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LETTER TO THE EDITOR

Minimally invasive treatment of postsurgical biliary complications: the role of interventional radiology

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Dear Sirs,

We read with great interest the paper by Adolfo Cuendis-Velázquez et al. entitled "Minimally invasive approach (robotic and laparoscopic) to biliary-enteric fistula secondary to cholecystectomy bile duct injury" recently published in the Journal of Robotic Surgery [1]. In this paper, authors reported on the robotic/laparoscopic treatment of postsurgical biliary damage to minimize the invasiveness of treatment. This novel technique represent a very interesting further step toward the minimization of invasiveness of surgical treatment in patients with postsurgical biliary complications.

However, when dealing with such frail patients, multidisciplinary discussion might be useful, as other non-surgical options should be taken into account and offered to the patient, to further minimize the invasiveness of the treatment [2]. Particularly, endoscopic and interventional radiological procedures should be considered and discussed, as they might provide relevant advantages to patients with postsurgical biliary complications with minimal invasiveness. In case of postsurgical biliary complications, endoscopic management is actually often proposed as the first strategy when feasible. When endoscopy cannot be performed, percutaneous radiological treatments can be evaluated to provide effective treatment avoiding surgical reoperation [3, 4].

Several different radiological procedures can be offered to patients with postsurgical biliary complications. In case of presence of a postoperative biliary fistula, percutaneous biliary drainage (PTBD) might be used to divert the bile from the site of the fistula and to promote its spontaneous healing, with the minimal invasiveness of a small percutaneous drainage. When PTBD positioning is not enough, placement of an occlusion balloon proximal to the site of the fistula might further improve the healing process by completely interrupting the bile flow at the level of the fistula [5, 6]. Another interventional option in the treatment of postoperative biliary fistulas is represented by percutaneous injection of glue at the level of the fistula. This approach has been reported to be successful in cases not responsive to standard PTBD, and effective in avoiding major surgical reoperation [7, 8].

Another critical biliary complication that might determine major morbidity and require reoperation is represented by the onset of a post-surgical biliary stricture. Also in this occurrence, percutaneous interventions can be successfully performed for cases in which endoscopic management fails or cannot be performed [2, 3]. PTBD and bilioplasty are the most widely used percutaneous techniques in the treatment of postsurgical biliary strictures, and can be performed with minimal invasiveness and limited complications rate [9]. However, rate of restenosis after those approaches is still quite elevated, and patients often need to carry an external drainage for long periods. To overcome this limitation, and to improve not only the technical result but particularly the benefit for the patients [10], the percutaneous insertion of biodegradable biliary stents has recently been proposed and validated in multicentric trials [11, 12]. With this technique, it is possible to achieve the sustained resolution of a postsurgical biliary stenosis without the need for the patients to carry for long time an external drainage catheter, with a fast return to the normal every-day activities.

In conclusion, efforts to minimize the invasiveness of surgical re-interventions in patients with biliary complications

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are highly valuable, and the technique reported by Cuendis-Valez et al. holds the potential of relevant benefit for patients. However, in our opinion, multidisciplinary discussion of patients with biliary postsurgical complications is crucial, as several non-surgical options can be offered to the patients to avoid the invasiveness of even the less invasive surgical reoperation.

Compliance with ethical standards

Conflict of interest Valerio Ferrara, Luca Nicosia, Luca Maria Sconfienza and Giovanni Mauri declare that they have no conflict of interest.

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