According to Ascioti et al. [17], the thoracic inlet must be enlarged to allow the jejunum to enter the neck without constriction. This is a cumbersome procedure requiring bone resection, increasing the median operating time to 12 h and blood loss to 1,000 ml [17]. The posterior mediastinal route is the shortest and most direct route, but it has the disadvantage of making it difficult to perform microvessel anastomosis. After passing the bowel through the thoracic cavity into the neck region, tension on the mesentery may compromise perfusion of the middle jejunal segment [22]. Also, if the esophageal remnant becomes ischemic, although rarely observed, it could be a serious complication. The antethoracic route is the longest route with cosmetic problems, but it is the safest route in case local complications occur [20].

Our approach might be difficult to apply to all cases in Western countries because patients have higher body mass indexes and probably more fatty mesenterium. In fact, four reports from the Western institutions did not use the subcutaneous route [17, 22–24] in contrast to four reports from Eastern institutions [11, 16, 25, 26] (Table 4). The retrosternal or posterior mediastinal route could be options for patients with fatty mesenterium, but, again, we would avoid such routes whenever possible.

In the current study, there were no deaths, and no patients suffered from necrosis of the pedicled jejunum. One of the reasons for the success could be that 70 % of the patients had stage I and II tumors. Anastomotic leakage, one of the most serious complications of esophageal reconstruction, occurred in two patients (7.4 %) but healed conservatively. In all, 96 % of the patients tolerated a normal diet when they left the hospital. Several patients complained of obstruction or dysphasia, although after 1 year all of the patients were eating a normal diet without serious complaints. The median operating time of 10.5 h was comparable to times described in the literatures (mean/median 7–12 h) [11, 16, 17, 27]. Recent developments in perioperative and anesthesia management may have contributed to improved outcomes of esophageal surgery [14, 17].

Reconstruction with the supercharge technique requires the cooperation of plastic surgeons. Thus, the authors believe that complicated cases of esophageal cancer should be referred to a specialized facility equipped with resources in terms of both medical staff and equipment [28].

Conclusions

In this study of antethoracic pedicled jejunum reconstruction with the supercharge technique, we observed acceptable short-term outcomes with no mortality and good functional results for long-term outcomes. It is a reliable technique, contributes to successful reconstruction after esophagectomy for gastrectomized patients with esophageal cancer, and can be a substitute for the colon interposition procedure.

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