there is no doubt that similar training curricula can be achieved with less cost. The validated, FLS-model sponsored by SAGES and ACS, for example, offers an affordable training solution\(^7\); however, the cost of hiring an instructor must be borne by training programs. Instructor feedback to trainees is essential for optimal skill acquisition. On the other hand, resident training in the operating room is also associated with a considerable cost.\(^8,9\) Because residents trained on simulators enter the operating room with more skills, the training in the operating room and therefore the cost may be decreased, consequently, simulator training may, at least partially, pay for itself.

Finally, we agree with Drs Rulli and Galata that operating room performance may be influenced by a number of factors other than pure manual skill (referred to as “emotional” factors by these authors), such as performance anxiety, fatigue, unfamiliarity with the operating room, and other stress-inducing situations. Such factors may affect performance considerably and could/should therefore be incorporated into simulator training to provide a more realistic experience. Nevertheless, an initial attempt from our skills laboratory to increase simulator training difficulty and realism failed to show trainee benefit in the operating room.\(^3\)

Tools such as the NASA-TLX workload assessment questionnaire\(^10\) facilitate the assessment of “emotional” factors such as mental, physical, and temporal demands of a task and frustration, effort, and self-evaluated performance of the learner and can be used during simulator training. We have used this tool successfully in previous studies.\(^3\)

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References

Middle hepatic vein reconstruction of right liver graft using the glutaraldehyde-treated acellular bovine pericardium

To the Editors:

Adult-to-adult living donor liver transplantation (LDLT) using the right lobe graft has been carried out widely to compensate for cadaveric organ shortage. One of the shortcomings of using the right lobe graft without middle hepatic vein (MHV) (modified right lobe graft) is that potential congestion may occur in the anterior sector of the graft, which would be especially dangerous in the case where marginal volume graft is used. Thus, reconstruction of MHV and its tributaries (V5 and V8) of modified right lobe graft is widely carried out.

Various techniques and materials for reconstruction of MHV in modified right lobe graft have been developed to attain favorable venous outflow. The representative techniques of outflow reconstruction in the modified right lobe graft with MHV reconstruction can be classified as follows: direct and separate anastomosis of graft right hepatic vein (RHV) and reconstructed MHV to the recipient’s corresponding veins or vena cava, formation of common outflow trunk of graft RHV and MHV, and modified piggyback anastomosis to the recipient’s caval opening.\(^1,2\) The merit of the former technique is that the reconstruction of MHV and anastomosis to the recipient’s vein could be carried out with interposition vessels of relatively narrow caliber. However, separate anastomosis of RHV and MHV could lead to serious problems. RHV in the graft are often short, making end-to-end anastomosis with recipient’s RHV difficult, which may result in inappropriate anastomosis leading to graft congestion.\(^4\) Furthermore, in the end-to-end MHV anastomosis, a rapid
liver regeneration after LDLT could displace MHV to the left, which would result in the obstruction of MHV flow.\textsuperscript{2,5} The latter technique could overcome the problems of separate anastomosis technique, but it requires relatively large-sized venous patch that is not always available in Korea because cadaveric donors are scarce.

We report our procedure of MHV reconstruction in modified right lobe graft LDLT to form graft common outflow trunk with glutaraldehyde-treated acellular bovine pericardium. We have applied bovine pericardium, as an alternative of large size venous material for reconstruction of MHV, in 3 cases of modified right lobe graft LDLT and the results were favorable.

After donor hepatectomy, the distance between the most distal V5 and RHV was measured at the bench to design the length of the bovine pericardium. The bovine pericardium that will make up the floor of the reconstructed MHV was cut in a long rectangular shape. V5, V8, and RHV were anastomosed to the bovine pericardium patch. A larger bovine pericardium patch was then prepared and designed to form a 3-dimensional roof of MHV and it was anastomosed to the floor of the bovine pericardium patch. After the anastomosis, the graft formed a single wide common outflow trunk (Fig 1, A and B). After total hepatectomy of the recipient’s liver, the recipient’s right, middle, and left hepatic veins were opened to make a single wide caval opening. A modified piggyback anastomosis was carried out between the common venous outflow of the graft and the recipient’s caval opening (Fig 1, C and D). The porto-systemic shunt is usually not necessary because this type of modified piggyback anastomosis takes about 10 minutes only.

The postoperative computerized tomography (CT) of our cases showed a favorable outflow of the graft (Fig 2), and the pressure gradient between the recipient’s inferior vena cava (IVC) and the reconstructed venous outflow was measured only about 1 to 2 mm Hg.
at postoperative 1 week. There were no postoperative complications such as infection, calcification, or rupture. All 3 patients were discharged with good liver function and are currently maintaining adequate liver function today (2 to 6 months follow-up). However, because bovine pericardium is inelastic and inextensible like a sheet of paper, some practice and experience in handling the material might be necessary to successfully design and reconstruct the graft outflow.

In conclusion, bovine pericardium patch, instead of large-sized homologous venous material, can be used for the reconstruction of the outflow of the modified right lobe graft using the technique introduced here, to carry out a wide piggyback anastomosis. Furthermore, in our experience, this reconstruction technique with bovine pericardium is also effective for securing the venous outflow of the modified right lobe graft without serious complications.

Fig 2. Computed tomography follow-up of reconstructed graft outflow tract. The wide outflow of the reconstructed MHV was patent and not disturbed by liver regeneration.

References

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Re: “Intraductal papillary-mucinous neoplasms and mucinous cystic neoplasms of the pancreas differentiated by ovarian-type stroma”

To the Editors:
We appreciate Dr Goh’s interest in our article, “Intraductal papillary-mucinous neoplasms (IPMNs) and mucinous cystic neoplasms (MCNs) of the pancreas differentiated by ovarian-type stroma.”

Several reports have suggested that the risk of patients with IPMN developing synchronous or metachronous primary extrapancreatic cancers is high, ranging from 24% to 39%. In our series, 12 (17%) of the 70 patients with IPMN developed extrapancreatic cancers, with 1 patient with MCN developing breast cancer (14%). The extrapancreatic malignancies consisted of gastric cancer (3 patients), colon cancer (2 patients), lung cancer (2 patients), and esophageal, renal, bladder, hepatocellular, and uterine cancer (1 patient each). Two patients developed two cancers, and three patients died of the extrapancreatic cancers. Based on these results, we believe that considerable attention should be paid to the possible occurrence of malignant neoplasms in other organs in patients with IPMN of the pancreas, concurrently or postoperatively.

International consensus guidelines for treatment of IPMN and MCN proposed the term “indeterminate mucin-producing cystic neoplasm of the pancreas” when mucin-producing pancreatic cystic lesions were seen in men or postmenopausal women that have neither ovarian-type stroma nor typical histologic features of branch duct IPMN, such as a thin wall, grape-like appearance, and a communication with the pancreatic duct. In our series, 6 patients (3 male, 3 female) who were diagnosed as MCN by imaging findings preoperatively were diagnosed finally as IPMN by pathologic examinations (absence of ovarian-type stroma). None of these patients had the typical histologic feature of a grape-like appearance on imaging; 4 had a unilocular cyst; and 2 patients had a multilocular cyst with cyst-in-cyst appearance. Communication between cyst and main pancreatic duct was found in 3 patients. We classified these 6 patients as branch duct IPMN, because we maintain that MCN should be defined by the presence of ovarian-type stro-