A Novel Large Background Sheet for Creating a Clear Microsurgical Field

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INTRODUCTION

For smooth vascular anastomosis, it is important to create a microsurgical field that is free of blood-pooling. However, with conventional background sheets (BGS) for vascular anastomosis, the lumens of blood vessels are often invisible due to blood-pooling. Furthermore, blood vessels should be visually separate. Then, we developed a large BGS that exposes only blood vessels and keeps the microsurgical field clear. We also investigated its usefulness in vascular anastomosis.

METHODS AND RESULTS

Our BGS have been used for all vascular anastomosis we have performed in 2019. We created this large BGS from a green surgical glove (Sensi-Derm; Ansell, Iselin, N.J.). The glove was cut to cover the microsurgical field as much as possible; then, we created holes for blood vessels considering the length of each blood vessel and the anastomotic position. The hole size was about 1.7 times the diameters of the blood vessels. The blood vessels were guided on the sheet without twisting and trauma. After vascular anastomosis, we carefully cut and removed the sheet without damaging the vessels. The sequence of the procedure is shown in Video 1 (See Video 1 [online], which displays the sequence of the procedure using our large BGS for creating a clear microsurgical field).

No twisting and trauma to the blood vessels were observed intraoperatively. The average operative time for one vascular anastomosis, including preparation time, in 2019, using our newly developed BGS [13 vessels, 37.3 minutes (31–45)], was significantly less than that in 2018, using conventional BGS [19 vessels, 52.5 minutes (47–65)].

DISCUSSION

Although BGS are widely used for vascular anastomosis, to our knowledge, there are only a few reports on BGS in the literature. Nambi et al placed a small feeding tube between gauzes and made a BGS from surgical gloves for wrapping gauzes. However, handling their BGS was difficult due to the thickness of the material and the large space with long dissection of vessels. Contrarily, our BGS requires easy handling due to its thinness and simplicity with no long dissection of vessels. Furthermore, suction backgrounds (eg, MicroMat, PMT Corp, Chanhassen, Minn.) are commercially available and homemade suction BGS have been reported. They are useful for minimizing blood pooling; however, our BGS may be better because it is cheap and readily available.

BGS color is important for a smooth vascular anastomotic procedure. Similar to commercially available green-colored BGS, our green-colored BGS complements the red color of blood vessels, and its luminosity is different from that of the black-colored microsurgical thread. Therefore, in anastomotic procedures, our BGS could be visually separated from blood vessels and the microsurgical thread.

In conclusion, we suggest that our BGS would facilitate smooth vascular anastomosis.
REFERENCES

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