and we also wonder whether they can reduce the incidence of additional surgical procedures. In a study of Pai and co-workers [5], it was shown that the use of multiple abdominal drains, in case of peritonitis, did not reduce the incidence of intra-abdominal collection or abscess. And in the study of Ansari and co-workers [1], it was shown that the use of drains in a mild or moderate clinical condition, caused by PPU, is not beneficial and drain related morbidities are usually underestimated.

On the other hand, since time interval between the onset of perforation and surgery is quite crucial, accepting all the patients with PPU disease as a homogenous group would result in mismanagement of the problem. Up to 24 hours, the risk of intra-abdominal infection development is low, but it increases significantly after 48 hours. The size of the perforation (>2 cm) and extent of the intra-abdominal contamination are important factors in determining the use of drain(s) or not. Although the abdomen is irrigated with 6-10 liters of warm saline, the risk of interloop abscess development may be still high. Furthermore, for low-volumed centers that do not have imaging techniques such as CT, omitting the effects of a subhepatic drain would not be realistic. Using a drain won’t avoid the need for reoperation if leakage develops, but it may provide early warning if there is a leak that requires reoperation. Although a subhepatic drain can not prevent leakage from the duodenal suture line, it can control the source of infection by creating a controlled external fistula. In daily practice, if the PPU patient presents with generalized intra-abdominal collection we usually prefer a subhepatic drain, and in case of peritonitis, we do not hesitate to place an additional pelvic drain.
References

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